

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Introduction to Aerospace Propulsion

Subject Co-ordinator - Prof. Bhaskar Roy, Prof. A M Pradeep

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Intro & Historical development of flights

Lecture 2 - Early development of aircraft propulsive devices

Lecture 3 - Development of Jet propulsion for aircraft

Lecture 4 - Introduction to thermodynamics, Scope and method, Basic concepts

Lecture 5 - Quasi-static processes, zeroth law of thermodynamics and temperature, concept of energy and its v

Lecture 6 - Specific heats at constant pressure and volume Work and heat transfers

Lecture 7 - Tutorial

Lecture 8 - First law of thermodynamics for closed systems

Lecture 9 - First law of thermodynamics for open systems/flow processes

Lecture 10 - Second law of thermodynamics, heat engines, refrigerators and heat pumps, Kelvin-Planck and Clau

Lecture 11 - Reversible and irreversible processes, concept of entropy

Lecture 12 - Increase of entropy principle, third law of thermodynamics, absolute entropy, perpetual motion m

Lecture 13 - Tutorial

Lecture 14 - Carnot cycle, Carnot principle, thermodynamic temperature scale

Lecture 15 - Exergy, availability and second law efficiency

Lecture 16 - Tutorial

Lecture 17 - Gas and vapour power cycles, Otto cycle, Diesel cycle, Dual cycle

Lecture 18 - Rankine cycle, Brayton cycle, Stirling and Ericsson cycles

Lecture 19 - Thermodynamic property relations, Jacobean and Legendre transformations, Maxwell's equations

Lecture 20 - Tutorial

Lecture 21 - Properties of gas and vapour mixtures

Lecture 22(A) - One-dimensional compressible flows, isentropic flows

Lecture 22(B) - Flows with friction and heat transfer, normal and oblique shocks

Lecture 23 - Piston-prop engines

Lecture 24 - IC Engines for aircraft application

Lecture 25 - Performance parameters of IC engines

Lecture 26 - Supercharging of aircraft IC engines

Lecture 27 - Tutorial

Lecture 28 - Propeller fundamentals

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- Lecture 29 - Propeller aerodynamic theories - I
- Lecture 30 - Propeller aerodynamic theories - II
- Lecture 31 - Tutorial
- Lecture 32 - Ideal cycles for Jet engines
- Lecture 33 - Ideal cycles for variants of jet engines
- Lecture 34 - Tutorial
- Lecture 35 - Fundamentals of Ramjets and Pulsejets
- Lecture 36 - Fundamentals of Rocket engines
- Lecture 37 - Fundamentals of Missile engines
- Lecture 38 - Various space vehicles and their engines
- Lecture 39 - Closure of the lecture series

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Jet Aircraft Propulsion

Subject Co-ordinator - Prof. A M Pradeep, Prof. Bhaskar Roy

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction & Development of Jet Aircraft Propulsion  
Lecture 2 - How the Aircraft Jet Engines make Thrust  
Lecture 3 - Jet Engine Basic Performance Parameters  
Lecture 4 - Turbojet, Reheat Turbojet and Multi-spool Engines  
Lecture 5 - Turbofan, Turbo-prop and Turboshift engines  
Lecture 6 - Ideal and Real Brayton cycles  
Lecture 7 - Jet Engine Cycles for Aircraft propulsion  
Lecture 8 - Cycle components and component performances  
Lecture 9 - Tute-1  
Lecture 10 - Analysis of engine real cycles  
Lecture 11 - Tute-2  
Lecture 12 - Thermodynamics of Compressors  
Lecture 13 - Thermodynamics of Turbines  
Lecture 14 - Axial Compressors  
Lecture 15 - Cascade analysis; Loss and Blade performance estimation  
Lecture 16 - Free Vortex theory; Single-Multi-stage characteristics  
Lecture 17 - Tutes-3  
Lecture 18 - Elements of centrifugal compressor  
Lecture 19 - Centrifugal Compressor characteristics  
Lecture 20 - Axial flow turbines; Turbine Blade 2-D (cascade) analysis  
Lecture 21 - Multi-staging  
Lecture 22 - Radial Turbine Aerodynamics & Thermodynamics; Losses  
Lecture 23 - Tutes-4  
Lecture 24 - Types of combustion chambers  
Lecture 25 - Pr. Loss, Combustion efficiency; Combustion intensity  
Lecture 26 - Practical combustion system ; Stability, Fuel injection  
Lecture 27 - Intakes for Powerplant  
Lecture 28 - Subsonic, Transonic, Supersonic Intake Designs  
Lecture 29 - Nozzle

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- Lecture 30 - C-D nozzle and their uses
- Lecture 31 - Tute-5
- Lecture 32 - Engine Off Design Operations
- Lecture 33 - Aircraft Engine component matching
- Lecture 34 - Engine component matching and Sizing
- Lecture 35 - Installed Performance of Engine
- Lecture 36 - Tute-6
- Lecture 37 - Use of Ramjets and Pulsejets in Aircraft propulsion
- Lecture 38 - Thermodynamic Cycle & Performance Parameters
- Lecture 39 - Flow in Diffusers, Combustors and Nozzles
- Lecture 40 - Performance and Design of Ramjet & Scramjet Engines
- Lecture 41 - Tute-7
- Lecture 42 - Future of Aircraft Propulsion



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Turbomachinery Aerodynamics

Subject Co-ordinator - Prof. Bhaskar Roy, Prof. A M Pradeep

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Turbo machines Syllabus, References and Schedules

Lecture 2 - Axial Flow Compressors and Fans

Lecture 3 - A two dimensional analytical model

Lecture 4 - 2D losses in Axial flow Compressor Stage

Lecture 5 - Tutorial 1

Lecture 6 - 3D Flows in Blade Passages, Secondary Flows, Tip leakage Flow, Scrubbling

Lecture 7 - Three Dimensional Flow Analysis

Lecture 8 - Classical Blade Design Laws

Lecture 9 - Three Dimensional Flow Analysis in Axial Flow Compressor

Lecture 10 - Tutorial 2

Lecture 11 - Axial Compressor Characteristics

Lecture 12 - Instability in Axial Compressors

Lecture 13 - Inlet Distortion and Rotating Stall, Control of Instability

Lecture 14 - Transonic Compressors and Shock Structure Models, Transonic Compressor Characteristics

Lecture 15 - Axial Flow Compressor Design, Inter Spool Duct

Lecture 16 - Design of Compressor Blades, Aerofoil Design (Subsonic, Transonic, Supersonic Profiles )

Lecture 17 - Design of Compressor Blade

Lecture 18 - Noise Problem in Axial Compressors and Fans

Lecture 19 - Axial Flow Turbines

Lecture 20 - Axial Flow Turbines

Lecture 21 - Axial Flow Turbines

Lecture 22 - Axial Flow Turbines

Lecture 23 - Tutorial 3

Lecture 24 - Multi staging and Multi spooling of Turbine

Lecture 25 - 3D Flow in Turbine

Lecture 26 - Tutorial 4

Lecture 27 - Turbine Blade Cooling â Fundamentals of Heat Transfer, Blade Cooling Requirements

Lecture 28 - Turbine Blade Cooling Technologies

Lecture 29 - Turbine Blade Design

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- Lecture 30 - Turbine Blade Design
- Lecture 31 - Centrifugal Compressors
- Lecture 32 - Centrifugal Compressors
- Lecture 33 - Tutorial 5
- Lecture 34 - Design of Centrifugal Compressors
- Lecture 35 - Radial Turbines
- Lecture 36 - Tutorial 6
- Lecture 37 - Radial Turbine Characteristics and Design of Radial Turbines
- Lecture 38 - CFD for Turbomachinery
- Lecture 39 - CFD for Turbomachinery
- Lecture 40 - CFD for Turbomachinery

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Aerospace Engineering

Subject Co-ordinator - Prof. Rajkumar Pant

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Layout and Brief Introduction of Course Instructor
- Lecture 2 - Introduction to International Standard Atmosphere (ISA)
- Lecture 3 - Pressure, Temperature, Density and Viscosity Variation with Altitude in ISA
- Lecture 4 - Other Standard Atmospheres
- Lecture 5 - Aircraft Component Nomenclature - Wing and its Components
- Lecture 6 - Aircraft Component Nomenclature - Fuselage and its Components
- Lecture 7 - Aircraft Component Nomenclature - Tail Plane and its Components
- Lecture 8 - Tutorial 1 - Aircraft Component Nomenclature
- Lecture 9 - Essentials of Incompressible Flow - Part I
- Lecture 10 - Essentials of Incompressible Flow - Part II
- Lecture 11 - Bernoulli's Equation and Coanda Effect
- Lecture 12 - Mach Number
- Lecture 13 - Tutorial 2 - Incompressible Flow and Flow Visualization
- Lecture 14 - Viscous Flow and Reynolds Number
- Lecture 15 - Introduction to Boundary Layer
- Lecture 16 - Pressure Measurement
- Lecture 17 - Air Speed Measurement - Pitot Static Tube
- Lecture 18 - Air Speed Corrections
- Lecture 19 - Altitude and ROC/ROD Measurement
- Lecture 20 - Measurements in Compressible Flows
- Lecture 21 - Non Pneumatic Instruments
- Lecture 22 - Introduction to Aerofoils and Aerofoil Nomenclature
- Lecture 23 - Aerofoils - A Visit to the Past
- Lecture 24 - Thick Aerofoils
- Lecture 25 - Low Reynolds Number Aerofoils
- Lecture 26 - Lift Generation by Wings - Part I
- Lecture 27 - Lift Generation by Wings - Part II
- Lecture 28 - Coefficient of Lift and Coefficient of Pressure
- Lecture 29 - Tutorial on Aerofoils

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- Lecture 30 - Critical Mach Number
- Lecture 31 - Wave Drag
- Lecture 32 - Swept Wings
- Lecture 33 - Introduction to Drag and Types of Drag
- Lecture 34 - Factors Affecting Induced Drag
- Lecture 35 - Skin Friction Drag
- Lecture 36 - Tutorial on Critical Mach Number and Wave Drag
- Lecture 37 - Introduction to Propulsion
- Lecture 38 - Gas Turbine Engine Types - Part I
- Lecture 39 - Gas Turbine Engine Types - Part II
- Lecture 40 - Introduction to Electric Propulsion and Ion Propulsion
- Lecture 41 - Steady Level Flight
- Lecture 42 - Power Required for the Steady Level Flight
- Lecture 43 - Steady Level Flight - A Pilot's View
- Lecture 44 - Tutorial on Steady Level Flight
- Lecture 45 - Gliding Flight
- Lecture 46 - Climbing Flight and Ceiling
- Lecture 47 - Introduction to Turning Flight
- Lecture 48 - Turning Flight Equations
- Lecture 49 - Instantaneous and Sustained Turn
- Lecture 50 - Tutorial on Climbing Flight and Turning Flight
- Lecture 51 - Introduction to Static Stability
- Lecture 52 - Aerodynamic Center and Effect of Center of Gravity
- Lecture 53 - Effect of Center of Gravity - A Practical Demonstration
- Lecture 54 - Introduction to V-n Diagram
- Lecture 55 - V-n Diagram as per FAR 23 Regulations
- Lecture 56 - Effect of Gusts on V-n Diagram
- Lecture 57 - Tutorial on Stability and Control
- Lecture 58 - Range
- Lecture 59 - Specific Fuel Consumption and Generalized Range Equation
- Lecture 60 - Endurance
- Lecture 61 - Take-off Performance of Flight - Part I
- Lecture 62 - Take-off Performance of Flight - Part II
- Lecture 63 - Landing Performance of Flight
- Lecture 64 - Tutorial on Range Payload Diagram
- Lecture 65 - Tutorial on Range and Endurance
- Lecture 66 - Flapping Wing Aerodynamics - Part I
- Lecture 67 - Flapping Wing Aerodynamics - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Aircraft Design

Subject Co-ordinator - Prof. Rajkumar Pant

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Aircraft Design
- Lecture 2 - Aircraft Design Process
- Lecture 3 - Design Stages
- Lecture 4 - Phases in Aircraft Design
- Lecture 5 - The Design Spiral
- Lecture 6 - Importance of Cost in Aircraft Design
- Lecture 7 - Basic Laws of Aircraft Design
- Lecture 8 - Requirements Capture
- Lecture 9 - Quality Function Deployment
- Lecture 10 - House of Quality Chart
- Lecture 11 - Example of HoQ for HALE UAV
- Lecture 12 - Illustration of HOQ-GA aircraft
- Lecture 13 - Airliners
- Lecture 14 - Key Issues in Design of Airliners
- Lecture 15 - Design Considerations - Future Airliners
- Lecture 16 - Supersonic Transport Aircraft
- Lecture 17 - Airliner and Supersonic Aircraft, some additional concepts
- Lecture 18 - Design Considerations - Cargo Aircraft
- Lecture 19 - Design Considerations - GA Aircraft
- Lecture 20 - Types of Military Aircraft
- Lecture 21 - Cargo, GA and Military Aircraft, Some additional concepts
- Lecture 22 - Aircraft Configuration Design
- Lecture 23 - Podded Engines on Wings
- Lecture 24 - Wing Sweep
- Lecture 25 - Canards and Flying Wing
- Lecture 26 - Three Surface Aircraft
- Lecture 27 - Winglets
- Lecture 28 - Thrust Vectoring
- Lecture 29 - Few Novel Concepts\_01

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- Lecture 30 - Aircraft Configuration Design - Closing Remarks
- Lecture 31 - Choices in Aircraft Layout
- Lecture 32 - Wing Geometry Definitions
- Lecture 33 - Options for Wing layout
- Lecture 34 - Propulsion System Layout
- Lecture 35 - Tail Plane Layout
- Lecture 36 - Landing Gear Layout - Part 1
- Lecture 37 - Landing Gear Layout - Part 2
- Lecture 38 - Landing Gear of some Famous Aircraft
- Lecture 39 - Tutorial on OpenVSP
- Lecture 40 - Initial Sizing in Aircraft Design
- Lecture 41 - Estimation of Empty Weight Fraction
- Lecture 42 - Estimation of Mission Segment Weights
- Lecture 43 - Estimation of Fuel Weight Fractions
- Lecture 44 - Estimation of maximum L/D
- Lecture 45 - Estimation of engine parameters
- Lecture 46 - Estimation of Design gross weight
- Lecture 47 - Take-off weight build up
- Lecture 48 - Tutorial on Initial Sizing of Transport Aircraft
- Lecture 49 - Tutorial on Initial Sizing of Military Aircraft
- Lecture 50 - Subsonic Parasite Drag Estimation
- Lecture 51 - Component Buildup Method
- Lecture 52 - Drag Estimation of Military Aircraft
- Lecture 53 - Tutorial on Drag Polar Estimation of Military Aircraft
- Lecture 54 - Estimation of Lift Coefficient
- Lecture 55 - Estimation of Maximum Lift Coefficient
- Lecture 56 - Flaps as High Lift Devices
- Lecture 57 - Tutorial on Lift Coefficient Estimation of Transport Aircraft
- Lecture 58 - Tutorial on Lift Coefficient Estimation of Military Aircraft
- Lecture 59 - Constraint Analysis- Introductory Remarks
- Lecture 60 - Constraint Analysis- Transport Aircraft - Part 1
- Lecture 61 - Constraint Analysis- Transport Aircraft - Part 2
- Lecture 62 - Tutorial on Constraint Analysis of Transport Aircraft - Part 1
- Lecture 63 - Tutorial on Constraint Analysis of Transport Aircraft - Part 2
- Lecture 64 - Constraint Analysis- Military Aircraft
- Lecture 65 - Tutorial on Constraint Analysis of Military Aircraft - Part 1
- Lecture 66 - Tutorial on Constraint Analysis of Military Aircraft - Part 2
- Lecture 67 - Refined Sizing
- Lecture 68 - Tutorial on Refined Sizing of Jet Fighter Aircraft

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- Lecture 69 - Cost Estimation in Aircraft Conceptual Design
- Lecture 70 - Aircraft Life Cycle Cost Estimation
- Lecture 71 - Tutorial on RDT&E and Production Cost Estimation of Transport Aircraft
- Lecture 72 - Tutorial on DT&E and Production Cost Estimation of HALE UAV
- Lecture 73 - Estimation of Direct Operating Cost
- Lecture 74 - Fighter Aircraft Life Cycle Cost Estimation Model
- Lecture 75 - Range Payload Diagram - Part 1
- Lecture 76 - Range Payload Diagram - Part 2
- Lecture 77 - Tutorial on Range Payload Diagram of Transport Aircraft
- Lecture 78 - Environmental issues in Aircraft Design
- Lecture 79 - Limit Manoeuvre Envelope
- Lecture 80 - Effect of Gust
- Lecture 81 - Aircraft Loads
- Lecture 82 - Tutorial on V-n Diagram of Transport Aircraft
- Lecture 83 - High Altitude Long Endurance (HALE) Aircraft
- Lecture 84 - Morphing of Aircraft Configurations
- Lecture 85 - Guest Lecture on Air Power and Multi-role Fighter Aircraft - Part 1
- Lecture 86 - Guest Lecture on Air Power and Multi-role Fighter Aircraft - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Launch Vehicle Analysis and Design

Subject Co-ordinator - Prof. Ashok Joshi

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Course Plan  
Lecture 3 - Ascent Mission Basics  
Lecture 4 - Force and Geometry Models - 1  
Lecture 5 - Force and Geometry Models - 2  
Lecture 6 - Idealized Performance  
Lecture 7 - Trajectory Under Gravity  
Lecture 8 - Impact of Gravity  
Lecture 9 - Impact of Drag  
Lecture 10 - Curvilinear Motion Concept  
Lecture 11 - Constant Pitch Rate Solution  
Lecture 12 - Constant Velocity Solution  
Lecture 13 - Constant (T/m) Solution  
Lecture 14 - Ascent Mission Design  
Lecture 15 - Multi-stage Rocket Basics  
Lecture 16 - Multi-stage Configuration Basics  
Lecture 17 - Multi-stage Solution Basics  
Lecture 18 - Multi-stage Problem Definition  
Lecture 19 - Optimal Staging Strategy  
Lecture 20 - Lagrange Solution  
Lecture 21 - Approximate Staging Solution  
Lecture 22 - Variant Concept  
Lecture 23 - Variant Design Solution  
Lecture 24 - Parallel Staging Concept  
Lecture 25 - Parallel Staging Benefits  
Lecture 26 - Jet Damping and Ballistic Missiles  
Lecture 27 - Current Rocket Concepts  
Lecture 28 - Launch Widow and SSTO Concepts  
Lecture 29 - Reentry Concept

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- Lecture 30 - Ballistic Reentry Solution
- Lecture 31 - Lifting and Other Reentry Modes
- Lecture 32 - Concluding Remarks
- Lecture 33 - Rectilinear Trajectories
- Lecture 34 - Curvilinear Trajectories
- Lecture 35 - Multi-stage Rocket Concept
- Lecture 36 - Optimal Multi-stage Solutions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Lighter than Air Systems

Subject Co-ordinator - Prof. Rajkumar Pant

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course Content
- Lecture 2 - Differences between LTA and HTA systems
- Lecture 3 - The three conventional LTA systems
- Lecture 4 - LTA gases, Types of Airships and their components
- Lecture 5 - Introduction of Skyship 600 and USP of Airships
- Lecture 6 - Applications of Airships
- Lecture 7 - Tethered Aerostat systems
- Lecture 8 - Why use Aerostats
- Lecture 9 - Some Queries on Aerostats
- Lecture 10 - Historical developments of LTA systems - Part I
- Lecture 11 - Historical developments of LTA systems - Part II
- Lecture 12 - Historical developments of LTA systems - Part III
- Lecture 13 - Historical developments of LTA systems - Part IV
- Lecture 14 - Historical developments of LTA systems - Part V
- Lecture 15 - Historical developments of LTA systems - Part VI
- Lecture 16 - Overview of PADD
- Lecture 17 - Remote Controlled Airships
- Lecture 18 - Autonomous Airships
- Lecture 19 - Indoor Blimp Projects by students
- Lecture 20 - Biomimetic Airships
- Lecture 21 - Introduction to Buoyancy
- Lecture 22 - Basic Concepts of Aerostatics
- Lecture 23 - Ballasting, Weigh off and Fuel weight recovery
- Lecture 24 - In flight Ballast Collection methods
- Lecture 25 - Static Lift Prediction - Part I
- Lecture 26 - Static Lift Prediction - Part II
- Lecture 27 - Tutorial Problem 1 on Static Lift Estimation
- Lecture 28 - Effect of Humidity and Vapour Pressure
- Lecture 29 - Calculation of Ambient Air Density

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- Lecture 30 - Tutorial Problem 2 and 3 on Static Lift Estimation
- Lecture 31 - Effect of Lifting Gas Purity, Superpressure and Superheat
- Lecture 32 - Ballonet Air Weight Estimation
- Lecture 33 - Net Static Lift of non rigid airships
- Lecture 34 - Net Static Lift for other LTA systems
- Lecture 35 - Tutorial Problem 4 on Net Static Lift Estimation
- Lecture 36 - Parameters affecting Static Lift
- Lecture 37 - Effect of change in Atmospheric Pressure
- Lecture 38 - Tutorial Problem 5 on Change in Atmospheric Pressure
- Lecture 39 - Effect of Superpressure
- Lecture 40 - Tutorial Problem 6 on effect of Superpressure
- Lecture 41 - Effect of Slow change in Atmospheric Temperature and Superheat
- Lecture 42 - Effect of Rapid change in Atmospheric Temperature
- Lecture 43 - Tutorial Problem 7 on Change in Atmospheric Temperature and Superheat
- Lecture 44 - Revision and Tutorial Problem 08 and 09 on Affecting Parameters of Static Lift
- Lecture 45 - Effect of change in Relative Humidity
- Lecture 46 - Effect of change in Lifting Gas Purity
- Lecture 47 - Effect of change in Lifting Gas Volume
- Lecture 48 - Determination of Inflation Fraction
- Lecture 49 - Flight To Lower Ground Elevation
- Lecture 50 - Tutorial Problem 10 on Helium Addition
- Lecture 51 - Outdoor Hot Air Balloon
- Lecture 52 - Pressure Height
- Lecture 53 - Tutorial Problem 11 on Pressure Height Calculation
- Lecture 54 - Sea Level Inflation Fraction
- Lecture 55 - Flight above Pressure Height
- Lecture 56 - Effect of Change in Operating Altitude
- Lecture 57 - Tutorial Problem 12 on Lifting Gas Loss
- Lecture 58 - Descent Following Exceedance
- Lecture 59 - Pressure Height for other LTA Vehicles
- Lecture 60 - Discussion of Practice Questions
- Lecture 61 - Envelope Materials - Part I
- Lecture 62 - Envelope Materials - Part II
- Lecture 63 - Envelope Materials - Part III
- Lecture 64 - Fabric Testing Machines - Part I
- Lecture 65 - Fabric Testing Machines - Part II
- Lecture 66 - Need for Ground Handling
- Lecture 67 - Aerium Hanger for CL 160 Airship
- Lecture 68 - Ground Handling of Airships

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- Lecture 69 - Types of Mooring Masts and Design Requirements
- Lecture 70 - Nose Battens for Envelopes
- Lecture 71 - Need for Airship Design Methodology
- Lecture 72 - Overview of Airship Design Methodology ADM
- Lecture 73 - Details of Airship Design Methodology ADM
- Lecture 74 - Inputs to Airship Design Methodology - Part 1
- Lecture 75 - Inputs to Airship Design Methodology - Part 2
- Lecture 76 - Design Constants in Airship Design Methodology
- Lecture 77 - Outputs from Airship Design Methodology
- Lecture 78 - Statistical Data Used in Airship Design Methodology
- Lecture 79 - Validation of Airship Design Methodology
- Lecture 80 - Envelope Shapes for LTA Systems
- Lecture 81 - Example of Application of Airship Design Methodology
- Lecture 82 - Conclusions and Limitations of Airship Design Methodology
- Lecture 83 - Sizing Procedure for Indoor Remotely Controlled Airships - Part 1
- Lecture 84 - Sizing Procedure for Indoor Remotely Controlled Airships - Part 2
- Lecture 85 - Sizing Procedure for Indoor Remotely Controlled Airships - Part 3
- Lecture 86 - Tutorial on Sizing of an Indoor Non Rigid Remotely Controlled Airship
- Lecture 87 - Transportation Problems Faced by Remote Regions
- Lecture 88 - Airships vs Helicopters - Part I
- Lecture 89 - Airships vs Helicopters - Part II
- Lecture 90 - Chaar Dham Yatra - Part I
- Lecture 91 - Chaar Dham Yatra - Part II
- Lecture 92 - Chaar Dham Yatra - Part III
- Lecture 93 - Steam and IC engines for Airships
- Lecture 94 - Electric motors for Airships
- Lecture 95 - Turboprops for Airships
- Lecture 96 - Solar Propulsion and Thrust Vectoring on Airships
- Lecture 97 - Lectuer on Dynamics
- Lecture 98 - Lectuer on Drag
- Lecture 99 - Aerodynamic Stability
- Lecture 100 - Added Mass Effects
- Lecture 101 - Introduction to Aerostat Design Methodology
- Lecture 102 - Inputs for Aerostat Design Methodology
- Lecture 103 - Design Constants in Aerostat Design Methodology
- Lecture 104 - Overview of Aerostat Design Methodology
- Lecture 105 - Equilibrium Analysis of Aerostats - Part I
- Lecture 106 - Equilibrium Analysis of Aerostats - Part II
- Lecture 107 - Methodology for Tether Profile Estimation

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- Lecture 108 - Sizing of Reusable Indoor Hot Air Balloon
- Lecture 109 - Tutorial on Sizing of RIHAB
- Lecture 110 - Features of Hybrid Airships
- Lecture 111 - Technological challenges in HALE Platforms development - Part I
- Lecture 112 - Technological challenges in HALE Platforms development - Part II
- Lecture 113 - Initial sizing of Stratospheric Airships
- Lecture 114 - Introduction to Hybrid Airships
- Lecture 115 - Lockheed Martin's P 791 Hybrid Airship
- Lecture 116 - Aeroscraft ML 866 Hybrid Airship
- Lecture 117 - SkyCat Hybrid Airship
- Lecture 118 - Rotary and Winged Hybrid Airships
- Lecture 119 - Hybrid Ultra Heavy Lift Cargo Vehicle Transport
- Lecture 120 - Features of Hybrid Airships
- Lecture 121 - Solar Powered Airships

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Elements of Mechanical Vibration

Subject Co-ordinator - Prof. Ashish K Darpe

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

Lecture 21

Lecture 22

Lecture 23

Lecture 24

Lecture 25

Lecture 26

Lecture 27

Lecture 28 - LABORATORY SESSION (Introduction)

Lecture 29 - EXPERIMENT 1

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Lecture 30 - EXPERIMENT 2  
Lecture 31 - EXPERIMENT No. 2  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35 - LABORATORY SESSION #3  
Lecture 36 - LABORATORY SESSION #4  
Lecture 37 - LABORATORY SESSION #5  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41 - LABORATORY SESSION #6  
Lecture 42 - LABORATORY SESSION #7  
Lecture 43 - LABORATORY SESSION #8  
Lecture 44  
Lecture 45  
Lecture 46  
Lecture 47  
Lecture 48

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Aero Elasticity

Subject Co-ordinator - Prof. C. Venkatesan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Aero elasticity  
Lecture 2 - Aero elasticity  
Lecture 3 - Aero elasticity  
Lecture 4 - Aero elasticity  
Lecture 5 - Aero elasticity  
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Lecture 24 - Aero elasticity  
Lecture 25 - Aero elasticity  
Lecture 26 - Aero elasticity

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Foundation of Scientific Computing

Subject Co-ordinator - Prof. Tapan K. Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

Lecture 21

Lecture 22

Lecture 23

Lecture 24 (Same as Lecture 23)

Lecture 25

Lecture 26

Lecture 27

Lecture 28

Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Instability and Transition of Fluid Flows

Subject Co-ordinator - Prof. Tapan K. Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Instability and Transition of Fluid Flows  
Lecture 2 - Instability and Transition of Fluid Flows  
Lecture 3 - Instability and Transition of Fluid Flows  
Lecture 4 - Instability and Transition of Fluid Flows  
Lecture 5 - Instability and Transition of Fluid Flows  
Lecture 6 - Instability and Transition of Fluid Flows  
Lecture 7 - Instability and Transition of Fluid Flows  
Lecture 8 - Instability and Transition of Fluid Flows  
Lecture 9 - Instability and Transition of Fluid Flows  
Lecture 10 - Instability and Transition of Fluid Flows  
Lecture 11 - Instability and Transition of Fluid Flows  
Lecture 12 - Instability and Transition of Fluid Flows  
Lecture 13 - Instability and Transition of Fluid Flows  
Lecture 14 - Instability and Transition of Fluid Flows  
Lecture 15 - Instability and Transition of Fluid Flows  
Lecture 16 - Instability and Transition of Fluid Flows  
Lecture 17 - Instability and Transition of Fluid Flows  
Lecture 18 - Instability and Transition of Fluid Flows  
Lecture 19 - Instability and Transition of Fluid Flows  
Lecture 20 - Instability and Transition of Fluid Flows  
Lecture 21 - Instability and Transition of Fluid Flows  
Lecture 22 - Instability and Transition of Fluid Flows  
Lecture 23 - Instability and Transition of Fluid Flows  
Lecture 24 - Instability and Transition of Fluid Flows  
Lecture 25 - Instability and Transition of Fluid Flows  
Lecture 26 - Instability and Transition of Fluid Flows  
Lecture 27 - Instability and Transition of Fluid Flows  
Lecture 28 - Instability and Transition of Fluid Flows  
Lecture 29 - Instability and Transition of Fluid Flows

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Instability and Transition of Fluid Flows
- Lecture 31 - Instability and Transition of Fluid Flows
- Lecture 32 - Instability and Transition of Fluid Flows
- Lecture 33 - Instability and Transition of Fluid Flows
- Lecture 34 - Instability and Transition of Fluid Flows
- Lecture 35 - Instability and Transition of Fluid Flows
- Lecture 36 - Instability and Transition of Fluid Flows
- Lecture 37 - Instability and Transition of Fluid Flows
- Lecture 38 - Instability and Transition of Fluid Flows
- Lecture 39 - Instability and Transition of Fluid Flows

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Introduction to Helicopter Aerodynamics and Dynamics

Subject Co-ordinator - Prof. A.R. Manjunath, Prof. C. Venkatesan

Co-ordinating Institute - IIT - Kanpur | HAL

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 2 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 3 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 4 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 5 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 6 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 7 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 8 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 9 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 10 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 11 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 12 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 13 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 14 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 15 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 16 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 17 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 18 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 19 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 20 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 21 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 22 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 23 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 24 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 25 - Introduction to Helicopter Aerodynamics and Dynamics  
Lecture 26 - Introduction to Helicopter Aerodynamics and Dynamics

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Introduction to Propulsion

Subject Co-ordinator - Dr. D.P. Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Aerospace Propulsion
- Lecture 2 - Fundamentals of Aerospace Propulsion
- Lecture 3 - Fundamentals of Aerospace Propulsion
- Lecture 4 - Fundamentals of Aerospace Propulsion
- Lecture 5 - Fundamentals of Aerospace Propulsion
- Lecture 6 - Fundamentals of Aerospace Propulsion
- Lecture 7 - Fundamentals of Aerospace Propulsion
- Lecture 8 - Fundamentals of Aerospace Propulsion
- Lecture 9 - Fundamentals of Aerospace Propulsion
- Lecture 10 - Fundamentals of Aerospace Propulsion
- Lecture 11 - Fundamentals of Aerospace Propulsion
- Lecture 12 - Fundamentals of Aerospace Propulsion
- Lecture 13 - Fundamentals of Aerospace Propulsion
- Lecture 14 - Fundamentals of Aerospace Propulsion
- Lecture 15 - Fundamentals of Aerospace Propulsion
- Lecture 16 - Fundamentals of Aerospace Propulsion
- Lecture 17 - Fundamentals of Aerospace Propulsion
- Lecture 18 - Fundamentals of Aerospace Propulsion
- Lecture 19 - Fundamentals of Aerospace Propulsion
- Lecture 20 - Fundamentals of Aerospace Propulsion
- Lecture 21 - Fundamentals of Aerospace Propulsion
- Lecture 22 - Fundamentals of Aerospace Propulsion
- Lecture 23 - Fundamentals of Aerospace Propulsion
- Lecture 24 - Fundamentals of Aerospace Propulsion
- Lecture 25 - Fundamentals of Aerospace Propulsion
- Lecture 26 - Fundamentals of Aerospace Propulsion
- Lecture 27 - Fundamentals of Aerospace Propulsion
- Lecture 28 - Fundamentals of Aerospace Propulsion
- Lecture 29 - Fundamentals of Aerospace Propulsion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Fundamentals of Aerospace Propulsion  
Lecture 31 - Fundamentals of Aerospace Propulsion  
Lecture 32 - Fundamentals of Aerospace Propulsion  
Lecture 33 - Fundamentals of Aerospace Propulsion  
Lecture 34 - Fundamentals of Aerospace Propulsion  
Lecture 35 - Fundamentals of Aerospace Propulsion  
Lecture 36 - Fundamentals of Aerospace Propulsion  
Lecture 37 - Fundamentals of Aerospace Propulsion  
Lecture 38 - Fundamentals of Aerospace Propulsion  
Lecture 39 - Fundamentals of Aerospace Propulsion  
Lecture 40 - Fundamentals of Aerospace Propulsion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Jet and Rocket Propulsion

Subject Co-ordinator - Dr. A. Kushari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Jet and Rocket Propulsion  
Lecture 2 - Jet and Rocket Propulsion  
Lecture 3 - Jet and Rocket Propulsion  
Lecture 4 - Jet and Rocket Propulsion  
Lecture 5 - Jet and Rocket Propulsion  
Lecture 6 - Jet and Rocket Propulsion  
Lecture 7 - Jet and Rocket Propulsion  
Lecture 8 - Jet and Rocket Propulsion  
Lecture 9 - Jet and Rocket Propulsion  
Lecture 10 - Jet and Rocket Propulsion  
Lecture 11 - Jet and Rocket Propulsion  
Lecture 12 - Jet and Rocket Propulsion  
Lecture 13 - Jet and Rocket Propulsion  
Lecture 14 - Jet and Rocket Propulsion  
Lecture 15 - Jet and Rocket Propulsion  
Lecture 16 - Jet and Rocket Propulsion  
Lecture 17 - Jet and Rocket Propulsion  
Lecture 18 - Jet and Rocket Propulsion  
Lecture 19 - Jet and Rocket Propulsion  
Lecture 20 - Jet and Rocket Propulsion  
Lecture 21 - Jet and Rocket Propulsion  
Lecture 22 - Jet and Rocket Propulsion  
Lecture 23 - Jet and Rocket Propulsion  
Lecture 24 - Jet and Rocket Propulsion  
Lecture 25 - Jet and Rocket Propulsion  
Lecture 26 - Jet and Rocket Propulsion  
Lecture 27 - Jet and Rocket Propulsion  
Lecture 28 - Jet and Rocket Propulsion  
Lecture 29 - Jet and Rocket Propulsion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Jet and Rocket Propulsion  
Lecture 31 - Jet and Rocket Propulsion  
Lecture 32 - Jet and Rocket Propulsion  
Lecture 33 - Jet and Rocket Propulsion  
Lecture 34 - Jet and Rocket Propulsion  
Lecture 35 - Jet and Rocket Propulsion  
Lecture 36 - Jet and Rocket Propulsion  
Lecture 37 - Jet and Rocket Propulsion  
Lecture 38 - Jet and Rocket Propulsion  
Lecture 39 - Jet and Rocket Propulsion  
Lecture 40 - Jet and Rocket Propulsion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Airplane Performance

Subject Co-ordinator - Dr. A.K. Ghosh, Dr. Deepu Philip

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General Introduction
- Lecture 2 - George Cayley
- Lecture 3 - Introduction to airplane and its components
- Lecture 4 - Hansa 3 Aircraft and its Primary Systems
- Lecture 5 - Concept of Lift Aerofoil
- Lecture 6 - Drag Polar
- Lecture 7 - Revision
- Lecture 8 - Standard Atmosphere
- Lecture 9 - Measuring Instruments
- Lecture 10 - Equations of Motion
- Lecture 11 - Thrust Required, Power Required
- Lecture 12 - Excess Thrust and Power
- Lecture 13 - Review
- Lecture 14 - Thrust Required
- Lecture 15 - Modeling of CL
- Lecture 16 - A Closer Look
- Lecture 17 - Estimation of Drag Polar Through Flight Test
- Lecture 18 - Estimation of Rate of Climb
- Lecture 19 - Revision.
- Lecture 20 - Range and Endurance
- Lecture 21 - Range and Endurance
- Lecture 22 - Gliding Flight
- Lecture 23 - Accelerated Flight
- Lecture 24 - V-n Diagram
- Lecture 25 - Revision..
- Lecture 26 - V stall
- Lecture 27 - Flaps
- Lecture 28 - Take off
- Lecture 29 - Take off Performance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Take off Performance
- Lecture 31 - Revision...
- Lecture 32 - Landing Performance
- Lecture 33 - Landing Performance
- Lecture 34 - Challenges in Takeoff and Landing
- Lecture 35 - Introduction to Static Stability
- Lecture 36 - Positioning of Center of Pressure for Static Stability
- Lecture 37 - Revision.....
- Lecture 38 - Stability and Control
- Lecture 39 - Stability and Control
- Lecture 40 - Longitudinal Control
- Lecture 41 - Contribution of Wing and Tail
- Lecture 42 - Stability
- Lecture 43 - Control
- Lecture 44 - Control
- Lecture 45 - Control
- Lecture 46 - Design Basics
- Lecture 47 - Design Basics
- Lecture 48 - Revision.

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Stability and control of aircraft

Subject Co-ordinator - Dr. A.K. Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction to Static Stability  
Lecture 3 - Stability and Trim  
Lecture 4 - Stability  
Lecture 5 - Stability  
Lecture 6 - Problems  
Lecture 7 - Problems  
Lecture 8 - Neutral Point and Fuselage Contribution Completed  
Lecture 9 - Longitudinal Control Completed  
Lecture 10 - Longitudinal Control (Continued...)  
Lecture 11 - Control  
Lecture 12 - CL\_trim Vs  $\alpha_{trim}$   
Lecture 13 - Neutral Point  
Lecture 14 - Contribution of Engine towards Stability  
Lecture 15 - Revision  
Lecture 16 - Trim  
Lecture 17 - Trim  
Lecture 18 - Maneuvering Point  
Lecture 19 - Numerical  
Lecture 20 - Revision (Lecture20)  
Lecture 21 - Directional Stability  
Lecture 22 - Directional Control  
Lecture 23 - Lateral Stability and Control  
Lecture 24 - Numericals  
Lecture 25 - Lecture - 25 Revision  
Lecture 26 - Stick Free Stability  
Lecture 27 - Stick Free Stability (Continued...)  
Lecture 28 - Hinge Moment and Hinge Moment Derivative  
Lecture 29 - Aircraft Handling Qualities

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Aircraft Handling Qualities (Continued...)
- Lecture 31 - Reversible Control
- Lecture 32 - Numericals
- Lecture 33 - Numericals
- Lecture 34 - Handling Qualities
- Lecture 35 - Determination of Neutral Point and Maneuvering Point by Flight Experiment
- Lecture 36 - Ponit Mass Equation of Motion
- Lecture 37 - Forces and Moments
- Lecture 38 - Aircraft Equations of Motion
- Lecture 39 - Six Degrees of Freedom of an Aircraft
- Lecture 40 - 6 DoF
- Lecture 41 - Vector in a Rotating Frame
- Lecture 42 - Euler Angles
- Lecture 43 - Small Perturbation Theory
- Lecture 44 - Small Perturbation Theory (Continued...)
- Lecture 45 - Perturbed Equations of Motion
- Lecture 46 - Perturbed Force
- Lecture 47 - Perturbed Force
- Lecture 48 - Perturbed Pitching Moment
- Lecture 49 - Longitudinal Dimensional Stability Derivatives
- Lecture 50 - Dynamic Stability
- Lecture 51 - Longitudinal Modes
- Lecture 52 - Short Period and Phugoid Approximations
- Lecture 53 - Pure Pitching Motion
- Lecture 54 - Stability Augmentation System (SAS)
- Lecture 55 - Lateral-Directional Motion
- Lecture 56 - Tutorial - 1
- Lecture 57 - Tutorial - 2
- Lecture 58 - Tutorial - 3
- Lecture 59 - Tutorial - 4
- Lecture 60 - History of Aviation

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Engineering Thermodynamics

Subject Co-ordinator - Dr. D.P. Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Thermodynamics and its Applications
- Lecture 2 - System and its Surroundings
- Lecture 3 - Property of System
- Lecture 4 - Energy and its Various Forms
- Lecture 5 - Concepts of Equilibrium and its State
- Lecture 6 - Energy and its Interactions
- Lecture 7 - Heat Interactions
- Lecture 8 - Thermodynamic Properties of Fluids - 1
- Lecture 9 - Thermodynamic Properties of Fluids - 2
- Lecture 10 - Thermodynamic Properties of Fluids - 3
- Lecture 11 - Thermodynamic Properties of Fluids - 4
- Lecture 12 - Thermodynamic Properties of Fluids - 5
- Lecture 13 - First Law of Thermodynamics for Cyclic Process
- Lecture 14 - First Law of Thermodynamics for Non-cyclic Process - 1
- Lecture 15 - First Law of Thermodynamics for Non-cyclic Process - 2
- Lecture 16 - Control Mass and Control Volume
- Lecture 17 - First Law of Thermodynamics for Steady Flow Processes
- Lecture 18 - First Law of Thermodynamics for Unsteady Flow Processes
- Lecture 19 - First Law of Thermodynamics to Reacting Systems
- Lecture 20 - Second Law of Thermodynamics
- Lecture 21 - Second Law of Thermodynamics
- Lecture 22 - Second Law of Thermodynamics
- Lecture 23 - Second Law of Thermodynamics
- Lecture 24 - Applications of Second Law of Thermodynamics
- Lecture 25 - Applications of Second Law of Thermodynamics
- Lecture 26 - Exergy
- Lecture 27 - Gas Turbine Cycle
- Lecture 28 - Vapor Power Cycle - 1
- Lecture 29 - Vapor Power Cycle - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Vapor Power Cycle - 3
- Lecture 31 - Gas Power Cycles - 1
- Lecture 32 - Gas Power Cycles - 2
- Lecture 33 - Refrigeration Cycles
- Lecture 34 - Non-Reacting Mixture and Psychrometry
- Lecture 35 - Gas-Vapor Mixture and Air Conditioning - 1
- Lecture 36 - Gas-Vapor Mixture and Air Conditioning - 2
- Lecture 37 - Thermodynamic Property Relations - 1
- Lecture 38 - Thermodynamic Property Relations - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Aircraft Dynamic Stability and Design Stability Augmentation

Subject Co-ordinator - Dr. A.K. Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Dynamic Stability
- Lecture 2 - Spring-Mass-Damper System
- Lecture 3 - Spring-Mass-Damper System
- Lecture 4 - Laplace Transform
- Lecture 5 - Pitch Dynamics
- Lecture 6 - Numericals
- Lecture 7 - Aircraft Rigid Body Equation of Motion
- Lecture 8 - Six Degree of Freedom Equation of Motion
- Lecture 9 - Vector in Rotating Frame
- Lecture 10 - Forces and Moments on Aircraft
- Lecture 11 - Euler Angles
- Lecture 12 - Trajectory of the Aircraft
- Lecture 13 - Small Perturbation Theory
- Lecture 14 - Perturbed Aerodynamic Forces and Moments
- Lecture 15 - U-derivatives
- Lecture 16 - Alpha - derivatives
- Lecture 17 - Alpha Dot Derivatives
- Lecture 18 - q and delta Derivatives
- Lecture 19 - Dimensional Stability Derivatives
- Lecture 20 - Longitudinal Characteristic Equation
- Lecture 21 - Routh's Criteria and Longitudinal Dynamic Stability
- Lecture 22 - Longitudinal Modes
- Lecture 23 - Short period Mode Approximation
- Lecture 24 - Long Period Mode (Phugoid) Approximation
- Lecture 25 - Lateral Directional Stability Derivatives
- Lecture 26 - Lateral Directional Stability Derivatives (Continued...)
- Lecture 27 - Perturbed Equation of Motion for Lateral Dynamics
- Lecture 28 - Modes of Lateral Directional Dynamics
- Lecture 29 - Spiral and Dutch Roll modes Approximation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Routh's Hurwitz Stability Criterion
- Lecture 31 - Introduction to Stability Augmentation
- Lecture 32 - Pure Yawing and Pure Rolling Motion
- Lecture 33 - SAS for Longitudinal Dynamics
- Lecture 34 - SAS for Lateral Dynamics
- Lecture 35 - Flight Handling Qualities
- Lecture 36 - Numericals
- Lecture 37 - Revision
- Lecture 38 - Mode Shape
- Lecture 39 - Mode Shape
- Lecture 40 - Numericals
- Lecture 41 - Stability Augmentation System
- Lecture 42 - Numericals
- Lecture 43 - Numericals

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Ancient Indian Technology

Subject Co-ordinator - Dr. D.P. Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Ancient Indian Civilization
- Lecture 2 - Ancient Indian Civilization's Gift to the World
- Lecture 3 - Why do we need to look at Ancient Indian Science and Technology?
- Lecture 4 - Glimpses of Ancient Indian Science and Technology
- Lecture 5 - Brief Review of Ancient Indian Scriptures
- Lecture 6 - Basic Principles of carrying out science and technology
- Lecture 7 - Arrays of Physics, chemistry and Indoor games
- Lecture 8 - Marvels of Ancient Indian Technology
- Lecture 9 - Introduction to Indian Agriculture
- Lecture 10 - Problems arising due to modern agricultural practices
- Lecture 11 - Pesticides and soil degradation
- Lecture 12 - Agriculture - A Primary Productive Activity
- Lecture 13 - An Agricultural Tools - A Plough
- Lecture 14 - Soil and seeds
- Lecture 15 - Sowing Methods
- Lecture 16 - Indigenous cattle and manuring
- Lecture 17 - Ancient Indian Textile Technology
- Lecture 18 - Handlooms and Charkha
- Lecture 19 - Different types of Handlooms
- Lecture 20 - Ancient Rural Indian Housing
- Lecture 21 - Thatched Roof House
- Lecture 22 - Rural Walls and Roof materials
- Lecture 23 - Indus Valley and Harappan Civilization
- Lecture 24 - First and Second of Indian Civilization
- Lecture 25 - Town topologies and Brick and Tile making process
- Lecture 26 - Availability of Water and Freshwater
- Lecture 27 - Ancient Indian Wells
- Lecture 28 - Temple Water tanks and Dams
- Lecture 29 - Tank Irrigation system and Rainwater Harvesting

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Waterbodies - Lakes and Canals
- Lecture 31 - Sluices and Embankments
- Lecture 32 - World of Materials
- Lecture 33 - Metals - Gold Silver Lead
- Lecture 34 - History of Copper
- Lecture 35 - Iron during Vedic period
- Lecture 36 - Iron smelting process in ancient India
- Lecture 37 - Iron and Steel crafts in ancient India
- Lecture 38 - Extraction and smelting of Zinc in Ancient India
- Lecture 39 - Metal Casting in Ancient India
- Lecture 40 - Glass Technology in Ancient India

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Experiments in Flight

Subject Co-ordinator - Prof. Mahendra Verma, Dr. A.K. Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Weighment and Calculation of CG (Theory)
- Lecture 2 - Cruise Experiment (Theory)
- Lecture 3 - Weighment Experiment and cockpit panel description
- Lecture 4 - Drag Polar Experiment
- Lecture 5 - CG and Climb Experiment
- Lecture 6 - Calibration of Control Surface
- Lecture 7 - Calibration of Control Surfaces (Experiment)
- Lecture 8 - Introduction to Flight Data Recorder
- Lecture 9 - Sensors - Part I
- Lecture 10 - Sensors - Part II
- Lecture 11 - Data Acquisition using MEMS devices
- Lecture 12 - Estimation of Stick-Fixed Neutral Point
- Lecture 13 - Estimation of Stick-Free Neutral Point and Stick-Free Maneuvering Point
- Lecture 14 - Static
- Lecture 15 - Static
- Lecture 16 - Steady Coordinated Turn
- Lecture 17 - Introduction to Parameter Estimation
- Lecture 18 - Parameter Estimation using Least Squares Method
- Lecture 19 - Aerodynamic Parameter Estimation using Least Squares Method
- Lecture 20 - Aerodynamic Parameter Estimation using Delta Method
- Lecture 21 - Aerodynamic Parameter Estimation using Delta Method (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Engineering Thermodynamics (2017)

Subject Co-ordinator - Dr. Jayant K. Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamental laws of nature, system definitions and applications
- Lecture 2 - Thermodynamic property, state, equilibrium and process
- Lecture 3 - Temperature scale and pressure
- Lecture 4 - Macroscopic and microscopic forms of energy
- Lecture 5 - Different forms of work, energy transfer and sign convention
- Lecture 6 - First law of thermodynamics and energy balance
- Lecture 7 - Efficiency of mechanical and electrical devices
- Lecture 8 - Examples on basic concept and energy balance
- Lecture 9 - Phase change of a pure substance
- Lecture 10 - Property diagrams of pure substances
- Lecture 11 - Thermodynamic properties of a pure substance from a property table
- Lecture 12 - Thermodynamic properties of a pure substance
- Lecture 13 - Equations of state and compressibility chart
- Lecture 14 - Examples on properties of pure substances
- Lecture 15 - Quasi equilibrium, moving boundary work
- Lecture 16 - Polytropic process
- Lecture 17 - Energy analysis of closed system and unrestrained expansion
- Lecture 18 - Internal energy, enthalpy, and specific heats of ideal gas
- Lecture 19 - Internal energy, enthalpy, and specific heats of solids and liquids
- Lecture 20 - Examples on energy balance for closed systems and moving boundary work
- Lecture 21 - Conservation of mass and steady flow processes
- Lecture 22 - Flow work and energy of flowing fluid
- Lecture 23 - Energy balance for steady flow devices
- Lecture 24 - Throttling valve, mixing chamber and heat exchanger
- Lecture 25 - Energy analysis of steady and unsteady flow devices
- Lecture 26 - Examples on mass and energy analysis of open systems
- Lecture 27 - Second law of thermodynamics, heat engine and cyclic devices
- Lecture 28 - COP of refrigerator and heat pump, second law statements
- Lecture 29 - Perpetual motion machines, reversible and irreversible processes, Carnot cycle

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Carnot principles, thermodynamic temperature scale, Carnot HE and HP
- Lecture 31 - Examples on second law of thermodynamics
- Lecture 32 - Clausius inequality, application of second law
- Lecture 33 - Entropy, increase in entropy principle, isentropic process
- Lecture 34 - Change in entropy of solids, liquids and ideal gases
- Lecture 35 - Reversible flow work, multistage compressor, efficiency of pump and compressors
- Lecture 36 - Entropy balance in closed system and control volume
- Lecture 37 - Examples on entropy change in a system
- Lecture 38 - Exergy and second law efficiency
- Lecture 39 - Exergy of a fixed mass and flowing stream
- Lecture 40 - Exergy transfer due to heat, mass and work, exergy destruction
- Lecture 41 - Exergy balance and second law efficiency for closed systems and steady flow devices
- Lecture 42 - Examples related to exergy change and exergy destruction
- Lecture 43 - Gas power cycles and air-standard assumptions
- Lecture 44 - An overview of reciprocating engines and otto cycle
- Lecture 45 - Analysis of Diesel cycle
- Lecture 46 - Analysis of Brayton cycle
- Lecture 47 - Examples on gas power cycles such as Otto, Diesel and Brayton
- Lecture 48 - Rankin and Carnot vapour power cycles
- Lecture 49 - Ideal regenerative Rankin cycle and combined gas-vapour cycle
- Lecture 50 - Refrigeration cycles
- Lecture 51 - Examples on vapour power cycles
- Lecture 52 - Thermodynamic property relations
- Lecture 53 - Thermodynamic property relations
- Lecture 54 - Thermodynamic property relations
- Lecture 55 - Combustion and conservation of mass in a chemical reaction
- Lecture 56 - Energy balance for reacting systems
- Lecture 57 - Enthalpy of formation and combustion, adiabatic flame temperature
- Lecture 58 - Examples on property relations and reaction thermodynamics

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Aircraft Design

Subject Co-ordinator - Dr. A.K. Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Wing Loading and Thrust Loading
- Lecture 3 - Basic Design - Lift and Drag
- Lecture 4 - Range and Endurance
- Lecture 5 - Mission Requirements
- Lecture 6 - Range and Endurance
- Lecture 7 - Fuel Consumption
- Lecture 8 - L/D for Maximum Range and Endurance
- Lecture 9 - Range and endurance for Jet-driven Aircraft
- Lecture 10 - Estimation of Fuel for a Mission
- Lecture 11 - Design Considerations
- Lecture 12 - Design Considerations
- Lecture 13 - Design Considerations
- Lecture 14 - Wing Design
- Lecture 15 - Wing Design
- Lecture 16 - Wing Design
- Lecture 17 - Wing Design
- Lecture 18 - Wing Arrangements
- Lecture 19 - Tail Arrangements
- Lecture 20 - Tail Arrangements (Continued...)
- Lecture 21 - Aircraft Structure
- Lecture 22 - Wing Loading and Power Loading
- Lecture 23 - Thrust Loading and Wing Loading
- Lecture 24 - Thrust Loading
- Lecture 25 - Wing Loading
- Lecture 26 - Wing Loading
- Lecture 27 - Take off
- Lecture 28 - Take off
- Lecture 29 - Wing Loading

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Revision (Wing Loading and Thrust Loading)
- Lecture 31 - Numerical
- Lecture 32 - Wing Loading
- Lecture 33 - Stability Considerations
- Lecture 34 - Static Stability Basics
- Lecture 35 - Wing and tail contribution to Longitudinal Static Stability
- Lecture 36 - Conceptual Design
- Lecture 37 - Conceptual design (Continued...)
- Lecture 38 - Elevator Effectiveness
- Lecture 39 - Elevator Effectiveness (Continued...)
- Lecture 40 - Numerical - Pitching moment
- Lecture 41 - Numerical - Elevator Effectiveness
- Lecture 42 - Aircraft Maintenance Guidelines
- Lecture 43 - Inspection for Aircraft
- Lecture 44 - Numerical of Weight Fraction
- Lecture 45 - Inspection of Sinus 912 Motor Glider
- Lecture 46 - Numericals



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Fundamentals Of Combustion-I

Subject Co-ordinator - Dr. D.P. Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to fundamentals of combustion
- Lecture 2 - Scope and applications of combustion
- Lecture 3 - Scope of combustion (Continued...) and types of fuel and oxidizers
- Lecture 4 - Characterization of liquid and gaseous fuel
- Lecture 5 - Properties of liquid and solid fuels, various modes of combustion
- Lecture 6 - Thermodynamics of combustion
- Lecture 7 - Thermodynamics of combustion (Continued...)
- Lecture 8 - Laws of thermodynamics and Stoichiometry
- Lecture 9 - Stoichiometric calculations for air-gas mixture
- Lecture 10 - Mixture fraction calculation for diffusion flames
- Lecture 11 - Thermochemistry
- Lecture 12 - Heat of reaction and bond energy
- Lecture 13 - Adiabatic flame temperature
- Lecture 14 - Adiabatic flame temperature and its effect on various parameters
- Lecture 15 - Introduction to chemical equilibrium
- Lecture 16 - Chemical equilibrium and Gibbs free energy
- Lecture 17 - Equilibrium constants and Le chatlier principle
- Lecture 18 - Determination of chemical equilibrium composition
- Lecture 19 - Chemical and reaction kinetics
- Lecture 20 - Compact notation and reaction rate of chemical reaction
- Lecture 21 - Collision Theory
- Lecture 22 - Collision theory (Continued...)
- Lecture 23 - Collision frequency of molecules
- Lecture 24 - Specific reaction rate and Arrhenius law
- Lecture 25 - First order, Second order and Third-order reactions
- Lecture 26 - Classification of chemical reactions
- Lecture 27 - Elementary chain reactions
- Lecture 28 - Quasi-steady state and partial equilibrium approximation
- Lecture 29 - Physics of combustion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transport equations and molecular model for transport process
- Lecture 31 - Mean free path length
- Lecture 32 - Lennard-Jones potential model for diffusivity
- Lecture 33 - Lennard-Jones potential model (Continued...)
- Lecture 34 - Mass conservation law
- Lecture 35 - Momentum conservation equation
- Lecture 36 - Introduction to mass transfer
- Lecture 37 - Species transport equation
- Lecture 38 - Energy conservation equation
- Lecture 39 - Conserved scalar approach for one dimensional flows
- Lecture 40 - Introduction to turbulent combustion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Aircraft Maintenance

Subject Co-ordinator - Dr. A.K. Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Rules and Regulations for Civil Aviation in India
- Lecture 2 - Rules and Regulations for Civil Aviation in India (Continued...)
- Lecture 3 - Aircraft Hydraulic System
- Lecture 4 - Aircraft Fuel System
- Lecture 5 - Aircraft Landing Gear System
- Lecture 6 - Aircraft Wheels
- Lecture 7 - Aircraft Brakes System
- Lecture 8 - Basic Aircraft Design
- Lecture 9 - Aircraft Electrical System
- Lecture 10 - Aircraft Electrical Circuit
- Lecture 11 - Inspection of Aircraft
- Lecture 12 - Maintenance Schedule
- Lecture 13 - Maintenance Schedule (Continued...)
- Lecture 14 - Inspection of Cessna 206

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Fundamentals of Combustion - Part 2

Subject Co-ordinator - Dr. D.P. Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Combustion Modes and Classification of Flames
- Lecture 2 - Analysis of One Dimensional Combustion Wave
- Lecture 3 - Analysis of One Dimensional Combustion Wave (Continued...)
- Lecture 4 - Introduction to Laminar Premixed Flame
- Lecture 5 - Structure of One Dimensional Premixed Flame
- Lecture 6 - Laminar Flame Theory for Premixed Flames
- Lecture 7 - Laminar Flame Theory for Premixed Flames (Continued...)
- Lecture 8 - Determination of Laminar Burning Velocity for Premixed Flames
- Lecture 9 - Flame Thickness and Burning Velocity Measurement Methods
- Lecture 10 - Stationary Flame Method for Burning Velocity Measurement
- Lecture 11 - Effects of Chemical and Physical Variables on Burning Velocity
- Lecture 12 - Effects of Chemical and Physical Variables on Burning Velocity (Continued...)
- Lecture 13 - Effect of Inert Additives on Burning Velocity and Flame Extinction
- Lecture 14 - Simplified Analysis for Quenching Diameter
- Lecture 15 - Flammability Limits and Flame Stabilization
- Lecture 16 - Ignition in Premixed Flames
- Lecture 17 - Introduction to Turbulent Premixed Flames
- Lecture 18 - Turbulent Burning Velocity and Premixed Flame Regimes
- Lecture 19 - Introduction to Gaseous Jet Diffusion Flame
- Lecture 20 - Phenomenological Analysis of a Laminar Jet Diffusion Flame
- Lecture 21 - Theoretical Analysis of a Two-Dimensional Diffusion Flame
- Lecture 22 - Theoretical Analysis of a Two-Dimensional Diffusion Flame (Continued...)
- Lecture 23 - Flame Height Estimation and Smoke point in Diffusion Flames
- Lecture 24 - Mechanism of Soot Formation and Introduction to Liquid Fuel Combustion
- Lecture 25 - Introduction to Droplet Combustion
- Lecture 26 - Liquid Droplet Combustion
- Lecture 27 - Droplet Combustion (Continued...)
- Lecture 28 - Droplet Combustion in Convective Environment
- Lecture 29 - Droplet Combustion in Convective Environment and Introduction to Spray Combustion Mode

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Spray Combustion Model
- Lecture 31 - Introduction to Solid Fuel Combustion
- Lecture 32 - Solid Fuel Combustion (Continued...)
- Lecture 33 - Diffusional theory for Carbon Combustion
- Lecture 34 - Carbon Burning Rate
- Lecture 35 - Carbon Burning Rate (Continued...)
- Lecture 36 - Carbon Sphere in Convective Environment
- Lecture 37 - Combustion and Effects on Environment
- Lecture 38 - Chemicals from Combustion
- Lecture 39 - Emission Control Methods
- Lecture 40 - Combustion Modification Methods

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Design of Fixed Wing Unmanned Aerial Vehicles

Subject Co-ordinator - Prof. Saderla Subrahmanyam

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, course content and classification of UAVs
- Lecture 2 - Measurement of Flight Velocity and Standard Atmosphere
- Lecture 3 - Anatomy of Airplane and Airfoil Nomenclature
- Lecture 4 - Examples, Pitot and static tube and differential pressure sensor
- Lecture 5 - Generation of Lift and Drag
- Lecture 6 - Aerodynamic center and center of pressure, Various wing planform
- Lecture 7 - Lifting line theory, NACA airfoil nomenclature
- Lecture 8 - Airfoil and Finite wing, Various wing planform
- Lecture 9 - Interpreting airfoil data,  $C_l$  vs  $\alpha$  and drag polar, selection of airfoil
- Lecture 10 - Introduction to Airplane performance, Equation of motion
- Lecture 11 - Thrust required and Power required
- Lecture 12 - Calculation of Performance parameters and selection of power plant
- Lecture 13 - Climb Performance, Engine Sizing and Power Plant selection
- Lecture 14 - Weight Estimation, Common propulsion systems
- Lecture 15 - Weight Estimation contd., Electric propulsion, Battery Sizing
- Lecture 16 - Iterative weight estimation and Wing sizing
- Lecture 17 - Wing Planform selection and sizing and Flight test of Cropped delta wing UAVs
- Lecture 18 - Effect of variation of CG location and Static Stability
- Lecture 19 - C.G. location and Longitudinal Static stability
- Lecture 20 - Tutorial 1
- Lecture 21 - Contribution of tail in static stability and Neutral point.
- Lecture 22 - Tutorial 2
- Lecture 23 - Tutorial 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Finite Volume Methods-I

Subject Co-ordinator - Prof. Ashoke De

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Finite Volume Method
- Lecture 2 - Governing Equations and Discretization
- Lecture 3 - Boundary Conditions and Classification of PDEs
- Lecture 4 - Mathematical Description of fluid flow - I
- Lecture 5 - Mathematical description of fluid flow - II
- Lecture 6 - Discretization Process - I
- Lecture 7 - Discretization Process - II
- Lecture 8 - Discretization Process - III
- Lecture 9 - Taylor Series - I
- Lecture 10 - Taylor Series - II
- Lecture 11 - Derivatives and Errors - I
- Lecture 12 - Derivatives and errors - II
- Lecture 13 - Grid Transformation
- Lecture 14 - Finite Volume Formulation - I
- Lecture 15 - Finite Volume Formulation - II
- Lecture 16 - Properties of discretized equations
- Lecture 17 - Introduction to Finite Volume Mesh
- Lecture 18 - Structured Mesh System
- Lecture 19 - Unstructured Mesh System - I
- Lecture 20 - Unstructured Mesh System - II
- Lecture 21 - Properties of Unstructured Mesh - I
- Lecture 22 - Properties of Unstructured Mesh - II
- Lecture 23 - Finite Volume discretization of Diffusion Equation - I
- Lecture 24 - Finite Volume discretization of Diffusion equation - II
- Lecture 25 - Finite Volume discretization of Diffusion equation - III
- Lecture 26 - Discretization of Diffusion Equation for Cartesian orthogonal systems - I
- Lecture 27 - Discretization of Diffusion Equation for Cartesian orthogonal systems - II
- Lecture 28 - Calculation of Diffusivity
- Lecture 29 - Discretization of Diffusion Equation for non-Cartesian orthogonal systems - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Discretization of Diffusion Equation for non-orthogonal systems - I
- Lecture 31 - Discretization of Diffusion Equation for non-orthogonal systems - II
- Lecture 32 - Discretization of Diffusion Equation for non-orthogonal systems - III
- Lecture 33 - Gradient Calculation for Diffusion Equation - I
- Lecture 34 - Gradient Calculation for Diffusion Equation - II
- Lecture 35 - Gradient Calculation for Diffusion Equation - III
- Lecture 36 - Properties of matrices - I
- Lecture 37 - Properties of matrices - II
- Lecture 38 - Error Analysis - I
- Lecture 39 - Error Analysis - II
- Lecture 40 - Error Analysis - III



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Advance Aircraft Maintenance

Subject Co-ordinator - Dr. A.K. Ghosh, Mr. V. Mathur

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Engines
- Lecture 2 - Introduction to Engines (Continued...)
- Lecture 3 - Construction of Reciprocating Engine
- Lecture 4 - Construction of Reciprocating Engine (Continued...)
- Lecture 5 - Construction of Reciprocating Engine (Continued...)
- Lecture 6 - Lubrication System
- Lecture 7 - Lubrication System Demonstration
- Lecture 8 - Lubrication System (Continued...)
- Lecture 9 - Induction System
- Lecture 10 - Induction System (Continued...)
- Lecture 11 - Cooling System
- Lecture 12 - Exhaust System
- Lecture 13 - Cooling and Exhaust System (Lab Session)
- Lecture 14 - Engine fuel and Fuel Metering Systems
- Lecture 15 - Engine Fuel and Fuel Metering Systems (Continued...)
- Lecture 16 - Engine Fuel and Fuel Metering Systems (Lab Session)
- Lecture 17 - Carburetor troubleshooting and Fuel Injection System
- Lecture 18 - Fuel injection Systems (Continued...)
- Lecture 19 - Fuel System
- Lecture 20 - Ignition system
- Lecture 21 - Ignition system (Continued...)
- Lecture 22 - Ignition system (Lab session)
- Lecture 23 - Basics of propeller and maintenance
- Lecture 24 - Aircraft Reciprocating Engine Inspection - Part 1
- Lecture 25 - Aircraft Reciprocating Engine Inspection - Part 2
- Lecture 26 - Aircraft Reciprocating Engine Inspection - Part 3
- Lecture 27 - Checklist for Aircraft Reciprocating Engine Maintenance
- Lecture 28 - Aircraft Maintenance (Aircraft Performance Point of View)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Finite Volume Methods-II

Subject Co-ordinator - Prof. Ashoke De

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Linear solvers - I
- Lecture 2 - Linear solvers - II
- Lecture 3 - Linear solvers - III
- Lecture 4 - Linear solvers - IV
- Lecture 5 - Linear solvers - V
- Lecture 6 - Linear solvers - VI
- Lecture 7 - Linear solvers - VII
- Lecture 8 - Linear solvers - VIII
- Lecture 9 - Convection term discretisation - I
- Lecture 10 - Convection term discretisation - II
- Lecture 11 - Convection term discretisation - III (Private)
- Lecture 12 - Convection term discretisation - IV (Private)
- Lecture 13 - Convection term discretisation - V (Private)
- Lecture 14 - Convection term discretisation - VI (Private)
- Lecture 15 - Convection term discretisation - VII (Private)
- Lecture 16 - Convection term discretisation - VIII
- Lecture 17 - Convection term discretisation - IX
- Lecture 18 - High Resolution Schemes - I
- Lecture 19 - High Resolution Schemes - II
- Lecture 20 - High Resolution Schemes - III
- Lecture 21 - High Resolution Schemes - IV
- Lecture 22 - High Resolution Schemes - V
- Lecture 23 - High Resolution Schemes - VI
- Lecture 24 - High Resolution Schemes - VII
- Lecture 25 - Temporal discretisation - I
- Lecture 26 - Temporal discretisation - II
- Lecture 27 - Temporal discretisation - III
- Lecture 28 - Temporal discretisation - IV
- Lecture 29 - Discretisation of the Source Term, Relaxation and Other Details - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Discretisation of the Source Term, Relaxation and Other Details - II
- Lecture 31 - Fluid Flow Computation
- Lecture 32 - Fluid Flow Computation
- Lecture 33 - Fluid Flow Computation
- Lecture 34 - Fluid Flow Computation
- Lecture 35 - Fluid Flow Computation
- Lecture 36 - Fluid Flow Computation
- Lecture 37 - Fluid Flow Computation
- Lecture 38 - Fluid Flow Computation
- Lecture 39 - Fluid Flow Computation
- Lecture 40 - Some Advanced Topics - I

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Rocket Propulsion

Subject Co-ordinator - Dr. D.P. Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - A Brief History of Rocket Propulsion and ISRO

Lecture 3 - Types of Rocket Engine

Lecture 4 - Fundamentals of Aero-thermodynamics

Lecture 5 - Control Volume Analysis and Governing Equations

Lecture 6 - Adiabatic Steady 1-D flow and Speed of Sound

Lecture 7 - Basics of Thermochemistry

Lecture 8 - Adiabatic Flame Temperature and Chemical Equilibrium

Lecture 9 - Ideal Rocket Engine, Thrust Equation and Performance Parameters

Lecture 10 - Performance Parameters of Rocket Engine

Lecture 11 - Performance Parameters of Rocket Engine (Continued...)

Lecture 12 - Ideal Nozzle

Lecture 13 - Rocket Nozzle

Lecture 14 - Convergent Nozzle

Lecture 15 - Convergent-Divergent Nozzle and Shock Reflection

Lecture 16 - Effect of Back Pressure and Thrust Coefficient

Lecture 17 - Thrust Coefficient

Lecture 18 - Characteristics Velocity, Combustion Efficiency and Thrust Effectiveness

Lecture 19 - Actual Rocket Nozzle Characteristics

Lecture 20 - Flight Performance of a Rocket Vehicle

Lecture 21 - Flight Performance of a Rocket Vehicle

Lecture 22 - Flight Trajectory of Single Stage Rocket Vehicle

Lecture 23 - Orbital Mechanics

Lecture 24 - Types of Orbits

Lecture 25 - Orbital and Escape Velocity

Lecture 26 - Interplanetary Transfer Path

Lecture 27 - Multi-staging Rocket

Lecture 28 - Chemical Propellants-Characteristics and Classification

Lecture 29 - Solid and Composite Propellants

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Composite Propellants and it's Manufacturing
- Lecture 31 - Classification of Liquid Propellants
- Lecture 32 - Solid Propellant Rocket Engine
- Lecture 33 - Propellant Burning Mechanism and Flame Structure
- Lecture 34 - Composite Propellant Combustion
- Lecture 35 - Regression Rate of Solid Propellant and Effect of Operating Parameters
- Lecture 36 - Characteristics of Solid Propellants
- Lecture 37 - Effect of Acceleration and Particle Size on Burning Rate
- Lecture 38 - Erosive Burning, Effect of Propellant Temperature and Thermal Model
- Lecture 39 - Chamber Pressure in Solid Propellant Rocket Engine
- Lecture 40 - Types of Propellant Grains
- Lecture 41 - Types of Solid Propellant Grains and Evolution of Burning Surface
- Lecture 42 - Burning Stability and Ignition System in SPRE
- Lecture 43 - Liquid Propellant Rocket Engine
- Lecture 44 - Injection System in LPRE
- Lecture 45 - Atomization of Liquid Propellants
- Lecture 46 - Types of Injection System in LPRE
- Lecture 47 - Analysis of Impinging Atomizer
- Lecture 48 - Injection Distributor and Combustion Process in LPRE
- Lecture 49 - Variation of Gas Specific Volume and Combustion Chamber Geometry
- Lecture 50 - Liquid Propellant Feed System in LPRE
- Lecture 51 - Turbo-Pump Feed Configuration
- Lecture 52 - Ignition System in LPRE
- Lecture 53 - Cooling of Thrust Chamber and Nozzle of a Rocket Engine
- Lecture 54 - Cooling System of Rocket Engine (Continued...)
- Lecture 55 - Modes of Heat Transfer through combustion Chamber Wall and Nozzle Wall
- Lecture 56 - Heat Transfer Analysis of Cooling System
- Lecture 57 - Hybrid Propellant Rocket Engine
- Lecture 58 - Regression Rate of Solid Fuel Grain in HPRE and Types of Port Configurations
- Lecture 59 - Non-Chemical Rocket Engine
- Lecture 60 - Electromagnetic Thruster, Nuclear and Solar Rocket Engine

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:UAV Design - Part II

Subject Co-ordinator - Prof. Saderla Subrahmanyam

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Design Algorithms
- Lecture 2 - Thrust Generation and Power Required
- Lecture 3 - Lift and Drag for Infinite Wing
- Lecture 4 - Lift and Drag for an Infinite Wing (Continued...)
- Lecture 5 - Relation between Aerodynamic center and Center of Pressure
- Lecture 6 - Aerodynamic Characteristics of Wing
- Lecture 7 - Stability and Criteria for Longitudinal Static Stability
- Lecture 8 - Numericals
- Lecture 9 - Longitudinal Static Stability - Wing Contribution
- Lecture 10 - Flight Demonstration of Flat Plate
- Lecture 11 - Numericals (Continued...)
- Lecture 12 - Example Problems for Wing alone Configuration
- Lecture 13 - Wing-Tail Contribution and Neutral Point
- Lecture 14 - Example problems of wing and tail combination
- Lecture 15 - Example problems of wing and tail combination (Continued...)
- Lecture 16 - Flight demonstration of same wing and tail combination
- Lecture 17 - Matlab Tutorial
- Lecture 18 - Trim Requirements of UAV
- Lecture 19 - Example on performance analysis of UAV
- Lecture 20 - Weight Estimation and wing Sizing with Example
- Lecture 21 - Power Plant Selection with Example
- Lecture 22 - Subroutine for takeoff performance (Powerplant selection)
- Lecture 23 - Subroutine for Climb Performance (Powerplant Selection)
- Lecture 24 - Subroutine for Weight Estimation
- Lecture 25 - Subroutine for Planform Geometry Selection
- Lecture 26 - Subroutine for Airfoil Selection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Airbreathing Propulsion

Subject Co-ordinator - Prof. Ashoke De

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Introduction (Continued...)  
Lecture 4 - Review of Fluid Mechanics  
Lecture 5 - Review of Fluid Mechanics, Thermodynamics  
Lecture 6 - Review of Compressible Flows  
Lecture 7 - Review of Compressible Flows (Continued...)  
Lecture 8 - Review of Compressible Flows (Continued...)  
Lecture 9 - Review of Compressible Flows (Continued...)  
Lecture 10 - Review of Compressible Flows (Continued...)  
Lecture 11 - Introduction to gas turbine engines  
Lecture 12 - Introduction to gas turbine engines (Continued...)  
Lecture 13 - Introduction to gas turbine engines (Continued...)  
Lecture 14 - Introduction to gas turbine engines (Continued...)  
Lecture 15 - Introduction to gas turbine engines (Continued...)  
Lecture 16 - Introduction to gas turbine engines (Continued...)  
Lecture 17 - Introduction to gas turbine engines (Continued...)  
Lecture 18 - Piston Engines and Propellers  
Lecture 19 - Piston Engines and Propellers (Continued...)  
Lecture 20 - Piston Engines and Propellers (Continued...)  
Lecture 21 - Piston Engines and Propellers (Continued...)  
Lecture 22 - Piston Engines and Propellers (Continued...)  
Lecture 23 - Piston Engines and Propellers (Continued...)  
Lecture 24 - Performance/cycle analysis  
Lecture 25 - Performance/cycle analysis  
Lecture 26 - Performance/cycle analysis  
Lecture 27 - Performance/cycle analysis  
Lecture 28 - Performance/cycle analysis  
Lecture 29 - Performance/cycle analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Performance/cycle analysis
- Lecture 31 - Performance/cycle analysis
- Lecture 32 - Performance/cycle analysis
- Lecture 33 - Performance/cycle analysis
- Lecture 34 - Performance/cycle analysis
- Lecture 35 - Performance/cycle analysis
- Lecture 36 - Stationary components
- Lecture 37 - Stationary components
- Lecture 38 - Stationary components
- Lecture 39 - Introduction to turbomachinery
- Lecture 40 - Centrifugal compressor
- Lecture 41 - Centrifugal compressor (Continued...)
- Lecture 42 - Centrifugal compressor (Continued...)
- Lecture 43 - Centrifugal compressor (Continued...)
- Lecture 44 - Centrifugal compressor (Continued...)
- Lecture 45 - Centrifugal compressor (Continued...)
- Lecture 46 - Centrifugal compressor (Continued...)
- Lecture 47 - Axial compressor
- Lecture 48 - Axial compressor (Continued...)
- Lecture 49 - Axial compressor (Continued...)
- Lecture 50 - Axial compressor (Continued...)
- Lecture 51 - Axial compressor (Continued...)
- Lecture 52 - Axial compressor (Continued...)
- Lecture 53 - Axial compressor (Continued...)
- Lecture 54 - Axial compressor (Continued...)
- Lecture 55 - Axial turbine
- Lecture 56 - Axial turbine (Continued...)
- Lecture 57 - Axial turbine (Continued...)
- Lecture 58 - Axial turbine (Continued...)
- Lecture 59 - Axial turbine (Continued...)
- Lecture 60 - Radial Flow Turbine, Module Matching



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Computational Science in Engineering

Subject Co-ordinator - Prof. Ashoke De

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Linear Algebra: Introduction
- Lecture 2 - Linear Algebra: Introduction (Continued...)
- Lecture 3 - Linear Algebra: Permutation Matrix, Existence of Solution
- Lecture 4 - Linear Algebra: Permutation Matrix, Existence of Solution (Continued...)
- Lecture 5 - Linear Algebra: Linear Independence, Basis Vector and Dimensions
- Lecture 6 - Linear Algebra: Null Space, Column Space, Row Space, Introduction to Orthogonal System
- Lecture 7 - Linear Algebra: Orthogonal System, Projection, Determinant
- Lecture 8 - Linear Algebra: Orthogonal System, Projection, Determinant (Continued...)
- Lecture 9 - Linear Algebra: Properties of Determinant, Cramer's Rule, Introduction to Eigen Values
- Lecture 10 - Linear Algebra: Eigen Values, Eigen Vectors, SVD
- Lecture 11 - Linear Algebra: Eigen Values, Eigen Vectors, SVD (Continued...)
- Lecture 12 - ODE: Introduction to ODEs, Initial Value Problem, Separation of Variables
- Lecture 13 - ODE: Solution of Exact ODEs, First Order Linear Systems
- Lecture 14 - ODE: Solution of Second Order Linear ODEs
- Lecture 15 - ODE: Existence and Uniqueness of Solution, Non-Homogeneous System
- Lecture 16 - ODE: Higher Order Linear ODEs, Variation of Parameters, System of ODEs
- Lecture 17 - ODE: Linear Systems, Superposition for Homogeneous Systems
- Lecture 18 - Fourier Analysis, Orthogonality of Trigonometric Systems, Euler's Formula
- Lecture 19 - Parseval's Theorem, Fourier Integrals, Laplace Transforms
- Lecture 20 - PDE: Introduction to PDEs, Solution of PDEs using Characteristics Curve
- Lecture 21 - PDE: First Order PDEs, Dilation Invariant Solution of Differential Equations
- Lecture 22 - PDE: Solution of Linear PDEs
- Lecture 23 - PDE: Separation of Variables, Eigenvalue Problem, Poisson Integral Representation
- Lecture 24 - PDE: Boundary Conditions, Solution of 2D systems
- Lecture 25 - Introduction to Numerical Methods, Mathematical Models, Errors
- Lecture 26 - Errors, Numerical Differentiation, Stability
- Lecture 27 - Roots of Equations: Graphical Method, Bi-Section Method, False-Position Method
- Lecture 28 - Secant Method, Brent's Method, Multipoint Iteration Method, Derivative Free Method
- Lecture 29 - Complex Roots, Birge-Vieta Method, Bairstow's method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Solution of Linear Algebraic Equations, Gauss Elimination Method
- Lecture 31 - Direct Methods: Gauss Elimination, Gauss-Jordan, Crout's Method, Cholesky Method, Iterative Methods
- Lecture 32 - Extrapolation Method, Eigenvalue Problem, Jacobi Method, Householder's Method for Symmetric Matrices
- Lecture 33 - Interpolation: Taylor's Series, Lagrange and Newton Interpolation, Iterated Interpolation, Hermite Interpolation
- Lecture 34 - Piecewise and Spline Interpolation, Bivariate Interpolation, Least Square Approximation, Uniform Approximation
- Lecture 35 - Numerical Differentiation and Intergration, Methods Based on Finite Differences, Methods based on Taylor's Series
- Lecture 36 - Numerical Integration: Newton-Cotes Method, Gaussian Integration Methods, Lobatto Integration Methods
- Lecture 37 - Double Integration: Trapezoidal Rule, Simpson's Rule, Solution of ODEs: Difference Equation, Single Step Methods
- Lecture 38 - Runge-Kutta Methods, Euler-Cauchy Method, Multi-step Methods, Predictor-Corrector Methods
- Lecture 39 - System of Differential Equations, Stability Analysis, Solution of Boundary Value Problem: Shooting Method
- Lecture 40 - Numerical Approach to Solution of PDEs: Heat Conduction Equation, Convergence and Stability

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Aircraft Control System

Subject Co-ordinator - Prof. Dipak Kumar Gir

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
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Lecture 14  
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Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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Lecture 30  
Lecture 31  
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Lecture 59  
Lecture 60

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - High Speed Aero Dynamics

Subject Co-ordinator - Dr. K.P. Sinhamahapatra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Review of Thermodynamics
- Lecture 2 - Review of Thermodynamics (Continued...)
- Lecture 3 - Review of Thermodynamics (Continued...)
- Lecture 4 - Review of Thermodynamics (Continued...)
- Lecture 5 - One-dimensional gas dynamics
- Lecture 6 - One-dimensional gas dynamics (Continued...)
- Lecture 7 - One-dimensional gas dynamics (Continued...)
- Lecture 8 - One-dimensional waves
- Lecture 9 - One-dimensional waves (Continued...)
- Lecture 10 - One-dimensional waves (Continued...)
- Lecture 11 - Waves and Supersonic Flow
- Lecture 12 - Waves and Supersonic Flow (Continued...)
- Lecture 13 - Waves and Supersonic Flow (Continued...)
- Lecture 14 - Waves and Supersonic Flow (Continued...)
- Lecture 15 - Shock Expansion Theory
- Lecture 16 - Flow through ducts and channels
- Lecture 17 - Flow in ducts
- Lecture 18 - Flow in ducts (Continued...)
- Lecture 19 - Adiabatic Flow in ducts with friction
- Lecture 20 - Adiabatic flow in ducts with friction (Continued...)
- Lecture 21 - Isothermal flow in ducts with friction
- Lecture 22 - Flow in uniform duct with heating
- Lecture 23 - Multi - dimensional flow problems
- Lecture 24 - Multi - dimensional flow problems (Continued...)
- Lecture 25 - Linearized flow problems
- Lecture 26 - Linearized flow problems (Continued...)
- Lecture 27 - Linearized flow problems (Continued...)
- Lecture 28 - Linearized flow problems (Continued...)
- Lecture 29 - Linearized flow problems (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linearized flow problems (Continued...)
- Lecture 31 - Linearized flow problems (Continued...)
- Lecture 32 - Linearized Problems - Forces on Slender Bodies
- Lecture 33 - Linearized Problems - Forces on Slender Bodies (Continued...)
- Lecture 34 - Similarity Rules for High Speed Flows
- Lecture 35 - Similarity Rules for High Speed Flows (Continued...)
- Lecture 36 - Similarity Rules for High Speed Flows (Continued...)
- Lecture 37 - Similarity Rules in Hypersonic Flow
- Lecture 38 - Transonic Flow
- Lecture 39 - Transonic Flow (Continued...)
- Lecture 40 - Transonic Flow (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Space Flight Mechanics

Subject Co-ordinator - Dr. Manoranjan Sinha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Space Flight Mechanics
- Lecture 2 - Particle Kinematics
- Lecture 3 - Particle Kinematics (Continued...)
- Lecture 4 - Conic Section
- Lecture 5 - Two Body Problem
- Lecture 6 - Two Body Problem (Continued...1)
- Lecture 7 - Two Body Problem (Continued...2)
- Lecture 8 - Two Body Problem (Continued...3)
- Lecture 9 - Two Body Problem (Continued...4)
- Lecture 10 - Two Body Problem (Continued...5)
- Lecture 11 - Two Body Problem (Continued...6)
- Lecture 12 - Two Body Problem (Continued...7) & Three Body Problem
- Lecture 13 - Three Body Problem (Continued...1)
- Lecture 14 - Three Body Problem (Continued...2)
- Lecture 15 - Three Body Problem (Continued...3)
- Lecture 16 - Three Body Problem (Continued...4)
- Lecture 17 - Three Body Problem (Continued...5)
- Lecture 18 - Three Body Problem (Continued...6)
- Lecture 19 - Three Body Problem (Continued...7)
- Lecture 20 - Three Body Problem (Continued...8)
- Lecture 21 - Trajectory Transfer
- Lecture 22 - Trajectory Transfer (Continued...1)
- Lecture 23 - Trajectory Transfer (Continued...2)
- Lecture 24 - Trajectory Transfer (Continued...3)
- Lecture 25 - Trajectory Transfer (Continued...4)
- Lecture 26 - Trajectory Transfer (Continued...5)
- Lecture 27 - Trajectory Transfer (Continued...6)
- Lecture 28 - Trajectory Transfer (Continued...7)
- Lecture 29 - Trajectory Transfer (Continued...8)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Trajectory Transfer (Continued...9)
- Lecture 31 - Trajectory Transfer (Continued...10)
- Lecture 32 - Trajectory Transfer (Continued...11) and Attitude Dynamics
- Lecture 33 - Attitude Dynamics (Continued...1)
- Lecture 34 - Attitude Dynamics (Continued...2)
- Lecture 35 - Attitude Dynamics (Continued...3)
- Lecture 36 - Attitude Dynamics (Continued...4)
- Lecture 37 - Attitude Dynamics (Continued...5)
- Lecture 38 - Attitude Dynamics (Continued...6)
- Lecture 39 - Attitude Dynamics (Continued...7)
- Lecture 40 - Attitude Dynamics (Continued...8)
- Lecture 41 - Attitude Dynamics (Continued...9)
- Lecture 42 - Propulsion
- Lecture 43 - Propulsion (Continued...1)
- Lecture 44 - Propulsion (Continued...2)
- Lecture 45 - Propulsion (Continued...3)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Introduction to Aerodynamics

Subject Co-ordinator - Dr. K.P. Sinhamahapatra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Aircraft and Aerodynamic Forces and Moments
- Lecture 2 - Aircraft and Aerodynamic Forces and Moments (Continued...)
- Lecture 3 - Fluids and Forces in Fluids
- Lecture 4 - Fluids and Forces in Fluids (Continued...)
- Lecture 5 - Forces in Fluids
- Lecture 6 - Forces in Fluids (Continued...)
- Lecture 7 - Kinematics of fluid motion
- Lecture 8 - Kinematics of fluid motion (Continued...)
- Lecture 9 - Kinematics of fluid motion (Continued...)
- Lecture 10 - Kinematics of fluid motion (Continued...)
- Lecture 11 - Kinematics of fluid motion - Velocity with specified extension and vorticity
- Lecture 12 - Kinematics of fluid motion - Velocity with specified extension and vorticity (Continued...)
- Lecture 13 - Kinematics of fluid motion - Vorticity Distribution
- Lecture 14 - Kinematics of fluid motion - Velocity without expansion and vorticity
- Lecture 15 - Irrotational Solenoidal Flow in Multiply Connected region
- Lecture 16 - Irrotational Solenoidal Flow in Multiply Connected region (Continued...)
- Lecture 17 - Equations of Fluid Motion - Navier - Stokes Equation
- Lecture 18 - Equations of Fluid Motion - Navier - Stokes Equation (Continued...)
- Lecture 19 - Equations of Fluid Motion - Navier - Stokes Equation (Continued...)
- Lecture 20 - Conservation of Energy and Energy Equation
- Lecture 21 - Equations of Motions
- Lecture 22 - Equations of Motion (Continued...)
- Lecture 23 - Exact Solution for Simple Problems
- Lecture 24 - Exact Solution for Simple Problems (Continued...)
- Lecture 25 - Non-dimensional Form of the Equations and Possible Simplifications
- Lecture 26 - High Reynolds Number Approximation
- Lecture 27 - Conditions for Incompressibility
- Lecture 28 - Potential Flow
- Lecture 29 - Potential Flow - Combination of Basic Solutions

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- Lecture 30 - Potential Flow - Combination of Basic Solutions (Continued...)
- Lecture 31 - Potential Flow - Combination of Basic Solutions (Continued...)
- Lecture 32 - Potential Flow - Combination of Basic Solutions (Continued...) - Lifting Cylinder
- Lecture 33 - Conformal Transformation
- Lecture 34 - Conformal Transformation (Continued...)
- Lecture 35 - Zhukovsky Transformation
- Lecture 36 - Zhukovsky Transformation (Continued...)
- Lecture 37 - Zhukovsky Transformation - Applications
- Lecture 38 - Zhukovsky Transformation - Applications (Continued...)
- Lecture 39 - Zhukovsky Transformation - Applications (Continued...)
- Lecture 40 - Transformation
- Lecture 41 - Transformation (Continued...)
- Lecture 42 - Boundary - Layer Theory
- Lecture 43 - Boundary - Layer Theory (Continued...)
- Lecture 44 - Boundary - Layer Theory (Continued...)
- Lecture 45 - Boundary - Layer Theory (Continued...)
- Lecture 46 - Boundary - Layer Theory (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Satellite Attitude Dynamics and Control

Subject Co-ordinator - Dr. Manoranjan Sinha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Kinematics of Rotation  
Lecture 2 - Kinematics of Rotation (Continued...)  
Lecture 3 - Kinematics of Rotation (Continued...)  
Lecture 4 - Kinematics of Rotation (Continued...)  
Lecture 5 - Kinematics of Rotation (Continued...)  
Lecture 6 - Kinematics of Rotation (Continued...)  
Lecture 7 - Rotation  
Lecture 8 - Rotation (Continued...)  
Lecture 9 - Rotation (Continued...)  
Lecture 10 - Rotation (Continued...)  
Lecture 11 - Rotational Kinematics  
Lecture 12 - Rotational Kinematics (Continued...)  
Lecture 13 - Rotational Kinematics (Continued...)  
Lecture 14 - Rotational Kinematics (Continued...)  
Lecture 15 - Rotational Dynamics (Rigid Body Dynamics)  
Lecture 16 - Rotational Dynamics (Rigid Body Dynamics) (Continued...)  
Lecture 17 - Rotational Dynamics (Rigid Body Dynamics) (Continued...)  
Lecture 18 - Rigid Body Dynamics  
Lecture 19 - Rigid Body Dynamics (Continued...)  
Lecture 20 - Rigid Body Dynamics (Continued...)  
Lecture 21 - Rigid Body Dynamics (Continued...)  
Lecture 22 - Rigid Body Dynamics (Continued...)  
Lecture 23 - Rigid Body Dynamics (Continued...)  
Lecture 24 - Rigid Body Dynamics (Continued...)  
Lecture 25 - Rigid Body Dynamics (Continued...)  
Lecture 26 - Stability of Torque Free Rotation  
Lecture 27 - Stability of Torque Free Rotation (Continued...)  
Lecture 28 - Gravity-gradient Satellite  
Lecture 29 - Gravity-gradient Satellite (Continued...)

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- Lecture 30 - Gravity-gradient Satellite (Continued...)
- Lecture 31 - Gravity-gradient Satellite (Continued...)
- Lecture 32 - Gravity-gradient Satellite (Continued...)
- Lecture 33 - Gravity-gradient Satellite (Continued...)
- Lecture 34 - Gravity-gradient Satellite (Continued...)
- Lecture 35 - Gravity-gradient Satellite (Continued...)
- Lecture 36 - Gravity-gradient Satellite (Continued...)
- Lecture 37 - Gravity-gradient Satellite (Continued...)
- Lecture 38 - Spin Stabilization
- Lecture 39 - Spin Stabilization (Continued...)
- Lecture 40 - Spin Stabilization (Continued...)
- Lecture 41 - Spin Stabilization (Continued...)
- Lecture 42 - Spin Stabilization (Continued...)
- Lecture 43 - Control Moment Gyroscope
- Lecture 44 - Control Moment Gyroscope (Continued...)
- Lecture 45 - Gyroscope/Top Motion
- Lecture 46 - Gyroscope/Top Motion (Continued...)
- Lecture 47 - Gyroscopic Motion
- Lecture 48 - Gyroscopic Motion (Continued...)
- Lecture 49 - Reaction Wheel/Gyrostad
- Lecture 50 - Reaction Wheel/Gyrostad (Continued...)
- Lecture 51 - Gyrostad
- Lecture 52 - Gyrostad (Continued...)
- Lecture 53 - Gyrostad (Continued...)
- Lecture 54 - Gyrostad (Continued...)
- Lecture 55 - Control Moment Gyro
- Lecture 56 - Control Moment Gyro (Continued...)
- Lecture 57 - Control Moment Gyro (Continued...)
- Lecture 58 - Control Moment Gyro (Continued...)
- Lecture 59 - Satellite Dynamics with Control Moment Gyro
- Lecture 60 - Satellite Dynamics with Control Moment Gyro (Continued...)
- Lecture 61 - Satellite Dynamics with Control Moment Gyro (Continued...)
- Lecture 62 - Simplified Control Gyro for Satellite Attitude Control
- Lecture 63 - Satellite Attitude Control using Magnetic Torquer
- Lecture 64 - Satellite Attitude Control using Magnetic Torquer (Continued...)
- Lecture 65 - Satellite Attitude Control using Magnetic Torquer (Continued...)
- Lecture 66 - Satellite Attitude Control using Magnetic Torquer (Continued...)
- Lecture 67 - Satellite Attitude Control using Magnetic Torquer (Continued...)
- Lecture 68 - Satellite Attitude Control using Lorentz Force

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Satellite Attitude Control using Thruster
- Lecture 70 - Atmospheric Drag on the Satellite
- Lecture 71 - Atmospheric Force and Moment on the Satellite
- Lecture 72 - Atmospheric Force and Moment on the Satellite (Continued...)
- Lecture 73 - Solar Radiation Force and Moment on the Satellite

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Vibration and Structural Dynamics

Subject Co-ordinator - Prof. Mira Mitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Undamped Free Vibration
- Lecture 3 - Damped Free Vibration
- Lecture 4 - Damped Free Vibration (Continued...)
- Lecture 5 - Damped Free Vibration (Continued...)
- Lecture 6 - Force Vibration
- Lecture 7 - Harmonic Loading
- Lecture 8 - Harmonic Loading (Continued...)
- Lecture 9 - Harmonic Loading (Continued...)
- Lecture 10 - Harmonic Loading (Continued...)
- Lecture 11 - Impulse Load and Arbitrary Load
- Lecture 12 - Impulse Load and Arbitrary Load (Continued...)
- Lecture 13 - MDOF, 2-Dof System
- Lecture 14 - Normal Mode of Vib
- Lecture 15 - Natural Frequency and Mode Shapes
- Lecture 16 - Mode Shapes of MDOF
- Lecture 17 - Mode Shapes and Free Vibration Response of MDOF
- Lecture 18 - Example on MDOF
- Lecture 19 - Example on MDOF (Continued...)
- Lecture 20 - Modal Expansion Theorem, Generalized Coordinate
- Lecture 21 - Examples on Modal Analysis
- Lecture 22 - Damping
- Lecture 23 - Rigid Body Modes
- Lecture 24 - Numerical Time Integration
- Lecture 25 - Continuous System
- Lecture 26 - Axial Vibration of Bar
- Lecture 27 - Axial Vibration of Bar (Continued...)
- Lecture 28 - Bending Vibration in Beam
- Lecture 29 - Bending Vibration in Beam (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Bending Vibration in Beam (Continued...)
- Lecture 31 - Modal Analysis
- Lecture 32 - Modal Analysis (Continued...)
- Lecture 33 - Modal Analysis of Continuous System
- Lecture 34 - Modal Analysis of Continuous System (Continued...)
- Lecture 35 - Approximate Method
- Lecture 36 - Approximate Methods (Continued...)
- Lecture 37 - Collocation Method
- Lecture 38 - Analytical Methods
- Lecture 39 - Analytical Methods (Continued...)
- Lecture 40 - Analytical Methods (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Space Flight Mechanics

Subject Co-ordinator - Dr. Manoranjan Sinha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Conic Section
- Lecture 2 - Conic Section (Continued...)
- Lecture 3 - Conic Section (Continued...)
- Lecture 4 - Central Force Motion
- Lecture 5 - Gravitational Central Force Motion
- Lecture 6 - Gravitational Central Force Motion (Continued...)
- Lecture 7 - Gravitational Central Force Motion (Continued...)
- Lecture 8 - 2-Body Problem
- Lecture 9 - 2-Particle System Motion Under Mutual Gravitational Attraction
- Lecture 10 - 2-Particle Body Problem
- Lecture 11 - 2-Particle Body System
- Lecture 12 - Classical Orbital Elements / Parameters
- Lecture 13 - Classical Orbital Elements / Parameters (Continued...)
- Lecture 14 - Classical Orbital Elements / Parameters (Continued...)
- Lecture 15 - Classical Orbital Elements and Its Inverse Problems
- Lecture 16 - Inverse Problem of Orbit Determination (Classical Orbital Elements)
- Lecture 17 - Problem Solving on 2-Body Problem Related to Orbit and Orbital Elements
- Lecture 18 - Problem Related to Orbital Elements
- Lecture 19 - Kepler's Equation / Kepler's Problem
- Lecture 20 - Kepler's Problem (Continued...)
- Lecture 21 - Kepler's Problem (Continued...)
- Lecture 22 - Kepler's Equation
- Lecture 23 - Kepler's Equation (Continued...)
- Lecture 24 - Kepler's Equation (Continued...)
- Lecture 25 - Kepler's Equation (Continued...)
- Lecture 26 - Kepler's Equation (Continued...)
- Lecture 27 - Kepler's Equation (Continued...)
- Lecture 28 - Kepler's Equation (Continued...)
- Lecture 29 - 3-Body Problem

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- Lecture 30 - 3-Body Problem (Continued...)
- Lecture 31 - 3-Body Problem (Continued...)
- Lecture 32 - 3-Body Problem (Continued...)
- Lecture 33 - 3-Body Problem (Continued...)
- Lecture 34 - Restricted 3-Body Problem
- Lecture 35 - Restricted 3-Body Problem (Continued...)
- Lecture 36 - Restricted 3-Body Problem (Continued...)
- Lecture 37 - Restricted 3-Body Problem (Continued...)
- Lecture 38 - Restricted 3-Body Problem (Continued...)
- Lecture 39 - Restricted 3-Body Problem (Continued...)
- Lecture 40 - Restricted 3-Body Problem (Continued...)
- Lecture 41 - Restricted 3-Body Problem (Continued...)
- Lecture 42 - Restricted 3-Body Problem (Continued...)
- Lecture 43 - Restricted 3-Body Problem (Continued...)
- Lecture 44 - Restricted 3-Body Problem (Continued...)
- Lecture 45 - Restricted 3-Body Problem (Continued...)
- Lecture 46 - Restricted 3-Body Problem (Continued...)
- Lecture 47 - General Perturbation Theory
- Lecture 48 - General Perturbation Theory (Continued...)
- Lecture 49 - General Perturbation Theory (Continued...)
- Lecture 50 - General Perturbation Theory (Continued...)
- Lecture 51 - General Perturbation Theory (Continued...)
- Lecture 52 - General Orbit Perturbation Theory
- Lecture 53 - General Orbit Perturbation Theory (Continued...)
- Lecture 54 - General Orbit Perturbation Theory (Continued...)
- Lecture 55 - General Orbit Perturbation Theory (Continued...)
- Lecture 56 - General Orbit Perturbation Theory (Continued...)
- Lecture 57 - General Orbit Perturbation Theory (Continued...)
- Lecture 58 - General Orbit Perturbation Theory (Continued...)
- Lecture 59 - General Orbit Perturbation Theory (Continued...)
- Lecture 60 - General Orbit Perturbation Theory (Continued...)
- Lecture 61 - General Orbit Perturbation Theory (Continued...)
- Lecture 62 - General Orbit Perturbation Theory (Continued...)
- Lecture 63 - General Orbit Perturbation Theory (Continued...)
- Lecture 64 - General Orbit Perturbation Theory (Continued...)
- Lecture 65 - General Orbit Perturbation Theory (Continued...)
- Lecture 66 - General Orbit Perturbation Theory (Continued...)
- Lecture 67 - General Orbit Perturbation Theory (Continued...)
- Lecture 68 - Orbit Determination

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Orbit Determination (Continued...)
- Lecture 70 - Orbit Determination (Continued...)
- Lecture 71 - Orbit Determination (Continued...)
- Lecture 72 - Transformation from Celestial to Earth Fixed Reference Frame
- Lecture 73 - Time
- Lecture 74 - Time (Continued...)
- Lecture 75 - Orbit Determination
- Lecture 76 - Orbit Determination (Continued...)
- Lecture 77 - Orbit Determination (Continued...)
- Lecture 78 - Orbit Determination (Continued...)
- Lecture 79 - Trajectory Transfer
- Lecture 80 - Trajectory Transfer (Continued...)
- Lecture 81 - Trajectory Transfer (Continued...)
- Lecture 82 - Trajectory Transfer (Continued...)
- Lecture 83 - Trajectory Transfer (Continued...)
- Lecture 84 - Trajectory Transfer (Continued...)
- Lecture 85 - Trajectory Transfer (Continued...)
- Lecture 86 - Trajectory Transfer (Continued...)
- Lecture 87 - Interplanetary Transfer
- Lecture 88 - Interplanetary Transfer (Continued...)
- Lecture 89 - Interplanetary Transfer (Continued...)
- Lecture 90 - Patched Conic Section Method for Interplanetary Transfer
- Lecture 91 - Interplanetary Mission
- Lecture 92 - Interplanetary Mission (Continued...)
- Lecture 93 - Interception in Coplanar Orbit
- Lecture 94 - Interception in Coplanar Orbit (Continued...)
- Lecture 95 - Interception in non-coplanar Orbit
- Lecture 96 - Interception in non-coplanar Orbit (Continued...)
- Lecture 97 - Interception in non-coplanar Orbit (Continued...)
- Lecture 98 - Non Coplanar Transfer
- Lecture 99 - Sphere of Influence

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Aircraft Structures - I

Subject Co-ordinator - Dr. Anup Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Introduction (Continued...)
- Lecture 4 - Load Encountered by a Typical Aircraft
- Lecture 5 - Conceptual Structural Details of a Typical Aircraft
- Lecture 6 - Airworthiness of An Aircraft
- Lecture 7 - Aerodynamic Loads and Load Factors
- Lecture 8 - Loads From A Symmetric Manoeuvre Of An Aircraft
- Lecture 9 - Shear and Moment on Wing An Aircraft
- Lecture 10 - Distribution Of Load On The Fuselage
- Lecture 11 - Unit Load Analysis Of Fuselage
- Lecture 12 - Truss System
- Lecture 13 - Truss System (Continued...)
- Lecture 14 - Space Structures
- Lecture 15 - Space Structures (Continued...)
- Lecture 16 - Wing Truss System
- Lecture 17 - Introduction to Energy Methods
- Lecture 18 - Dummy and Unit Load Method
- Lecture 19 - Dummy and Unit Load Method - Examples
- Lecture 20 - Castigliano's Theorems
- Lecture 21 - Rayleigh - Ritz Method
- Lecture 22 - Statically Indeterminate Structures
- Lecture 23 - Theory of Elasticity - Stress
- Lecture 24 - Theory of Elasticity - Equilibrium
- Lecture 25 - Stress Transformation and Principal Stress
- Lecture 26 - Theory of Elasticity - Principal Stress Boundary Condition
- Lecture 27 - Shear Stresses
- Lecture 28 - Introduction of Strain
- Lecture 29 - Introduction of strain - Equations of compatibility

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Formulation of Elasticity Problems
- Lecture 31 - Inverse Method of Solution
- Lecture 32 - Semi-Inverse Method of Solution
- Lecture 33 - Equilibrium Equation in Polar Coordinate System
- Lecture 34 - Compatibility Condition in Polar Coordinate System
- Lecture 35 - Effects of Circular Hole on Stress Distributions in a Plate
- Lecture 36 - Effects of Circular Hole on Stress Distributions in a Plate
- Lecture 37 - Effects of Circular Hole on Stress Distributions in a Plate
- Lecture 38 - Theory of Elasticity - Torsion Problems
- Lecture 39 - Theory of Elasticity - Torsion Problems (Continued...)
- Lecture 40 - Torsion of an Elliptical Bar
- Lecture 41 - Membrane Analogy for Torsion Problem
- Lecture 42 - Membrane Analogy for Torsion Problem (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to CFD

Subject Co-ordinator - Prof. Arnab Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Brief Overview of CFD
- Lecture 2 - Governing Equations of Fluid Flow
- Lecture 3 - Governing Equations of Fluid Flow (Continued...)
- Lecture 4 - Classification of PDEs
- Lecture 5 - Classification of PDEs (Continued...)
- Lecture 6 - Methods for Approximate Solution of PDEs
- Lecture 7 - Finite Difference Method
- Lecture 8 - Methods for Approximate Solution of PDEs (Continued...)
- Lecture 9 - Methods for Approximate Solution of PDEs (Continued...)
- Lecture 10 - Methods for Approximate Solution of PDEs (Continued...)
- Lecture 11 - Methods for Approximate Solution of PDEs (Continued...)
- Lecture 12 - Taylor Table Approach for Constructing Finite Difference Schemes
- Lecture 13 - Taylor Table Approach for Constructing Finite Difference Schemes (Continued...)
- Lecture 14 - Taylor Table Approach for Constructing Finite Difference Schemes (Continued...)
- Lecture 15 - Taylor Table Approach for Constructing Finite Difference Schemes (Continued...)
- Lecture 16 - Taylor Table Approach for Constructing Finite Difference Schemes (Continued...)
- Lecture 17 - Numerical Solution of Steady State Heat Conduction (Elliptic PDE)
- Lecture 18 - Numerical Solution of Steady State Heat Conduction (Elliptic PDE) (Continued...)
- Lecture 19 - Numerical Solution of Steady State Heat Conduction (Elliptic PDE) (Continued...)
- Lecture 20 - Numerical Solution of Steady State Heat Conduction (Elliptic PDE) (Continued...)
- Lecture 21 - Numerical Solution of Steady State Heat Conduction (Elliptic PDE) (Continued...)
- Lecture 22 - Numerical Solution of Unsteady Heat Conduction (Parabolic PDE)
- Lecture 23 - Numerical Solution of Unsteady Heat Conduction (Parabolic PDE) (Continued...)
- Lecture 24 - Numerical Solution of Unsteady Heat Conduction (Parabolic PDE) (Continued...)
- Lecture 25 - Numerical Solution of Unsteady Heat Conduction (Parabolic PDE) (Continued...)
- Lecture 26 - Numerical Solution of Unsteady Heat Conduction (Parabolic PDE) (Continued...)
- Lecture 27 - Numerical Solution of Linear Wave Equation (Hyperbolic PDE)
- Lecture 28 - Numerical Solution of Linear Wave Equation (Hyperbolic PDE) (Continued...)
- Lecture 29 - Numerical Solution of Linear Wave Equation (Hyperbolic PDE) (Continued...)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Numerical Solution of Linear Wave Equation (Hyperbolic PDE) (Continued...)
- Lecture 31 - Numerical Solution of Linear Wave Equation (Hyperbolic PDE) (Continued...)
- Lecture 32 - Numerical Solution of Linear Wave Equation (Hyperbolic PDE) (Continued...)
- Lecture 33 - Numerical Solution of One Dimensional Convection - Diffusion Equation
- Lecture 34 - Numerical Solution of One Dimensional Convection - Diffusion Equation (Continued...)
- Lecture 35 - Numerical Solution of One Dimensional Convection - Diffusion Equation (Continued...)
- Lecture 36 - Numerical Solution of One Dimensional Convection - Diffusion Equation (Continued...)
- Lecture 37 - Numerical Solution of One Dimensional Convection - Diffusion Equation (Continued...)
- Lecture 38 - Numerical Solution of One Dimensional Convection - Diffusion Equation (Continued...)
- Lecture 39 - Numerical Solution of Two Dimensional Incompressible Navier Stokes Equations
- Lecture 40 - Numerical Solution of Two Dimensional Incompressible Navier Stokes Equations (Continued...)
- Lecture 41 - Numerical Solution of Two Dimensional Incompressible Navier Stokes Equations (Continued...)
- Lecture 42 - Numerical Solution of Two Dimensional Incompressible Navier Stokes Equations (Continued...)
- Lecture 43 - Numerical Solution of Two Dimensional Incompressible Navier Stokes Equations (Continued...)
- Lecture 44 - Numerical Solution of Two Dimensional Incompressible Navier Stokes Equations (Continued...)
- Lecture 45 - Numerical Solution of One Dimensional Euler Equation for Shock Tube Problem
- Lecture 46 - Numerical Solution of One Dimensional Euler Equation for Shock Tube Problem (Continued...)
- Lecture 47 - Numerical Solution of One Dimensional Euler Equation for Shock Tube Problem (Continued...)
- Lecture 48 - Numerical Solution of One Dimensional Euler Equation for Shock Tube Problem (Continued...)
- Lecture 49 - Numerical Solution of One Dimensional Euler Equation for Shock Tube Problem (Continued...)
- Lecture 50 - Basics of Interface Capturing Methods for Applications in Multiphase Flow
- Lecture 51 - Basics of Interface Capturing Methods for Application in Multiphase Flow (Continued...)
- Lecture 52 - Basics of Interface Capturing Methods for Application in Multiphase Flow (Continued...)
- Lecture 53 - Basics of Interface Capturing Methods for Application in Multiphase Flow (Continued...)
- Lecture 54 - Basics of Interface Capturing Methods for Application in Multiphase Flow (Continued...)
- Lecture 55 - Basics of Turbulence Modeling
- Lecture 56 - Basics of Turbulence Modeling (Continued...)
- Lecture 57 - Basics of Turbulence Modeling (Continued...)
- Lecture 58 - Basics of Turbulence Modeling (Continued...)
- Lecture 59 - Basics of Turbulence Modeling (Continued...)
- Lecture 60 - Basics of Turbulence Modeling (Continued...)
- Lecture 61 - Structured and Unstructured Grid Generation
- Lecture 62 - Structured and Unstructured Grid Generation (Continued...)
- Lecture 63 - Structured and Unstructured Grid Generation (Continued...)
- Lecture 64 - Structured and Unstructured Grid Generation (Continued...)
- Lecture 65 - Structured and Unstructured Grid Generation (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Fundamentals of Theoretical and Experimental Aerodynamics

Subject Co-ordinator - Prof. Arnab Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction on Aerodynamics-its relevance and applications
- Lecture 2 - Atmosphere
- Lecture 3 - Flow velocity, pressure, skin friction
- Lecture 4 - Generation of aerodynamic forces and moments on an aircraft
- Lecture 5 - Generation of aerodynamic forces and moments on an aircraft (Continued...)
- Lecture 6 - Generation of aerodynamic forces and moments on an aircraft (Continued...)
- Lecture 7 - Eulerian and Lagrangian perspectives of flow: Fluid element trajectories
- Lecture 8 - Fluid element trajectories, Angular velocity, and vorticity
- Lecture 9 - Irrotational and Rotational flow, Strain of a fluid element, Gradient
- Lecture 10 - Line Surface and Volume Integrals, Circulation, Velocity
- Lecture 11 - Conservation equations of mass, momentum and energy
- Lecture 12 - Conservation equations of momentum and energy
- Lecture 13 - Inviscid and viscous flows
- Lecture 14 - Inviscid and viscous flows (Continued...)
- Lecture 15 - Bernoulli's equation and its applications
- Lecture 16 - Bernoulli's equation applications; Potential flow; Boundary layer flow
- Lecture 17 - Boundary layer flow
- Lecture 18 - Boundary Layer (Continued...) and Laminar and turbulent flow
- Lecture 19 - Airfoil Geometry, forces and moments acting on an airfoil
- Lecture 20 - Pressure distribution on an airfoil, Airfoil nomenclature and characteristics
- Lecture 21 - Airfoil characteristics; Aerodynamic center; Some more elementary flows
- Lecture 22 - Elementary flows- Doublet and Point Vortex; Vortex sheet
- Lecture 23 - Kutta condition; Kelvin's circulation theorem; Introduction to thin airfoil theory
- Lecture 24 - Results of thin airfoil theory for symmetric
- Lecture 25 - Multi element airfoils, Laminar and turbulent
- Lecture 26 - Finite wing geometry and flow features
- Lecture 27 - Biot Savart Law; Prandtl's lifting line theory
- Lecture 28 - Prandtl lifting theory for finite wings
- Lecture 29 - Finite wing aerodynamics; Delta wing aerodynamics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Delta wing aerodynamics; Unsteady aerodynamics
- Lecture 31 - Fundamentals of high speed flows
- Lecture 32 - Velocity potential equation and its application; Finite Waves
- Lecture 33 - Normal shocks
- Lecture 34 - Normal shocks, Mach waves and oblique shocks
- Lecture 35 - Oblique shock; Prandtl Meyer expansion
- Lecture 36 - Shock expansion theory; Flow through converging diverging nozzle
- Lecture 37 - Flow through converging diverging nozzle under different back pressure
- Lecture 38 - Preliminary concepts of hypersonic flow; Shock tube
- Lecture 39 - Computing aerodynamic flows - trying to connect with the theory
- Lecture 40 - Computing aerodynamic flows - trying to connect with the theory (Continued...)
- Lecture 41 - Some more on flow physics; The different steps involved in flow computations
- Lecture 42 - An introduction to Panel Method
- Lecture 43 - Panel method and Vortex Lattice Method
- Lecture 44 - Mathematical classification of PDEs and their physical behavior
- Lecture 45 - Basics of grid and discretization of governing PDEs
- Lecture 46 - Different aspects of numerical schemes
- Lecture 47 - Basics of Euler Equation
- Lecture 48 - Basics of Compressible Navier Stokes Equations
- Lecture 49 - Wind tunnel-an experimental tool in aerodynamics; Types of wind tunnels
- Lecture 50 - Wind Tunnel design basics - Subsonic Wind Tunnels
- Lecture 51 - Wind Tunnel design basics - Subsonic wind tunnels (Continued...)
- Lecture 52 - Wind Tunnel design basics - Supersonic wind tunnels
- Lecture 53 - Continuous closed circuit supersonic wind tunnel
- Lecture 54 - Scaling of wind tunnel models; Safety issues in wind tunnel handling
- Lecture 55 - Flow visualization techniques
- Lecture 56 - Schlieren and Shadowgraph techniques
- Lecture 57 - Measurement of Pressure using mechanical instruments
- Lecture 58 - Rayleigh Pitot tube; Drag measurement using wake survey and direct weighing method
- Lecture 59 - Mechanical balance
- Lecture 60 - Electronic transducers
- Lecture 61 - Wheatstone bridge circuits for force and moment measurement
- Lecture 62 - Strain gauge based balances; Electronic pressure gauges
- Lecture 63 - Absolute-Gauge-Differential pressure sensors; Data Acquisition System
- Lecture 64 - Measurement error and uncertainty
- Lecture 65 - Velocity measurement using Particle Image Velocimetry
- Lecture 66 - Velocity measurement using Particle Image Velocimetry (Continued...)
- Lecture 67 - Particle image velocimetry (Continued...)
- Lecture 68 - How wind tunnel and associated instrumentation are used

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Quick recapitulation of course content and closure

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Aerodynamic Design of Axial Flow Compressors and Fans

Subject Co-ordinator - Prof. Chetankumar Sureshbhai Mistry

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Introduction (Continued...)  
Lecture 4 - Introduction (Continued...)  
Lecture 5 - Introduction (Continued...)  
Lecture 6 - Introduction (Continued...)  
Lecture 7 - Stage Configurations and Parameters  
Lecture 8 - Stage Configurations and Parameters (Continued...)  
Lecture 9 - Stage Configurations and Parameters (Continued...)  
Lecture 10 - Stage Configurations and Parameters (Continued...)  
Lecture 11 - Stage Configurations and Parameters (Continued...)  
Lecture 12 - Stage Configurations and Parameters (Continued...)  
Lecture 13 - Stage Configurations and Parameters (Continued...)  
Lecture 14 - Stage Configurations and Parameters (Continued...)  
Lecture 15 - Stage Configurations and Parameters (Continued...)  
Lecture 16 - Design Concepts  
Lecture 17 - Design Concepts (Continued...)  
Lecture 18 - Design Concepts (Continued...)  
Lecture 19 - Design Concepts (Continued...)  
Lecture 20 - Design Concepts (Continued...)  
Lecture 21 - Design Concepts (Continued...)  
Lecture 22 - Design Concepts (Continued...)  
Lecture 23 - Cascade Aerodynamics  
Lecture 24 - Cascade Aerodynamics (Continued...)  
Lecture 25 - Cascade Aerodynamics (Continued...)  
Lecture 26 - Cascade Aerodynamics (Continued...)  
Lecture 27 - Cascade Aerodynamics (Continued...)  
Lecture 28 - Selection of Design Parameters  
Lecture 29 - Selection of Design Parameters (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Selection of Design Parameters (Continued...)
- Lecture 31 - Selection of Design Parameters (Continued...)
- Lecture 32 - Selection of Design Parameters (Continued...)
- Lecture 33 - Design Strategies
- Lecture 34 - Design Strategies (Continued...)
- Lecture 35 - Design Strategies (Continued...)
- Lecture 36 - Design Strategies (Continued...)
- Lecture 37 - Design of Low Speed Compressor
- Lecture 38 - Design of Low Speed Compressor (Continued...)
- Lecture 39 - Design of Low Speed Compressor (Continued...)
- Lecture 40 - Design of Low Speed Compressor (Continued...)
- Lecture 41 - Design of Low Speed Compressor (Continued...)
- Lecture 42 - Design of Low Speed Compressor (Continued...)
- Lecture 43 - Design of Low Speed Contra rotating Fan
- Lecture 44 - Design of Low Speed Contra rotating Fan (Continued...)
- Lecture 45 - Design of Low Speed Contra rotating Fan (Continued...)
- Lecture 46 - Design of Low Speed Contra rotating Fan (Continued...)
- Lecture 47 - Design of Low Speed Contra rotating Fan (Continued...)
- Lecture 48 - Design of Low Speed Contra rotating Fan (Continued...)
- Lecture 49 - Transonic Compressors
- Lecture 50 - Transonic Compressors (Continued...)
- Lecture 51 - Transonic Compressors (Continued...)
- Lecture 52 - Transonic Compressors (Continued...)
- Lecture 53 - Transonic Compressors (Continued...)
- Lecture 54 - Design of Transonic Compressor
- Lecture 55 - Design of Transonic Compressor (Continued...)
- Lecture 56 - Design of Transonic Compressor (Continued...)
- Lecture 57 - Design of Transonic Compressor (Continued...)
- Lecture 58 - Design of Transonic Compressor (Continued...)
- Lecture 59 - Design of Transonic Compressor (Continued...)
- Lecture 60 - Design of Industrial fan
- Lecture 61 - Design of Industrial fan (Continued...)
- Lecture 62 - Design of Industrial fan (Continued...)
- Lecture 63 - Design of Industrial fan (Continued...)
- Lecture 64 - Design of Industrial fan (Continued...)
- Lecture 65 - CFD application to Design and Performance assessment
- Lecture 66 - CFD application to Design and Performance assessment (Continued...)
- Lecture 67 - CFD application to Design and Performance assessment (Continued...)
- Lecture 68 - CFD application to Design and Performance assessment (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - CFD application to Design and Performance assessment (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Smart Structures

Subject Co-ordinator - Prof. Mohammed Rabiun Sunny

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Smart Structures (Continued...)  
Lecture 2 - Introduction to Smart Structures (Continued...)  
Lecture 3 - Introduction to Smart Structures (Continued...)  
Lecture 4 - Introduction to Piezoelectric Materials  
Lecture 5 - Introduction to Piezoelectric Materials (Continued...)  
Lecture 6 - Mathematical Preliminaries  
Lecture 7 - 3D Constitutive Modeling of Piezoelectric Materials - 1  
Lecture 8 - 3D Constitutive Modeling of Piezoelectric Materials - 2  
Lecture 9 - 3D Constitutive Modeling of Piezoelectric Materials - 3  
Lecture 10 - 3D Constitutive Modeling of Piezoelectric Materials - 4  
Lecture 11 - Piezoelectric Sensors and Actuators  
Lecture 12 - Numerical Problems and Solutions  
Lecture 13 - Induced Strain Actuation - Static Analysis  
Lecture 14 - Induced Strain Actuation - Static Analysis (Continued...)  
Lecture 15 - Induced Strain Actuation - Static Analysis  
Lecture 16 - Induced Strain Actuation - Static Analysis (Continued...)  
Lecture 17 - Induced Strain Actuation - Static Analysis (Continued...)  
Lecture 18 - Induced Strain Actuation - Static Analysis - Numerical Examples  
Lecture 19 - Introduction to Energy Principles for Structural Analysis  
Lecture 20 - Introduction to Energy Principles for Structural Analysis (Continued...)  
Lecture 21 - Static Analysis of beam for Induced Strain Actuation using Energy Principles  
Lecture 22 - Static Analysis of beam for Induced Strain Actuation using Energy Principles (Continued...)  
Lecture 23 - Static Analysis of beam for Induced Strain Actuation using Energy Principles (Continued...)  
Lecture 24 - Static Analysis of beam for Induced strain Actuation using Energy Principles Numerical  
Lecture 25 - Dynamic Analysis of Beam for Induced Strain Actuation Using Energy Principle  
Lecture 26 - Dynamic Analysis of Beam for Induced Strain Actuation Using (Continued...)  
Lecture 27 - Energy Harvesting and Vibration Control  
Lecture 28 - Energy Harvesting and Vibration Control (Continued...)  
Lecture 29 - Solution of Coupled Linear Ordinary Differential Equations

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- Lecture 30 - Introduction to Fibre Reinforced Plastic Composites
- Lecture 31 - Constitutive Relation of Unidirectional FRP Composite Ply
- Lecture 32 - Constitutive Relation of Unidirectional FRP Composite Ply (Continued...)
- Lecture 33 - Constitutive Relation of Unidirectional FRP Composite Ply (Continued...)
- Lecture 34 - Mechanics of FRP Composite Laminate Numerical Examples
- Lecture 35 - Mechanics of FRP Composite Laminate Numerical Examples (Continued...)
- Lecture 36 - Analysis of composite laminate with piezoelectric patches (Continued...)
- Lecture 37 - Analysis of composite laminate with piezoelectric patches (Continued...)
- Lecture 38 - Analysis of composite laminate with piezoelectric patches (Continued...)
- Lecture 39 - Analysis of composite laminate with piezoelectric patches (Continued...)
- Lecture 40 - Analysis of composite laminate with piezoelectric patches - computer programming
- Lecture 41 - Introduction to Shape Memory Alloys
- Lecture 42 - Temperature and Stress Dependent Phase Transformation Modeling
- Lecture 43 - Temperature and Stress Dependent Phase Transformation Modeling (Continued...)
- Lecture 44 - Stress-strain Curve at Low Temperature, Pseudo elasticity Two Way Shape Memory Effect
- Lecture 45 - Constitutive Relations of Shape Memory Alloys
- Lecture 46 - Constitutive Relations of Shape Memory Alloys (Continued...)
- Lecture 47 - Constitutive Relations of Shape Memory Alloys (Continued...)
- Lecture 48 - Constitutive Relations of Shape Memory Alloys (Continued...)
- Lecture 49 - Constitutive Relations of Shape Memory Alloys (Continued...)
- Lecture 50 - Finite Element Formulation of Euler - Bernoulli Beam
- Lecture 51 - Finite Element Formulation of Euler - Bernoulli Beam (Continued...)
- Lecture 52 - Analysis of a Beam with Shape Memory Alloy Wire
- Lecture 53 - Analysis of a Beam with Shape Memory Alloy Wire (Continued...)
- Lecture 54 - Introduction to Electro and Magneto Rheological Fluids
- Lecture 55 - Analysis of Electro and Magneto Rheological Fluid Flow
- Lecture 56 - Analysis of Electro and Magneto Rheological Fluid Flow (Continued...)
- Lecture 57 - Analysis of Electro and Magneto Rheological Fluid Flow (Continued...)
- Lecture 58 - Analysis of Electro and Magneto Rheological Fluid Flow (Continued...)
- Lecture 59 - Analysis of Electro and Magneto Rheological Fluid Flow
- Lecture 60 - Analysis of Electro and Magneto Rheological Fluid Flow (Continued...)
- Lecture 61 - Analysis of Electro and Magneto Rheological Fluid Flow (Continued...)
- Lecture 62 - Analysis of a Beam with ER/MR Fluid Layer

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Aeroengine Gas Turbine Cycles

Subject Co-ordinator - Prof. Chetankumar Sureshbhai Mistry

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Introduction (Continued...)
- Lecture 4 - Introduction (Continued...)
- Lecture 5 - Introduction (Continued...)
- Lecture 6 - Introduction (Continued...)
- Lecture 7 - Component Performance
- Lecture 8 - Component Performance (Continued...)
- Lecture 9 - Component Performance (Continued...)
- Lecture 10 - Component Performance (Continued...)
- Lecture 11 - Component Performance (Continued...)
- Lecture 12 - Turbojet Engine - I
- Lecture 13 - Turbojet Engine - I (Continued...)
- Lecture 14 - Turbojet Engine - I (Continued...)
- Lecture 15 - Turbojet Engine - I (Continued...)
- Lecture 16 - Turbojet Engine - I (Continued...)
- Lecture 17 - Turbojet Engine - I (Continued...)
- Lecture 18 - Turbojet Engine - II
- Lecture 19 - Turbojet Engine - II (Continued...)
- Lecture 20 - Turbojet Engine - II (Continued...)
- Lecture 21 - Turbojet Engine - II (Continued...)
- Lecture 22 - Turbojet Engine - II (Continued...)
- Lecture 23 - Turbofan Engine - I
- Lecture 24 - Turbofan Engine - I (Continued...)
- Lecture 25 - Turbofan Engine - I (Continued...)
- Lecture 26 - Turbofan Engine - I (Continued...)
- Lecture 27 - Turbofan Engine - I (Continued...)
- Lecture 28 - Turbofan Engine - II
- Lecture 29 - Turbofan Engine - II (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Turbofan Engine - II (Continued...)
- Lecture 31 - Turbofan Engine - II (Continued...)
- Lecture 32 - Turbofan Engine - II (Continued...)
- Lecture 33 - Turbofan Engine - III
- Lecture 34 - Turbofan Engine - III (Continued...)
- Lecture 35 - Turbofan Engine - III (Continued...)
- Lecture 36 - Turbofan Engine - III (Continued...)
- Lecture 37 - Turbofan Engine - III (Continued...)
- Lecture 38 - Turbofan Engine - IV
- Lecture 39 - Turbofan Engine - IV (Continued...)
- Lecture 40 - Turbofan Engine - IV (Continued...)
- Lecture 41 - Turbofan Engine - IV (Continued...)
- Lecture 42 - Turbofan Engine - IV (Continued...)
- Lecture 43 - Turbofan Engine - IV (Continued...)
- Lecture 44 - Recent Advances in Turbofan Engines
- Lecture 45 - Recent Advances in Turbofan Engines (Continued...)
- Lecture 46 - Recent Advances in Turbofan Engines (Continued...)
- Lecture 47 - Recent Advances in Turbofan Engines (Continued...)
- Lecture 48 - Recent Advances in Turbofan Engines (Continued...)
- Lecture 49 - Recent Advances in Turbofan Engines (Continued...)
- Lecture 50 - Turboprop Engine
- Lecture 51 - Turboprop Engine (Continued...)
- Lecture 52 - Turboprop Engine (Continued...)
- Lecture 53 - Turboprop Engine (Continued...)
- Lecture 54 - Turboprop Engine (Continued...)
- Lecture 55 - Turboshaft Engine
- Lecture 56 - Turboshaft Engine (Continued...)
- Lecture 57 - Turboshaft Engine (Continued...)
- Lecture 58 - Turboshaft Engine (Continued...)
- Lecture 59 - Turboshaft Engine (Continued...)
- Lecture 60 - Component Matching and Testing
- Lecture 61 - Component Matching and Testing (Continued...)
- Lecture 62 - Component Matching and Testing (Continued...)
- Lecture 63 - Component Matching and Testing (Continued...)
- Lecture 64 - Aircraft Engine Testing



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Combustion of Solid Fuels and Propellants

Subject Co-ordinator - Prof. Srinibas Karmakar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Principle of Rocket
- Lecture 2 - Basic Principle of Rocket (Continued...)
- Lecture 3 - Performance Parameters
- Lecture 4 - Performance Parameters (Continued...)
- Lecture 5 - Performance Parameters (Example problems)
- Lecture 6 - Solid Propellant Rocket - Brief Description
- Lecture 7 - Solid Propellants - Introduction
- Lecture 8 - Solid Propellants - Selection Criteria
- Lecture 9 - Solid Propellants - Selection Criteria (Continued...)
- Lecture 10 - Solid Propellants - Selection Criteria (Continued...)
- Lecture 11 - Propellants Ingredients (Continued...) and Classification of Solid Propellants
- Lecture 12 - Tutorial Problems
- Lecture 13 - Combustion of Solid Propellants - Introduction
- Lecture 14 - Combustion of Double-Base Propellants
- Lecture 15 - Combustion of Double-Base Propellants (Continued...)
- Lecture 16 - Combustion of Double-Base Propellants (Continued...)
- Lecture 17 - Evaluation of Burn Rate of DB Propellants
- Lecture 18 - Evaluation of Burn Rate of DB Propellants (Continued...)
- Lecture 19 - Combustion of Composite Propellants - Introduction
- Lecture 20 - Combustion of Composite Propellants (Continued...)
- Lecture 21 - Evaluation of Burn Rate of Composite Propellants
- Lecture 22 - Effect of Various Parameters on Burn Rate of Composite Propellants
- Lecture 23 - Effect of Transients, Vehicle Acceleration, Binder, Catalysts on Burning Rate of CP
- Lecture 24 - Effect of Catalysts on Burning Rate of CP (Continued...)
- Lecture 25 - Combustion of Nitra mine Composite Propellants
- Lecture 26 - Combustion of CMDB Propellants
- Lecture 27 - Choice of Pressure Index (n); Tutorial Problems
- Lecture 28 - Metal Combustion Classification-Introduction
- Lecture 29 - Metal Combustion Classification (Continued...)

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- Lecture 30 - Metal Combustion Classification (Continued...)
- Lecture 31 - Metal Particle Combustion Regimes
- Lecture 32 - Metal Particle Combustion Regimes (Continued...)
- Lecture 33 - Combustion Times for Diffusion and Kinetic Controlled Regimes
- Lecture 34 - Ignition and Combustion of Boron Particle
- Lecture 35 - Ignition and Combustion of Boron Particle (Continued...)
- Lecture 36 - Ignition and Combustion of Aluminum Particle, Recent Future Developments on Metal Fuels
- Lecture 37 - Erosive Burning in Solid Propellant Rockets - Introduction
- Lecture 38 - Methods for Determination of Erosive Function
- Lecture 39 - Methods for Determination of Erosive Function (Continued...)
- Lecture 40 - Erosive Burning Theories

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Aerospace Structural Analysis

Subject Co-ordinator - Prof. Mira Mitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Aerospace Structures  
Lecture 2 - Introduction to Aerospace Structures  
Lecture 3 - Recap of Theory of Elasticity  
Lecture 4 - Torsion of Circular Cross-Section Shaft  
Lecture 5 - Torsion of Non-Circular Cross-Section Shaft  
Lecture 6 - Torsion of Non-Circular Cross-Section Shaft  
Lecture 7 - Torsion of Non-Circular Cross-Section Shaft  
Lecture 8 - Torsion of Non-Circular Cross-Section Shaft  
Lecture 9 - Membrane Analogy  
Lecture 10 - Membrane Analogy  
Lecture 11 - Torsion of Thin-Walled Cross-Section  
Lecture 12 - Torsion of Thin-Walled Cross-Section  
Lecture 13 - Torsion of Thin-Walled Closed Cross-Section  
Lecture 14 - Torsion of Thin-Walled Closed Cross-Section  
Lecture 15 - Torsion of Thin-Walled Closed Cross-Section  
Lecture 16 - Bi-directional Bending  
Lecture 17 - Bi-directional Bending  
Lecture 18 - Bi-directional Bending  
Lecture 19 - Deflection in Bi-directional Bending  
Lecture 20 - Deflection in Bi-directional Bending  
Lecture 21 - Shear Stresses due to Shear Forces  
Lecture 22 - Shear Stresses due to Shear Forces  
Lecture 23 - Shear Stresses due to Shear Forces  
Lecture 24 - Shear Center  
Lecture 25 - Shear Center  
Lecture 26 - Shear Flow in Thin-walled Closed Cross-Section due to Shear Force  
Lecture 27 - Shear Flow in Thin-walled Closed Cross-Section due to Shear Force  
Lecture 28 - Shear Flow in Thin-walled Closed Cross-Section due to Shear Force  
Lecture 29 - Shear Flow in Thin-walled Closed Cross-Section due to Shear Force

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Skin-Stringer Idealization
- Lecture 31 - Skin-Stringer Idealization
- Lecture 32 - Skin-Stringer Idealization
- Lecture 33 - Skin-Stringer Idealization
- Lecture 34 - Skin-Stringer Idealization
- Lecture 35 - Skin-Stringer Idealization
- Lecture 36 - Buckling of Column
- Lecture 37 - Buckling of Column
- Lecture 38 - Buckling of Column with Initial Imperfection
- Lecture 39 - Buckling of Column with Different Boundary Conditions
- Lecture 40 - Buckling of Column with Different Boundary Conditions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Fundamentals of Supersonic and Hypersonic Flow

Subject Co-ordinator - Prof. Arnab Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to supersonic and hypersonic flows
- Lecture 2 - Introduction to supersonic and hypersonic flows (Continued...)
- Lecture 3 - Characteristics of these two flow regimes
- Lecture 4 - Characteristics of these two flow regimes (Continued...)
- Lecture 5 - Where do these flows occur
- Lecture 6 - Basic Concepts and Governing Equations of Compressible Flow
- Lecture 7 - Basic Concepts and Governing Equations of Compressible Flow (Continued...)
- Lecture 8 - Basic Concepts and Governing Equations of Compressible Flow (Continued...)
- Lecture 9 - Basic Concepts and Governing Equations of Compressible Flow (Continued...)
- Lecture 10 - Basic Concepts and Governing Equations of Compressible Flow (Continued...)
- Lecture 11 - Brief introduction to waves
- Lecture 12 - Shocks and Expansion waves
- Lecture 13 - Shock and expansion wave relations in the high Mach number limit
- Lecture 14 - Revisiting Waves, Conservation Equations and Shocks
- Lecture 15 - More on shock and expansion wave relations
- Lecture 16 - Introduction to viscous compressible flow
- Lecture 17 - Introduction to viscous compressible flow - boundary layer equations
- Lecture 18 - Compressible Boundary Layer Equations (Continued...)
- Lecture 19 - Compressible Boundary Layer Equations (Continued...)
- Lecture 20 - Compressible Boundary Layer Equations - aerodynamic heating and drag
- Lecture 21 - Introduction to High Temperature Gas Dynamics
- Lecture 22 - Introduction to High Temperature Gas Dynamics (Continued...)
- Lecture 23 - Introduction to High Temperature Gas Dynamics (Continued...)
- Lecture 24 - Thermodynamics and chemistry of high temperature gases
- Lecture 25 - Equilibrium chemically reacting gas mixture
- Lecture 26 - Introduction to Statistical Thermodynamics
- Lecture 27 - Macrostates and Microstates and counting of microstates
- Lecture 28 - Most probable macrostate - Boltzmann Distribution
- Lecture 29 - Partition function and its role in finding thermodynamic properties of a single

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equilibrium composition of high temperature air
- Lecture 31 - Introduction to Hypersonic Non Equilibrium Flows
- Lecture 32 - Basics of Kinetic Theory of Gases
- Lecture 33 - Kinetic Theory of Gases (Continued...)
- Lecture 34 - Vibrational Nonequilibrium
- Lecture 35 - Chemical Nonequilibrium
- Lecture 36 - Inviscid High Temperature Equilibrium Flow
- Lecture 37 - Inviscid High Temperature Equilibrium Flow (Continued...)
- Lecture 38 - Governing equations of Inviscid High Temperature Equilibrium Flow
- Lecture 39 - Inviscid High Temperature Equilibrium Flow-normal and oblique shock
- Lecture 40 - Inviscid High Temperature Equilibrium Flow-flow through CD nozzle
- Lecture 41 - Inviscid High Temperature Non Equilibrium Flow - Introduction
- Lecture 42 - Inviscid High Temperature Non Equilibrium Flow - Introduction (Continued...)
- Lecture 43 - Inviscid High Temperature Non Equilibrium Flow - Governing Equations
- Lecture 44 - Inviscid High Temperature Non Equilibrium Flow - frozen, equilibrium
- Lecture 45 - Inviscid High Temperature Non Equilibrium Flow - shocks, nozzle flow
- Lecture 46 - Viscous High Temperature Flows - Introduction
- Lecture 47 - Viscous High Temperature Flows - Introduction (Continued...)
- Lecture 48 - Transport properties and Governing Equations of Viscous High Temperature Flows
- Lecture 49 - Governing Equations of Viscous High Temperature Flows, Boundary layer Equations
- Lecture 50 - Introduction to radiative heat transfer, computational results on viscous
- Lecture 51 - Recapitulating the basics of high speed aerodynamics from an application perspective
- Lecture 52 - Recapitulating the basics of high speed aerodynamics from an application perspective
- Lecture 53 - Supersonic and Hypersonic Shock Interactions
- Lecture 54 - Supersonic and hypersonic shock interactions (Continued...); Hypersonic Flight
- Lecture 55 - Hypersonic Flight Trajectories (Continued...), Basics of wave rider, Recapitulation
- Lecture 56 - Reference Temperature Method; Brief discussion on boundary layer transition
- Lecture 57 - Recapitulation of the Reference Temperature Method; Governing equations
- Lecture 58 - Some numerical simulations on shock diffraction, shock wave boundary
- Lecture 59 - High speed intakes; scramjet engines; other applications of shock waves
- Lecture 60 - Other applications of shock waves - astrophysical flows, a quick

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Acoustic Instabilities in Aerospace Propulsion

Subject Co-ordinator - Prof. R.I. Sujith

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Thermoacoustic Instabilities  
Lecture 2 - Part I  
Lecture 3 - Wave Equation and its Solution in Time Domain  
Lecture 4 - Part I  
Lecture 5 - Standing Waves - 1  
Lecture 6 - Standing Waves - 2  
Lecture 7 - Power Flow and Acoustic Admittance  
Lecture 8 - Impedance Tube Technique  
Lecture 9 - Admittance and Standing Waves  
Lecture 10 - Admittance, Stability and Attenuation  
Lecture 11 - Attenuation  
Lecture 12 - Sound Propagation Through Inhomogeneous Media - 2  
Lecture 13 - Sound Propagation Through Inhomogeneous Media - 3  
Lecture 14 - Multidimensional Acoustic Fields - 1  
Lecture 15 - Multidimensional Acoustic Fields - 2  
Lecture 16 - Interaction between Sound and Combustion  
Lecture 17 - Reference Books Derivation of Rayleigh Criteria  
Lecture 18 - Effect of Heat release on the Acoustic Field  
Lecture 19 - Modal Analysis of Thermoacoustic Instability - 1  
Lecture 20 - Modal Analysis of Thermoacoustic Instability - 2  
Lecture 21 - Active Control of Thermoacoustic Instability  
Lecture 22 - Toy model for a Rijke tube in Time Domain  
Lecture 23 - Galerkin Technique for Thermoacoustics  
Lecture 24 - Evolution Equation for Thermoacoustics  
Lecture 25 - Non linear analysis of Thermoacoustic Instability  
Lecture 26 - Non-normality, Transient Growth and Triggering Instability - 1  
Lecture 27 - Non-normality, Transient Growth and Triggering Instability - 2  
Lecture 28 - Non-normality, Transient Growth and Triggering Instability - 3  
Lecture 29 - Bifurcations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Premixed Flame Acoustic Interaction - 1
- Lecture 31 - Premixed Flame Acoustic Interaction - 2
- Lecture 32 - Combustion instability due to Equivalence Ratio Fluctuation
- Lecture 33 - Role of Hydrodynamic Instabilities - 1
- Lecture 34 - Role of Hydrodynamic Instabilities - 2
- Lecture 35 - Role of Hydrodynamic Instabilities - 3
- Lecture 36 - Active Control of Thermoacoustic Instability Revisited
- Lecture 37 - Solid Propellant Combustion Instability - 1
- Lecture 38 - Solid Propellant Combustion Instability - 2
- Lecture 39 - Response of a Diffusion Flame to Acoustic Oscillations - 1
- Lecture 40 - Response of a Diffusion Flame to Acoustic Oscillations - 2
- Lecture 41 - Response of a Diffusion Flame to Acoustic Oscillations - 3



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Aerospace Propulsion

Subject Co-ordinator - Dr. P.A. Ramakrishna

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Air breathing Engines - Turbojet I
- Lecture 3 - Air breathing Engines - Turbojet II
- Lecture 4 - Air breathing Engines - Turboprop & Turbofan
- Lecture 5 - Air breathing Engines - Ramjet & Scramjet
- Lecture 6 - Non-air breathing Engines I
- Lecture 7 - Non-air breathing Engines II
- Lecture 8 - General Performance Parameters I
- Lecture 9 - General Performance Parameters II
- Lecture 10 - Cycle Analysis - Ramjet
- Lecture 11 - Cycle Analysis - Turbojet I
- Lecture 12 - Cycle Analysis - Turbojet II
- Lecture 13 - Cycle Analysis - Turbojet III
- Lecture 14 - Cycle Analysis - Turbojet IV
- Lecture 15 - Cycle Analysis - Turbojet V
- Lecture 16 - Cycle Analysis - Turbojet VI
- Lecture 17 - Cycle Analysis - Turbofan
- Lecture 18 - Rocket Nozzles - 1D Analysis I
- Lecture 19 - Rocket Nozzles - 1D Analysis II
- Lecture 20 - Rocket Nozzles - 1D Analysis III
- Lecture 21 - Rocket Nozzles - Real Effects I
- Lecture 22 - Rocket Nozzles - Real Effects II
- Lecture 23 - Rocket Nozzles - Thrust Vectoring
- Lecture 24 - Solid Rockets - Propellants
- Lecture 25 - Solid Rockets - Burn rate
- Lecture 26 - Solid Rockets - Performance
- Lecture 27 - Solid Rockets - Grain
- Lecture 28 - Solid Rockets - Ignition, Quenching
- Lecture 29 - Solid Rockets - Igniter, Depressurization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Propellant Combustion - Combustion Modelling
- Lecture 31 - Liquid Rocket - Propellants
- Lecture 32 - Liquid Rocket - Nozzle Cooling I
- Lecture 33 - Liquid Rocket - Nozzle Cooling II
- Lecture 34 - Liquid Rocket - Nozzle Cooling III
- Lecture 35 - Liquid Rocket - Pressure fed system
- Lecture 36 - Liquid Rocket - Pump fed system
- Lecture 37 - Liquid Rocket - Pumps
- Lecture 38 - Liquid Rocket - Fuel Injection
- Lecture 39 - Hybrid Rocket - Basics
- Lecture 40 - Hybrid Rocket Performance
- Lecture 41 - Hybrid Rocket Combustion
- Lecture 42 - Chemical Equilibrium Analyser - SP 273

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Combustion

Subject Co-ordinator - Prof. S.R. Chakravarthy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Chemical Reactions, Heats of Reaction and Formation

Lecture 3 - Sensible Enthalpy and Adiabatic Flame Temperature

Lecture 4 - Dissociation of Products, Role of Pressure

Lecture 5 - Numerical Calculation of Adiabatic Flame Temperature, Chemical Kinetics 1

Lecture 6 - Chemical Kinetics 2

Lecture 7 - Equilibrium Reactions, Global Kinetics, Order of Reaction

Lecture 8 - Reduced Chemistry, Steady State Approximation

Lecture 9 - Steady State Approximation, Partial Equilibrium Approximation

Lecture 10 - Partial Equilibrium Approximation, Chemical Explosions

Lecture 11 - Combining Chemical and Thermal Processes 1

Lecture 12 - Combining Chemical and Thermal Processes 2

Lecture 13 - Combining Chemical and Thermal Processes 3

Lecture 14 - Combining Chemical and Thermal Processes 4

Lecture 15 - Mass and Molar Diffusion, Fick's Law

Lecture 16 - Conservation Equations for Multi-Component Mixtures

Lecture 17 - Multi-Component Diffusion Equation

Lecture 18 - Multi-Component Momentum Equation

Lecture 19 - Energy Equation

Lecture 20 - One Dimensional Steady Flow

Lecture 21 - Schvab-Zeldovich Formulation 1

Lecture 22 - Schvab-Zeldovich Formulation 2

Lecture 23 - Rankine-Hugoniot Relations 1

Lecture 24 - Rankine-Hugoniot Relations 2

Lecture 25 - Rankine-Hugoniot Relations 3

Lecture 26 - Velocity, Temperature and Entropy Variation along Hugoniot Curve

Lecture 27 - Laminar Premixed Flames

Lecture 28 - Laminar Premixed Flames - Corrections

Lecture 29 - Laminar Premixed Flames - Rigorous Analysis 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Laminar Premixed Flames - Rigorous Analysis 2
- Lecture 31 - Flame Speed Dependencies, G-Equation
- Lecture 32 - Bunsen Burner 1
- Lecture 33 - Bunsen Burner 2
- Lecture 34 - Flame Stabilisation 1
- Lecture 35 - Flame Stabilisation 2
- Lecture 36 - Ignition
- Lecture 37 - Burke-Schumann Problem 1
- Lecture 38 - Burke-Schumann Problem 2
- Lecture 39 - Burke-Schumann Problem 3
- Lecture 40 - Flame Structure
- Lecture 41 - Mixture Fraction Formulation 1
- Lecture 42 - Mixture Fraction Formulation 2
- Lecture 43 - Droplet Burning 1
- Lecture 44 - Droplet Burning 2
- Lecture 45 - Spray Combustion 1
- Lecture 46 - Spray Combustion 2
- Lecture 47 - Turbulent Combustion 1
- Lecture 48 - Turbulent Combustion 2
- Lecture 49 - Combustion Instabilities
- Lecture 50 - Detonations
- Lecture 51 - Detonation Wave - ZND Structure

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Flight Dynamics II (Stability)

Subject Co-ordinator - Dr. Nandan Kumar Sinha

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Earth Atmosphere, Aircraft components, Aircraft nomenclature
- Lecture 2 - Basic aerodynamics
- Lecture 3 - Equilibrium and stability
- Lecture 4 - Static vs dynamic stability
- Lecture 5 - Criterion for stability, Wing contribution
- Lecture 6 - Horizontal tail contribution
- Lecture 7 - Wing plus tail contribution
- Lecture 8 - Static margin and CG limits
- Lecture 9 - Fuselage contribution
- Lecture 10 - Powerplant contribution
- Lecture 11 - Power effects on neutral point
- Lecture 12 - Elevator
- Lecture 13 - Stick free stability, Most fwd CG location
- Lecture 14 - Longitudinal stick force per 'g', Ground effect
- Lecture 15 - Control requirement, Pull-up maneuver, Maneuver point
- Lecture 16 - Elevator per 'g', Maneuver point
- Lecture 17 - Example problems
- Lecture 18 - Lateral-Directional Stability Derivatives, Fuselage/Vertical fin contribution
- Lecture 19 - Roll stability, Wing sweep effect, Rudder
- Lecture 20 - Dihedral effect, Various contributions
- Lecture 21 - Power effects, Roll control, Aileron
- Lecture 22 - Example problems
- Lecture 23 - Derivation of Translational Motion Equations
- Lecture 24 - Derivation of Angular Motion Equations
- Lecture 25 - Description of various forces and moments
- Lecture 26 - Nonlinearities and Associated Aircraft Behavior
- Lecture 27 - Small perturbation method, Linearization of equations
- Lecture 28 - Aerodynamic force and Moment Derivatives
- Lecture 29 - Contribution of Aircraft components to Aerodynamic Derivatives

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear Model and Aircraft Dynamics Modes
- Lecture 31 - Short Period, Phugoid (Lanchester's formulation)
- Lecture 32 - Short period mode approximation
- Lecture 33 - Flying and Handling Qualities, Cooper Harper Scale
- Lecture 34 - Pure rolling motion, Pure yawing motion, Spiral approximation
- Lecture 35 - Spiral, Roll, Dutch roll Mode approximations
- Lecture 36 - Lateral directional Flying Qualities, Routh's Stability criterion
- Lecture 37 - Stability in Steady Roll Maneuver
- Lecture 38 - Wind Effect on Aircraft Pure Plunging Motion
- Lecture 39 - Wind Profiles, Longitudinal Mode Response to Wind Shear
- Lecture 40 - Stability control/Augmentation
- Lecture 41 - Autopilots, Automatic Landing System

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Gas Dynamics

Subject Co-ordinator - Dr. T.M. Muruganandam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
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Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
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Lecture 50  
Lecture 51  
Lecture 52  
Lecture 53  
Lecture 54



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Introduction to CFD

Subject Co-ordinator - Prof. M. Ramakrishna

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Why and how we need computers
- Lecture 2 - Representing Arrays and functions on computers
- Lecture 3 - Representing functions - Box functions
- Lecture 4 - Representing functions - Polynomials and Hat functions
- Lecture 5 - Hat functions, Quadratic and Cubic representations
- Lecture 6 - Demo - Hat functions, Aliasing
- Lecture 7 - Representing Derivatives - finite differences
- Lecture 8 - Finite differences, Laplace equation
- Lecture 9 - Laplace equation - Jacobi iterations
- Lecture 10 - Laplace equation - Iteration matrices
- Lecture 11 - Laplace equation - convergence rate
- Lecture 12 - Laplace equation - convergence rate Continued
- Lecture 13 - Demo - representation error, Laplace equation
- Lecture 14 - Demo - Laplace equation, SOR
- Lecture 15 - Laplace equation - final, Linear Wave equation
- Lecture 16 - Linear wave equation - Closed form and numerical solution, stability analysis
- Lecture 17 - Generating a stable scheme and Boundary conditions
- Lecture 18 - Modified equation
- Lecture 19 - Effect of higher derivative terms on Wave equation
- Lecture 20 - Artificial dissipation, upwinding, generating schemes
- Lecture 21 - Demo - Modified equation, Wave equation
- Lecture 22 - Demo - Wave equation / Heat Equation
- Lecture 23 - Quasi-linear One-Dimensional. wave equation
- Lecture 24 - Shock speed, stability analysis, Derive Governing equations
- Lecture 25 - One-Dimensional Euler equations - Attempts to decouple
- Lecture 26 - Derive Eigenvectors, Writing Programs
- Lecture 27 - Applying Boundary conditions
- Lecture 28 - Implicit Boundary conditions
- Lecture 29 - Flux Vector Splitting, setup froms averaging

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- Lecture 30 - Roes averaging
- Lecture 31 - Demo - One Dimensional flow
- Lecture 32 - Accelerating convergence - Preconditioning, dual time stepping
- Lecture 33 - Accelerating convergence - Intro to Multigrid method
- Lecture 34 - Multigrid method
- Lecture 35 - Multigrid method - final, Parallel Computing
- Lecture 36 - Calculus of Variations - Three Lemmas and a Theorem
- Lecture 37 - Calculus of Variations - Application to Laplace Equation
- Lecture 38 - Calculus of Variations - Final and Random Walk
- Lecture 39 - Overview and Recap of the course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Rocket Propulsion

Subject Co-ordinator - Prof. K. Ramamurthi, Prof. S. Varunkumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Motion in Space
- Lecture 3 - Rotational Frame of Reference and Orbital Velocities
- Lecture 4 - Velocity Requirements
- Lecture 5 - Theory of rocket propulsion
- Lecture 6 - Rocket Equation and Staging of Rockets
- Lecture 7 - Review of Rocket Principles
- Lecture 8 - Examples Illustrating Theory of Rocket Propulsion and Introduction to Nozzles
- Lecture 9 - Theory of Nozzles
- Lecture 10 - Nozzle Shape
- Lecture 11 - Area Ratio of Nozzles
- Lecture 12 - Characteristic Velocity and Thrust Coefficient
- Lecture 13 - Divergence Loss in Conical Nozzles and the Bell Nozzles
- Lecture 14 - Unconventional Nozzles and Problems in Nozzles
- Lecture 15 - Criterion for Choice of Chemical Propellants
- Lecture 16 - Choice of Fuel-Rich Propellants
- Lecture 17 - Performance Prediction Analysis
- Lecture 18 - Factors Influencing Choice of Chemical Propellants
- Lecture 19 - Low energy liquid propellants and Hybrid propellants Chapter 5
- Lecture 20 - Introduction to Solid Propellant Rockets
- Lecture 21 - Burn Rate of Solid Propellants and Equilibrium Pressure in Solid Propellant Rockets
- Lecture 22 - Design Aspects of Solid Propellant Rockets
- Lecture 23 - Burning Surface Area of Solid Propellant Grains
- Lecture 24 - Ignition of Solid Propellant Rockets
- Lecture 25 - Review of Solid Propellant Rockets
- Lecture 26 - Feed Systems for Liquid Propellant Rockets
- Lecture 27 - Feed System Cycles for Pump Fed Liquid Propellant Rockets
- Lecture 28 - Analysis of Gas Generator and Staged combustion cycles and introduction to injectors
- Lecture 29 - Injectors, Cooling of Chambers and Mixture Ratio Distribution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Efficiencies due to mixture ratio distribution and incomplete vaporization
- Lecture 31 - Pumps and Turbines
- Lecture 32 - Review of Liquid Bi-propellant Rockets and Introduction to Mono-propellant Rockets
- Lecture 33 - Introduction to Hybrid Rockets and a Simple Illustration of Combustion instability in Liquid Prop
- Lecture 34 - Principles of Electrostatic and Electromagnetic Rockets
- Lecture 35 - Electrical Thrusters
- Lecture 36 - Electrical and Nuclear Rockets; Advanced Propulsion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Advanced Control System Design for Aerospace Vehicles

Subject Co-ordinator - Dr. Radhakant Padhi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Motivation for Advanced Control Design
- Lecture 2 - Classical Control Overview - I
- Lecture 3 - Classical Control Overview - II
- Lecture 4 - Classical Control Overview - III
- Lecture 5 - Classical Control Overview - IV
- Lecture 6 - Basic Principles of Atmospheric Flight Mechanics
- Lecture 7 - Overview of Flight Dynamics - I
- Lecture 8 - Overview of Flight Dynamics - II
- Lecture 9 - Representation of Dynamical Systems - I
- Lecture 10 - Representation of Dynamical Systems - II
- Lecture 11 - Representation of Dynamical Systems - III
- Lecture 12 - Review of Matrix Theory - I
- Lecture 13 - Review of Matrix Theory - II
- Lecture 14 - Review of Matrix Theory - III
- Lecture 15 - Review of Numerical Methods
- Lecture 16 - Linearization of Nonlinear Systems
- Lecture 17 - First and Second Order Linear Differential Equations
- Lecture 18 - Time Response of Linear Dynamical Systems
- Lecture 19 - Stability of Linear Time Invariant Systems
- Lecture 20 - Controllability and Observability of linear Time Invariant Systems
- Lecture 21 - Pole Placement Control Design
- Lecture 22 - Pole Placement Observer Design
- Lecture 23 - Static Optimization
- Lecture 24 - Calculus of Variations
- Lecture 25 - Optimal Control Formulation using Calculus of Variations
- Lecture 26 - Classical Numerical Methods for Optimal Control
- Lecture 27 - Linear Quadratic Regulator (LQR) Design - 1
- Lecture 28 - Linear Quadratic Regulator (LQR) Design - 2
- Lecture 29 - Linear Control Design Techniques in Aircraft Control - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear Control Design Techniques in Aircraft Control - II
- Lecture 31 - Lyapunov Theory - I
- Lecture 32 - Lyapunov Theory - II
- Lecture 33 - Constructions of Lyapunov Functions
- Lecture 34 - Dynamic Inversion - I
- Lecture 35 - Dynamic Inversion - II
- Lecture 36 - Neuro-Adaptive Design - I
- Lecture 37 - Neuro-Adaptive Design - II
- Lecture 38 - Neuro-Adaptive Design for Flight Control
- Lecture 39 - Integrator Back-Stepping; Linear Quadratic (lQ) Observer
- Lecture 40 - An Overview of Kalman Filter Theory

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Optimal Control, Guidance and Estimation

Subject Co-ordinator - Dr. Radhakant Padhi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction, Motivation and Overview

Lecture 2 - Overview of SS Approach and Matrix Theory

Lecture 3 - Review of Numerical Methods

Lecture 4 - An Overview of Static Optimization - I

Lecture 5 - An Overview of Static Optimization - II

Lecture 6 - Review of Calculus of Variations - I

Lecture 7 - Review of Calculus of Variations - II

Lecture 8 - Optimal Control Formulation Using Calculus of Variations

Lecture 9 - Classical Numerical Methods to Solve Optimal Control Problems

Lecture 10 - Linear Quadratic Regulator (LQR) - I

Lecture 11 - Linear Quadratic Regulator (LQR) - II

Lecture 12 - Linear Quadratic Regulator (LQR) - III

Lecture 13 - Linear Quadratic Regulator (LQR) - III

Lecture 14 - Discrete-time Optimal Control

Lecture 15 - Overview of Flight Dynamics - I

Lecture 16 - Overview of Flight Dynamics - II

Lecture 17 - Overview of Flight Dynamics - III

Lecture 18 - Linear Optimal Missile Guidance using LQR

Lecture 19 - SDRE and  $\hat{I}$ , - D Designs

Lecture 20 - Dynamic Programming

Lecture 21 - Approximate Dynamic Programming (ADP), Adaptive Critic (AC) and Single Network Adaptive Critic (SNA-C)

Lecture 22 - Transcription Method to Solve Optimal Control Problems

Lecture 23 - Model Predictive Static Programming (MPSP) and Optimal Guidance of Aerospace Vehicles

Lecture 24 - MPSP for Optimal Missile Guidance

Lecture 25 - Model Predictive Spread Control (MPSC) and Generalized MPSP (G-MPSP) Designs

Lecture 26 - Linear Quadratic Observer & An Overview of State Estimation

Lecture 27 - Review of Probability Theory and Random Variables

Lecture 28 - Kalman Filter Design - I

Lecture 29 - Kalman Filter Design - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Kalman Filter Design - III
- Lecture 31 - Integrated Estimation, Guidance & Control - I
- Lecture 32 - Integrated Estimation, Guidance & Control - II
- Lecture 33 - LQG Design; Neighboring Optimal Control & Sufficiency Condition
- Lecture 34 - Constrained Optimal Control - I
- Lecture 35 - Constrained Optimal Control - II
- Lecture 36 - Constrained Optimal Control - III
- Lecture 37 - Optimal Control of Distributed Parameter Systems - I
- Lecture 38 - Optimal Control of Distributed Parameter Systems - II
- Lecture 39 - Take Home Material
- Lecture 40 - Take Home Material



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Combustion in Air Breathing Aero Engines

Subject Co-ordinator - Prof. Swetaprovo Chaudhuri

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Chemical Equilibrium - I
- Lecture 3 - Chemical Equilibrium - II
- Lecture 4 - Chemical Kinetics - I
- Lecture 5 - Chemical Kinetics - II
- Lecture 6 - Chemical Kinetics - III
- Lecture 7 - Chemical Kinetics - IV
- Lecture 8 - Oxidation Mechanism of Fuels - I
- Lecture 9 - Oxidation Mechanism of Fuels - II
- Lecture 10 - Oxidation Mechanism of Fuels - III
- Lecture 11 - Oxidation Mechanism of Fuels - IV
- Lecture 12 - Transport Phenomena
- Lecture 13 - Governing Equations - I
- Lecture 14 - Governing Equations - II
- Lecture 15 - Governing Equations - III
- Lecture 16 - Governing Equations - IV
- Lecture 17 - Governing Equations - V
- Lecture 18 - Laminar Non-Premixed Flames - I
- Lecture 19 - Laminar Non-Premixed Flames - II
- Lecture 20 - Laminar Non-Premixed Flames - III
- Lecture 21 - Laminar Non-Premixed Flames - IV
- Lecture 22 - Laminar Premixed Flames - I
- Lecture 23 - Laminar Premixed Flames - II
- Lecture 24 - Laminar Premixed Flames - III
- Lecture 25 - Laminar Premixed Flames - IV
- Lecture 26 - Laminar Premixed Flames - V
- Lecture 27 - Laminar Premixed Flames - VI
- Lecture 28 - Laminar Premixed Flames - VII
- Lecture 29 - Limit Phenomena - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Limit Phenomena - II
- Lecture 31 - Introduction to turbulent flows
- Lecture 32 - Non-reacting turbulent flows - I
- Lecture 33 - Non-reacting turbulent flows - II
- Lecture 34 - Reacting turbulent flows - III
- Lecture 35 - Reacting turbulent flows - IV
- Lecture 36 - Reacting turbulent flows - V
- Lecture 37 - Reacting turbulent flows - VI
- Lecture 38 - Reacting turbulent flows - VII
- Lecture 39 - Turbulent Non-Premixed Flames - I
- Lecture 40 - Turbulent Non-Premixed Flames - II
- Lecture 41 - Turbulent Non-Premixed Flames - III
- Lecture 42 - Turbulent Premixed Flames - I
- Lecture 43 - Turbulent Premixed Flames - II
- Lecture 44 - Turbulent Premixed Flames - III
- Lecture 45 - Turbulent Premixed Flames - IV
- Lecture 46 - Turbulent Premixed Flames - V
- Lecture 47 - Turbulent Premixed Flames - VI
- Lecture 48 - Aero Gas Turbine Combustors - I
- Lecture 49 - Aero Gas Turbine Combustors - II
- Lecture 50 - Aero Gas Turbine Combustors - III
- Lecture 51 - Aero Gas Turbine Combustors - IV
- Lecture 52 - Aero Gas Turbine Combustors - V
- Lecture 53 - Flame Stabilization and Blow off - I
- Lecture 54 - Flame Stabilization and Blow off - II
- Lecture 55 - Flame Stabilization and Blow off - III
- Lecture 56 - Flame Stabilization and Blow off - IV
- Lecture 57 - Flame Stabilization and Blow off - V
- Lecture 58 - Combustion in Scramjets - I
- Lecture 59 - Combustion in Scramjets - II
- Lecture 60 - Combustion in Scramjets - III
- Lecture 61 - Combustion in Scramjets - IV
- Lecture 62 - Review

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Gasdynamics: Fundamentals and Applications

Subject Co-ordinator - Prof. Srisha Rao M V

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Flow Regimes  
Lecture 3 - Thermodynamics - 1  
Lecture 4 - Thermodynamics - 2  
Lecture 5 - Thermodynamics - Numerical  
Lecture 6 - Flow equations - Integral Form  
Lecture 7 - Flow equations - Differential Form  
Lecture 8 - Quasi-1D Assumption  
Lecture 9 - Speed of Sound  
Lecture 10 - Speed of Sound - Numerical  
Lecture 11 - Stagnation properties  
Lecture 12 - Pitot tube  
Lecture 13 - Sonic/Star properties  
Lecture 14 - Numerical  
Lecture 15 - Normal Shock - I  
Lecture 16 - Normal Shock - II-a  
Lecture 17 - Normal Shock - II-b  
Lecture 18 - Normal Shock - III  
Lecture 19 - Normal Shock - IV  
Lecture 20 - Normal Shock - Numerical  
Lecture 21 - The Shock Tube  
Lecture 22 - Waves of infinitesimal Amplitude  
Lecture 23 - Waves of finite amplitude  
Lecture 24 - Shock Tube Relations  
Lecture 25 - Unsteady Flows - Numerical  
Lecture 26 - Oblique Shock Waves  
Lecture 27 - Expansion waves  
Lecture 28 - Shock Expansion Method  
Lecture 29 - Shock Reflection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Oblique Shock and Expansion waves - Numerical
- Lecture 31 - Varying Area Duct Flows - I
- Lecture 32 - Varying Area Duct Flows - II
- Lecture 33 - Converging Nozzle and Chocking
- Lecture 34 - Converging and Diverging Nozzle Operation
- Lecture 35 - Varying area flow- Numericals - I
- Lecture 36 - Diffusers Intakes/Inlets
- Lecture 37 - Experimental facilities
- Lecture 38 - Varying area flow - Numericals - II
- Lecture 39 - Varying area flow - Numericals - III
- Lecture 40 - Varying area flow - Numericals - IV
- Lecture 41 - 1D flow with friction - Fanno flow - I
- Lecture 42 - 1D flow with friction - Fanno flow - II
- Lecture 43 - 1D flow with friction - Fanno flow - III
- Lecture 44 - 1D flow with friction - Fanno flow - Numericals
- Lecture 45 - 1D Flows with Heat Addition: Rayleigh Flows - I
- Lecture 46 - 1D Flows with Heat Addition: Rayleigh Flows - II
- Lecture 47 - 1D Flows with Heat Addition: Rayleigh Flows - Numericals
- Lecture 48 - Generalized 1D Flows
- Lecture 49 - Small perturbation theory - I
- Lecture 50 - Small perturbation theory - II
- Lecture 51 - Small perturbation theory - III
- Lecture 52 - Method of Characteristics: 2D Supersonic Flow - I
- Lecture 53 - Method of Characteristics: 2D Supersonic Flow - II
- Lecture 54 - Method of Characteristics: Applications
- Lecture 55 - Hypersonic Flows - I
- Lecture 56 - Hypersonic Flows - II
- Lecture 57 - Edney Shock Interaction
- Lecture 58 - Shock Boundary Layer Interaction - I
- Lecture 59 - Shock Boundary Layer Interaction - II
- Lecture 60 - Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Thermal Processing of Foods

Subject Co-ordinator - Prof. R. Anandalakshmi

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Food Microbiology
- Lecture 2 - Blanching, Pasteurization, Ultra-pasteurization, Hot fill and UHT
- Lecture 3 - Thermal processing equipment
- Lecture 4 - Milk pasteurization
- Lecture 5 - Canning operations
- Lecture 6 - Temperature distribution and heat penetration
- Lecture 7 - Kinetics of reactions
- Lecture 8 - F value and process requirements
- Lecture 9 - Quality considerations and process optimization
- Lecture 10 - Shelf life studies
- Lecture 11 - Validation of heat processes
- Lecture 12 - Fundamentals of aseptic processing
- Lecture 13 - Aseptic equipment design
- Lecture 14 - Aseptic process design
- Lecture 15 - Microwave and radio frequency heating
- Lecture 16 - Ohmic heating
- Lecture 17 - Overview of non-thermal processing technologies
- Lecture 18 - Advanced separation processes
- Lecture 19 - High pressure dialysis, ultrafiltration and reverse osmosis
- Lecture 20 - Nanofiltration, electrodialysis and membrane separation
- Lecture 21 - Various types of heat exchangers for food process engineering
- Lecture 22 - Various types of driers for food process engineering
- Lecture 23 - Importance and applications of extrusion technology in food processing
- Lecture 24 - Changes of properties and functional components of extruded foods
- Lecture 25 - Food biosensors
- Lecture 26 - Types of functional foods
- Lecture 27 - Packaging considerations
- Lecture 28 - Biocomposite/bionanocomposite materials for food packaging applications
- Lecture 29 - Sanitary components and requirements

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Regulatory considerations

Lecture 31 - Special Lecture

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Natural Resources Management

Subject Co-ordinator - Prof. Sudip Mitra

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Natural Resource bases - Part 1
- Lecture 2 - Introduction to Natural Resource bases - Part 2A
- Lecture 3 - Introduction to Natural Resource bases - Part 2B
- Lecture 4 - Introduction to Natural Resource bases - Part 2C
- Lecture 5 - Resource management Paradigms - Part 1
- Lecture 6 - Resource management Paradigms - Part 2
- Lecture 7 - Approaches to NRM
- Lecture 8 - Biodiversity and conservation - Part 1
- Lecture 9 - Biodiversity and conservation - Part 2
- Lecture 10 - Biodiversity and conservation - Part 3
- Lecture 11 - Participatory Rural Appraisal and Rapid Rural Appraisal - Part 1
- Lecture 12 - Participatory Rural Appraisal and Rapid Rural Appraisal - Part 2
- Lecture 13 - Participatory Rural Appraisal and Rapid Rural Appraisal - Part 3
- Lecture 14 - Participatory Rural Appraisal and Rapid Rural Appraisal - Part 4
- Lecture 15 - Introduction to INRM
- Lecture 16 - Learning cycle in Integrated Natural Resources Management
- Lecture 17 - Technologies for Integrated Natural Resources Management
- Lecture 18 - PRA techniques within INRM
- Lecture 19 - Ranking technique
- Lecture 20 - Community Based Natural Resources Management - Part 1
- Lecture 21 - Community Based Natural Resources Management - Benefits from CBNRM
- Lecture 22 - Community Based Natural Resources Management - Part 2
- Lecture 23 - Watershed management
- Lecture 24 - Watershed management: Flood control
- Lecture 25 - National Water Policy
- Lecture 26 - Soil erosion management
- Lecture 27 - Landuse management for flood risk reduction
- Lecture 28 - Drought Management
- Lecture 29 - Common Property Right (CPR)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - A Tutorial on Tragedy of the Commons
- Lecture 31 - Environmental Management Systems (EMS)
- Lecture 32 - National Environment Policy (NEP)
- Lecture 33 - Modeling And Simulations Applications in Agriculture for NRM - Part 1
- Lecture 34 - Modeling And Simulations Applications in Agriculture for NRM - Part 2
- Lecture 35 - Modeling And Simulations Applications in Agriculture for NRM - Part 3
- Lecture 36 - Modeling And Simulations Applications in Agriculture for NRM - Part 4
- Lecture 37 - Modeling And Simulations Applications in Agriculture for NRM - Part 5
- Lecture 38 - Precision Farming and Protected Cultivation - Part 1
- Lecture 39 - Precision Farming and Protected Cultivation - Part 2
- Lecture 40 - Precision Farming and Protected Cultivation - Part 3
- Lecture 41 - Environmental Impact Assessment (EIA) - Part 1
- Lecture 42 - Environmental Impact Assessment (EIA) - Part 2
- Lecture 43 - Environmental Impact Assessment (EIA) - Part 3
- Lecture 44 - Environmental Impact Assessment (EIA) - Part 4
- Lecture 45 - Environmental Impact Assessment (EIA) - Part 5
- Lecture 46 - Environmental Impact Assessment (EIA) - Part 6
- Lecture 47 - Environmental Impact Assessment (EIA) - Part 7
- Lecture 48 - CBNRM in Kenya
- Lecture 49 - Model sensitivity and Uncertainty
- Lecture 50 - MCDA in Agriculture
- Lecture 51 - MCDM for NRM - Part 1
- Lecture 52 - MCDM for NRM - Part 2
- Lecture 53 - MCDM for NRM - Part 3
- Lecture 54 - Remote Sensing and GIS Application in Agriculture and NRM (Introduction)
- Lecture 55 - Remote Sensing and GIS Application in Agriculture and NRM - Part 1
- Lecture 56 - Remote Sensing and GIS Application in Agriculture and NRM - Part 2
- Lecture 57 - Remote Sensing and GIS Application in Agriculture and NRM - Part 3
- Lecture 58 - Climate change; vulnerability; adaptation - Part 1
- Lecture 59 - Climate change; vulnerability; adaptation - Part 2
- Lecture 60 - Climate change; vulnerability; adaptation - Part 3
- Lecture 61 - ICT: Introduction
- Lecture 62 - ICT for Soil management
- Lecture 63 - ICT for Water management
- Lecture 64 - Collective Management of resources
- Lecture 65 - Revision



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Basic Crop Production Practices (BCPP)

Subject Co-ordinator - Prof. J. R. Yadav, Dr. Vinod Kumar, Dr. Sharwan Kumar Shukla

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Irrigation and irrigation needs
- Lecture 3 - Source of Irrigation
- Lecture 4 - Importance of crops and classification
- Lecture 5 - Crop rotation principle
- Lecture 6 - Importance of vegetable and classification
- Lecture 7 - Paddy crop production
- Lecture 8 - Sorghum crop production
- Lecture 9 - Pearl millet crop production
- Lecture 10 - Maize crop production
- Lecture 11 - Pigeon pea crop production
- Lecture 12 - Green gram crop production
- Lecture 13 - Black gram crop production
- Lecture 14 - Cowpea crop production
- Lecture 15 - Groundnut crop production
- Lecture 16 - Sesame crop production
- Lecture 17 - Soybean crop production
- Lecture 18 - Sunflower crop production
- Lecture 19 - Mango crop production
- Lecture 20 - Guava crop production
- Lecture 21 - Banana crop production
- Lecture 22 - Papaya crop production
- Lecture 23 - Tomato crop production
- Lecture 24 - Brinjal crop production
- Lecture 25 - Chili crop production
- Lecture 26 - Okra crop production

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:GIS in Ag-Essentials and Applications (GIS)

Subject Co-ordinator - Dr. Venkataraman Balaji, Dr. R. Nagarajan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Our Agriculture Practices and Lessons
- Lecture 3 - Climate and Scale of Change
- Lecture 4 - Course Corrections
- Lecture 5 - Modified Agriculture - Precision Agriculture
- Lecture 6 - Modified Agriculture Practice - Climate Smart Agriculture
- Lecture 7 - Maps and Information in Practice
- Lecture 8 - Geographical Information System (GIS)
- Lecture 9 - Types of input
- Lecture 10 - Analysis - Map overlay
- Lecture 11 - Buffering and Perspective View
- Lecture 12 - GIS Type and Available GIS Softwares
- Lecture 13 - Village Cadastral Map and Property Card
- Lecture 14 - Cadastral Maps and Contents
- Lecture 15 - Creation of Cadastral Information Base
- Lecture 16 - Land Information System
- Lecture 17 - Creation of Village Boundary Based Basin Analysis
- Lecture 18 - Village Information System
- Lecture 19 - Needs and Weather Forecast
- Lecture 20 - Cloud Types and Rain Bearing Clouds
- Lecture 21 - Weather Satellites and Cloud Pattern Reading
- Lecture 22 - Rainfall and Supplementary Irrigation
- Lecture 23 - Synergistic Use
- Lecture 24 - Surface Rainfall - Run off Assessment and Model
- Lecture 25 - Soil and Water Assessment Tools (SWAT) Model
- Lecture 26 - Groundwater Availability
- Lecture 27 - Groundwater Potential Mapping
- Lecture 28 - Water Storage and Water Availability and Release
- Lecture 29 - Growth of Crop Area in Command Area and Impact Climate Change

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Impact of Climate on Agriculture
- Lecture 31 - Crop Water Requirement and Distribution Loss
- Lecture 32 - Village Agriculture and Other Water Demand and Supply Source
- Lecture 33 - Water Security Assessment
- Lecture 34 - Land Degradation
- Lecture 35 - Water Logging
- Lecture 36 - Water Balance Under Different Rainfall
- Lecture 37 - Drought and Characteristics
- Lecture 38 - Drought Vulnerability and Risk Assessment
- Lecture 39 - Monitoring and Warning
- Lecture 40 - Drought Monitoring
- Lecture 41 - Drought Risk and Vulnerability Assessment
- Lecture 42 - GIS in Sustainable Agriculture
- Lecture 43 - Assessment of Existing Water Storage Structures and Rehabilitation
- Lecture 44 - Sustainable Development and Agriculture
- Lecture 45 - Climate Change and Drought
- Lecture 46 - GIS and Drought Management

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Integrated Pest Management (IPM)

Subject Co-ordinator - Prof. M. Bheemanna, Prof. B.V. Patil, Prof. Prabhuraj A

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Insect, abundance and diversity
- Lecture 3 - Insect classification based on economic importance
- Lecture 4 - Pest, causes for outbreaks and categories
- Lecture 5 - Pest, causes for outbreaks and categories (Continued...)
- Lecture 6 - Pest surveillance and methods of sampling
- Lecture 7 - Principles of Pest Management and History
- Lecture 8 - IPM, Definition and Concepts
- Lecture 9 - Ecological Methods of Pest Management - Legal and Cultural
- Lecture 10 - Ecological Methods of Pest Management - Cultural (Continued...)
- Lecture 11 - Ecological Methods of Pest Management - Cultural (Continued...)
- Lecture 12 - Ecological Methods of Pest Management - Physical
- Lecture 13 - Ecological Methods of Pest Management - Mechanical
- Lecture 14 - Host Plant Resistance
- Lecture 15 - Host Plant Resistance (Continued...)
- Lecture 16 - Biological Control - Predators
- Lecture 17 - Biological Control - Parasitoids
- Lecture 18 - Biological Control - Microbes
- Lecture 19 - Biological Control - Microbes
- Lecture 20 - Pest management by modifying insect behaviour
- Lecture 21 - Use of sex pheromones in pest management
- Lecture 22 - Use of attractants and repellants in pest management
- Lecture 23 - Pest management through radiation technology - Principles
- Lecture 24 - Sterile Insect Technique - case studies
- Lecture 25 - Pest management through botanicals
- Lecture 26 - Pest management through botanicals (Continued...)
- Lecture 27 - Chemical Control - History and classification
- Lecture 28 - Mode of Action of different insecticide groups
- Lecture 29 - Chemical Control - Considerations for Chemicals Integration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Insecticide Resistance and Management
- Lecture 31 - Insecticide as component of IPM
- Lecture 32 - Biotechnological Approaches in IPM
- Lecture 33 - Agro-ecosystem Analysis
- Lecture 34 - IPM in Paddy
- Lecture 35 - IPM in Paddy (Continued...)
- Lecture 36 - IPM in Pigeon pea
- Lecture 37 - IPM in Pigeon pea (Continued...)
- Lecture 38 - IPM in Groundnut
- Lecture 39 - IPM in Mustard and Soyabean
- Lecture 40 - IPM in Cotton
- Lecture 41 - IPM in Cotton (Continued...)
- Lecture 42 - IPM in Sugarcane
- Lecture 43 - IPM in Sugarcane (Continued...)
- Lecture 44 - IPM in Tomato
- Lecture 45 - IPM in Cabbage
- Lecture 46 - IPM in Mango
- Lecture 47 - IPM in Grapes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Nutrition, Therapeutics and Health (NM)

Subject Co-ordinator - Dr. V. Vijaya Lakshmi (Instructor Incharge)

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Relationship between Food, Nutrition and Health 1  
Lecture 3 - Relationship between Food, Nutrition and Health 2  
Lecture 4 - Digestion, absorption and utilization of Nutrients 1  
Lecture 5 - Digestion, absorption and utilization of Nutrients 2  
Lecture 6 - Recommended dietary allowances  
Lecture 7 - Carbohydrate  
Lecture 8 - Fiber  
Lecture 9 - Protein  
Lecture 10 - Protein - health significance  
Lecture 11 - Fat  
Lecture 12 - Energy 1  
Lecture 13 - Energy 2  
Lecture 14 - Energy 3  
Lecture 15 - Fat Soluble Vitamins 1  
Lecture 16 - Fat Soluble Vitamins 2  
Lecture 17 - Fat Soluble Vitamins 3  
Lecture 18 - Water Soluble Vitamins 1  
Lecture 19 - Water Soluble Vitamins 2  
Lecture 20 - Water soluble Vitamins 3  
Lecture 21 - Water soluble Vitamins 4  
Lecture 22 - Major minerals 1  
Lecture 23 - Major minerals 2  
Lecture 24 - Trace minerals 1  
Lecture 25 - Trace minerals 2  
Lecture 26 - Water  
Lecture 27 - Nutritional Disorders  
Lecture 28 - Balanced diet and food groups  
Lecture 29 - Food guide for selecting adequate diet, practical aspects of food selection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Meal planning
- Lecture 31 - Other aspects affecting food selection
- Lecture 32 - Food sanitation and hygiene
- Lecture 33 - Water Purification
- Lecture 34 - Therapeutic adaptation of normal diet
- Lecture 35 - Principles of therapeutic diet
- Lecture 36 - Diet during fevers
- Lecture 37 - Diet in lung disease
- Lecture 38 - Diet in GI disorders ^ constipation
- Lecture 39 - Diet during diarrhoea
- Lecture 40 - Diet in disorders of liver
- Lecture 41 - Diseases of gall bladder
- Lecture 42 - Diet in Diabetes
- Lecture 43 - Diseases of Heart and blood vessels
- Lecture 44 - Diet for myocardial infarction
- Lecture 45 - Diet in kidney disorders
- Lecture 46 - Diet in renal failure
- Lecture 47 - Diet in cancer
- Lecture 48 - Diet in metabolic disorders
- Lecture 49 - Diet in stress, burns and surgery

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Weather Forecast in Agriculture and Agro-advisory (WF)

Subject Co-ordinator - Dr. R. Nagarajan, Co Faculty, Dr.T.N.Balasubramanian (Rtd.), Instructor Incharge

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Basic aspects of Atmosphere, Climate, Weather

Lecture 3 - Basic aspects of Rainfall and their application in crop production

Lecture 4 - Basic aspects of Temperature and their application in crop production

Lecture 5 - Basic aspects of Relative humidity, Cloud cover and their application in crop production

Lecture 6 - Basic aspects of wind, wind direction and their application in crop production

Lecture 7 - Three weather codes and crop production

Lecture 8 - Crop production risks and their management

Lecture 9 - Weather sensitive crops, stages and farm operations

Lecture 10 - Crop-weather interactions and definition

Lecture 11 - Crop-Weather Interactions

Lecture 12 - Crop-Weather Interactions

Lecture 13 - Crop-Weather Interactions

Lecture 14 - Crop-Weather Interactions

Lecture 15 - Crop-Weather Interactions

Lecture 16 - Genesis of weather forecast in India and Abroad

Lecture 17 - Types of weather forecast and details

Lecture 18 - Types of weather forecast and details (Continued...)

Lecture 19 - Simple methods of verification of weather forecast with real event

Lecture 20 - Traditional knowledges on weather forecast and their validity

Lecture 21 - Weather thumb rules and their validity

Lecture 22 - Development and component of agro advisory for weather forecast

Lecture 23 - Development and component of agro advisory for weather forecast (Continued...)

Lecture 24 - Model agro advisories for selected five days weather forecast

Lecture 25 - Mass communication mode of agro advisories and their effectiveness

Lecture 26 - Discussion on weather forecast and agro advisory from different website

Lecture 27 - Role of climate manager on farm management decision based on weather forecast at village level a

Lecture 28 - Development of selected weather window for issuing agro advisory - case study from Tamil Nadu

Lecture 29 - Model of agro advisory for 54 selected weather window of Tamil Nadu for rice

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Response farming- a type of farm planning being practiced in Australia considering seasonal climate
- Lecture 31 - Case study in India on the adoption of weather based crop production - Crop management
- Lecture 32 - Case study in India on the adoption of weather based crop production - Pest and disease management
- Lecture 33 - Case study in India on the adoption of weather based animal production
- Lecture 34 - Cost benefit analysis for the case study done on crop management
- Lecture 35 - Cost benefit analysis for the case study done on animal management
- Lecture 36 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:ICT Basics

Subject Co-ordinator - Prof. T.V. Prabhakar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Highlights Week 0 and 1  
Lecture 3 - What is ICT?  
Lecture 4 - Architecture of a Computer  
Lecture 5 - Architecture of a Phone  
Lecture 6 - What is the Internet?  
Lecture 7 - What is WWW?  
Lecture 8 - Highlights Week 2  
Lecture 9 - Phones, Smart Phones, Phablets, Tablets  
Lecture 10 - Introduction to Android  
Lecture 11 - Network Architectures - Part-1 (Introduction to Computer Networks)  
Lecture 12 - Network Architectures - Part-2 (Overview of Network Architecture)  
Lecture 13 - Network Architectures - Part-3 (Architecture of Internet)  
Lecture 14 - Mobile Wireless Communications - Introduction (Module-1)  
Lecture 15 - Mobile Wireless Communication (Module-2)  
Lecture 16 - Highlights Week 3  
Lecture 17 - Adaptive and Responsive Websites  
Lecture 18 - Data management  
Lecture 19 - Knowledge Representation  
Lecture 20 - Knowledge Representation Techniques  
Lecture 21 - Expert Systems  
Lecture 22 - Highlights Week - 4  
Lecture 23 - Speech Recognition  
Lecture 24 - Speech Synthesis  
Lecture 25 - Identity Management - Part 1  
Lecture 26 - Identity Management - Part 2  
Lecture 27 - Location Recognition - Part 1  
Lecture 28 - Location Recognition - Part 2  
Lecture 29 - Parameter Sensing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Highlights Week-5
- Lecture 31 - Social Networking - Part 1
- Lecture 32 - Social Networking - Part 2
- Lecture 33 - Blogs
- Lecture 34 - Facebook
- Lecture 35 - Twitter
- Lecture 36 - 3G WCDMA (Module- 3)
- Lecture 37 - 4G Mobile Wireless WiMAX (Module-4)
- Lecture 38 - Advanced Wireless Technologies (Module-5)
- Lecture 39 - LTE, WLAN, Bluetooth and Future
- Lecture 40 - Highlights Week-6
- Lecture 41 - Introduction to Cloud Computing
- Lecture 42 - Introduction to Cloud Services
- Lecture 43 - Cloud Service Providers
- Lecture 44 - GIS Application in Agriculture - Part 1
- Lecture 45 - GIS Application in Agriculture - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Momentum Transfer in Process Engineering

Subject Co-ordinator - Prof. Tridib Kumar Goswami

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11 - Application of Navier Stokes equation for finding out viscosity - Part 2

Lecture 12 - Application of Navier Stokes equation for finding out viscosity - Part 3

Lecture 13 - Flow through pipes

Lecture 14 - Hagen-poiseuille equation from Navier stokes equation

Lecture 15 - Fanning friction factor

Lecture 16 - Moody's chart

Lecture 17 - Laminar and turbulent flow in a pipe

Lecture 18 - Flow through flat and parallel plates

Lecture 19 - Flow of film or film flow

Lecture 20 - Problems and solution of falling film

Lecture 21 - Flow through annulus - Part 1

Lecture 22 - Flow through annulus - Part 2

Lecture 23 - Stokes law

Lecture 24 - Flow through flat plates or slits

Lecture 25 - Problems and solution for flow through flat plates or slits

Lecture 26 - Compressible fluid flow

Lecture 27 - Flow through nozzle - I

Lecture 28 - Flow through nozzle - II

Lecture 29 - Flow through nozzle - problems and solutions

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Nozzle flow- problems and solutions
- Lecture 31 - Sonic velocity
- Lecture 32 - Sonic velocity - Mach number
- Lecture 33 - Variable fluid flow
- Lecture 34 - Variable fluid flow - problems and solutions
- Lecture 35 - Variable fluid flow - problems and solutions (Continued...)
- Lecture 36 - Pneumatic conveying
- Lecture 37 - Problem on Pneumatic conveying - Part 1
- Lecture 38 - Problem on Pneumatic conveying - Part 2
- Lecture 39 - Non Newtonian fluid flow - Part 1
- Lecture 40 - Non Newtonian fluid flow - Part 2
- Lecture 41 - Velocity profile for Non Newtonian fluid
- Lecture 42 - Average velocity for Non Newtonian fluid
- Lecture 43 - Problems and solution of Non Newtonian fluid - Part 1
- Lecture 44 - Problems and solution of Non Newtonian fluid - Part 2
- Lecture 45 - Flow of Non Newtonian fluid through slit
- Lecture 46 - Generalized coefficient of Reynolds number
- Lecture 47 - Flow through packed beds
- Lecture 48 - Ergun's equation- derivation - Part 1
- Lecture 49 - Ergun's equation- derivation - Part 2
- Lecture 50 - Solving problems on Ergun's equation
- Lecture 51 - Solving problems on Ergun's equation
- Lecture 52 - Fluidization
- Lecture 53 - Fluidized bed flow
- Lecture 54 - Problem of Fluidized bed condition - Part 1
- Lecture 55 - Problem of Fluidized bed condition - Part 2
- Lecture 56 - Problem and solution
- Lecture 57 - Problem and solution
- Lecture 58 - Problem and solution
- Lecture 59 - Problem and solution
- Lecture 60 - Problem and solution with comprehension of course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Farm Machinery

Subject Co-ordinator - Prof. VK Tewari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Importance of Farm Machines in the Contest of Enhance Production, Multiple Cropping, Labour Scarce  
Lecture 2 - Ploughing and first opening of the soil, the design and component details  
Lecture 3 - Tractor, implement and soil force consideration for tillage implement design  
Lecture 4 - Tractor, implement and soil force consideration for tillage implement design  
Lecture 5 - Mechanics of rotavator or rotary tillers  
Lecture 6 - Design of a tractor PTO operated rotavator  
Lecture 7 - Tractor implement hitching systems  
Lecture 8 - Mechanics of tractor implement hitch system and traction prediction models  
Lecture 9 - Laboratory class on traction and tire testing  
Lecture 10 - Combination tillage implements for efficient land preparation  
Lecture 11 - LASER guided land leveller  
Lecture 12 - Introduction of seeding operation  
Lecture 13 - Types of seed metering devices and their operation  
Lecture 14 - Types of fertilizer metering, furrow opening and soil covering devices  
Lecture 15 - Equipment for seeding and planting  
Lecture 16 - Equipment for precision planting  
Lecture 17 - Equipment for Paddy Transplanting  
Lecture 18 - Microcontroller based uniform seed rate application system  
Lecture 19 - GPS based automatic Variable rate fertilizer applicator  
Lecture 20 - Embedded GPS integrated Variable Rate Fertilizer Applicator  
Lecture 21 - Design of a seeding equipment - PART 1  
Lecture 22 - Design of a seeding equipment - PART 2  
Lecture 23 - Design of a seeding equipment - PART 3  
Lecture 24 - Design a tractor drawn seed drill for a 40 hp tractor - I  
Lecture 25 - Design a tractor drawn seed drill for a 40 hp tractor - II  
Lecture 26 - Testing of tractor operated seeding equipment  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30
- Lecture 31
- Lecture 32 - Farm machines for interculture operation
- Lecture 33 - Performance of weeding blades of a push-pull weeder
- Lecture 34 - Advanced level machinery for inter and intra row weeding
- Lecture 35 - Tractor mounted contact type microcontroller based improved variable rate herbicide applicator
- Lecture 36 - Design of manually operated weeding equipment
- Lecture 37 - Plant protection equipment/machinery
- Lecture 38 - Selection and design of plant protection equipment/machinery
- Lecture 39 - Manually operated knapsack-cum-boom sprayer
- Lecture 40 - Performance evaluation of sprayer
- Lecture 41 - Testing and certification of spraying equipment
- Lecture 42 - Problems based on the design and selection of spraying equipment - I
- Lecture 43 - Problems based on the design and selection of spraying equipment - II
- Lecture 44 - Advanced level spraying equipment
- Lecture 45 - Advanced level spraying equipment
- Lecture 46 - Harvesting equipment
- Lecture 47 - Machines for harvesting cereal crops, root and fruit crops
- Lecture 48 - Combine Harvester
- Lecture 49 - Advanced technology approach for cotton harvesting
- Lecture 50 - Threshing operation and equipment
- Lecture 51 - Design of threshing equipment
- Lecture 52 - Performance evaluation and testing of thresher
- Lecture 53 - Conservation Agriculture
- Lecture 54 - Materials for construction of farm machinery
- Lecture 55 - Machinery for Land Drainage, Land Reclamation and Estate Maintenance Part - I
- Lecture 56 - Machinery for Land Drainage, Land Reclamation and Estate Maintenance Part - II
- Lecture 57 - Machinery for Land Drainage, Land Reclamation and Estate Maintenance Part - III
- Lecture 58 - Machinery Selection and Management - Part 1
- Lecture 59 - Machinery Selection and Management - Part 2
- Lecture 60 - Epilogue

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Irrigation and Drainage

Subject Co-ordinator - Prof. Damodhara Rao Mailapallli

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6 - Field water balance  
Lecture 7 - Evapotranspiration  
Lecture 8 - Crop water requirement  
Lecture 9 - Irrigation Scheduling  
Lecture 10 - Introduction  
Lecture 11 - Irrigation Water Conveyance  
Lecture 12 - Irrigation channel design  
Lecture 13 - Measurement of Irrigation Water  
Lecture 14 - Measurement of Irrigation Water  
Lecture 15 - Tutorial  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26 - Irrigation Wells  
Lecture 27 - Aquifer Properties  
Lecture 28 - Well Hydraulics - 1  
Lecture 29 - Well Hydraulics - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial
- Lecture 31 - Introduction
- Lecture 32 - Centrifugal Pump
- Lecture 33 - Centrifugal Pumps
- Lecture 34 - Pump Characteristic Curves
- Lecture 35 - Tutorial
- Lecture 36 - Management of salt affected soils
- Lecture 37 - Management of salt affected soils
- Lecture 38 - Agricultural Drainage
- Lecture 39 - Agricultural Drainage
- Lecture 40 - Tutorial
- Lecture 41
- Lecture 42
- Lecture 43
- Lecture 44
- Lecture 45
- Lecture 46 - Subsurface Drainage Design - 1
- Lecture 47 - Subsurface Drainage Design - 2
- Lecture 48 - Subsurface Drainage Design - 3
- Lecture 49 - Subsurface Drainage Design - 4
- Lecture 50 - Tutorial
- Lecture 51 - Surface drainage system design - 1
- Lecture 52 - Surface drainage system design - 2
- Lecture 53 - Non-conventional drainage
- Lecture 54 - Economics of drainage project
- Lecture 55 - Tutorial
- Lecture 56 - Case study of drainage system
- Lecture 57 - Drainage Model
- Lecture 58 - Irrigation Efficiency
- Lecture 59 - Irrigation Economics
- Lecture 60 - Irrigation model

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Fundamentals of Food Process Engineering

Subject Co-ordinator - Prof. Jayeeta Mitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Importance Of Rheology In Food
- Lecture 2 - Food Rheology
- Lecture 3 - Food Rheology
- Lecture 4 - Food Rheology
- Lecture 5 - Food Rheology
- Lecture 6 - Measurements of Rheological Properties
- Lecture 7 - Measurements of Rheological Properties
- Lecture 8 - Rheological Properties of Viscoelastic Food
- Lecture 9 - Rheological Properties of Viscoelastic Food
- Lecture 10 - Rheological Properties of Viscoelastic Food
- Lecture 11 - Thermal Processing And Microbial Death Kinetics
- Lecture 12 - Thermal processing and microbial death kinetics
- Lecture 13 - Thermal processing and microbial death kinetics (Continued...)
- Lecture 14 - Thermal processing and microbial death kinetics (Continued...)
- Lecture 15 - Thermal processing and microbial death kinetics (Continued...)
- Lecture 16 - Evaporation and concentration
- Lecture 17 - Evaporation and concentration
- Lecture 18 - Evaporation and concentration
- Lecture 19 - Evaporation and concentration
- Lecture 20 - Evaporation and concentration
- Lecture 21 - Heat Exchangers
- Lecture 22 - Heat Exchangers
- Lecture 23 - Heat Exchangers
- Lecture 24 - Heat Exchangers
- Lecture 25 - Heat Exchangers
- Lecture 26 - Drying Technology
- Lecture 27 - Drying Technology
- Lecture 28 - Drying Technology
- Lecture 29 - Drying Technology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Drying Technology
- Lecture 31 - Freezing and Freeze Drying
- Lecture 32 - Freezing and Freeze Drying
- Lecture 33 - Freezing and Freeze Drying
- Lecture 34 - Freezing and Freeze Drying
- Lecture 35 - Freezing and Freeze Drying
- Lecture 36 - Size Reduction
- Lecture 37 - Size Reduction (Continued...)
- Lecture 38 - Size Reduction (Continued...)
- Lecture 39 - Size Reduction (Continued...)
- Lecture 40 - Size Reduction (Continued...)
- Lecture 41 - Mechanical Separation Techniques
- Lecture 42 - Mechanical Separation Techniques
- Lecture 43 - Mechanical Separation Techniques
- Lecture 44 - Mechanical Separation Techniques
- Lecture 45 - Mechanical Separation Techniques
- Lecture 46 - Mixing and agitation
- Lecture 47 - Mixing and agitation (Continued...)
- Lecture 48 - Mixing and agitation (Continued...)
- Lecture 49 - Mixing and agitation (Continued...)
- Lecture 50 - Mixing and agitation (Continued...)
- Lecture 51 - Leaching and Extraction
- Lecture 52 - Leaching and Extraction (Continued...)
- Lecture 53 - Leaching and Extraction (Continued...)
- Lecture 54 - Leaching and Extraction (Continued...)
- Lecture 55 - Leaching and Extraction (Continued...)
- Lecture 56 - Non Thermal Processing
- Lecture 57 - Non Thermal Processing (Continued...)
- Lecture 58 - Non Thermal Processing (Continued...)
- Lecture 59 - Non Thermal Processing (Continued...)
- Lecture 60 - Non Thermal Processing (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Soil and Water Conservation Engineering

Subject Co-ordinator - Prof. Rajendra Singh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Soil erosion causes and types
- Lecture 3 - Factors affecting soil erosion and effects of soil erosion
- Lecture 4 - Soil erosion - Mechanics
- Lecture 5 - Water erosion control measures
- Lecture 6 - Soil loss estimation
- Lecture 7 - Erosivity and Erodibility
- Lecture 8 - Modification in Universal soil loss equation - Part I
- Lecture 9 - Modification in Universal soil loss equation - Part II
- Lecture 10 - Soil loss measurement
- Lecture 11 - Bunds - Introduction
- Lecture 12 - Contour Bunds
- Lecture 13 - Problems on Contour Bunds
- Lecture 14 - Graded Bunds
- Lecture 15 - Problems on Graded Bunds
- Lecture 16 - Terrace - Introduction
- Lecture 17 - Bench Terraces
- Lecture 18 - Problems on Bench Terraces
- Lecture 19 - Broad-base Terraces
- Lecture 20 - Problems on Broad-base Terraces
- Lecture 21 - Grassed Waterways
- Lecture 22 - Problems on Grassed Waterways
- Lecture 23 - Parabolic Grassed Waterways
- Lecture 24 - GATE Questions on Various Topics Covered
- Lecture 25 - Introduction-Gully Control Measures
- Lecture 26 - Gully Control Measures (Permanent Structures)
- Lecture 27 - Design Considerations- Permanent Gully Control Structures
- Lecture 28 - Basics of Open Channel Hydraulics - 1
- Lecture 29 - Basics of Open Channel Hydraulics - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hydraulic Design of Drop Spillway
- Lecture 31 - Hydraulic Design of drop Spillway in different Flow Conditions
- Lecture 32 - Hydraulic Design Components
- Lecture 33 - Structural Design of Drop Spillway - 1
- Lecture 34 - Structural Design of Drop Spillway - 2
- Lecture 35 - Structural Design of Drop Spillway - 3
- Lecture 36 - Structural Design of Drop Spillway - 4
- Lecture 37 - GATE Question
- Lecture 38 - Drop Inlet Spillway
- Lecture 39 - Drop Inlet Spillway (Continued...)
- Lecture 40 - Introduction-Drop Inlet Spillway
- Lecture 41 - Drop Inlet Spillway Design - I
- Lecture 42 - Numerical Problems
- Lecture 43 - Ogee Spillway
- Lecture 44 - Chute Spillway
- Lecture 45 - Chute Spillway Design - I
- Lecture 46 - Chute Spillway Design - II
- Lecture 47 - Energy Dissipation
- Lecture 48 - Wind Erosion and Control Basics
- Lecture 49 - Design of Wind Breaks
- Lecture 50 - Design of Shelterbelts
- Lecture 51 - Formation of Sand Dunes
- Lecture 52 - Stabilization of Sand Dunes
- Lecture 53 - Land Capability Classes
- Lecture 54 - Improving Land Capability
- Lecture 55 - Sediment and Its Transportation
- Lecture 56 - Sediment Sampling

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Dairy and Food Process and Products Technology

Subject Co-ordinator - Prof. Tridib Kumar Goswami

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Preamble of the Subject
- Lecture 2 - What is Food and Nutrients
- Lecture 3 - Nutritional Value of the Nutrients
- Lecture 4 - Best Way of Storage of Food Materials
- Lecture 5 - Preservation Techniques
- Lecture 6 - Temperature Quotient and Its Impact
- Lecture 7 - Food Additives
- Lecture 8 - Quality of Food
- Lecture 9 - Quality of Food (Continued...)
- Lecture 10 - Emerging Technology
- Lecture 11 - Emerging Technology (Continued...)
- Lecture 12 - Food Laws - Why?
- Lecture 13 - Food Laws of India
- Lecture 14 - Standards in India
- Lecture 15 - Hygiene and Other Controls in India
- Lecture 16 - Physico-Chemical Properties of Milk
- Lecture 17 - Milk - What is it
- Lecture 18 - Milk - How it looks?
- Lecture 19 - Milk - Constituents
- Lecture 20 - Constituents of Milk
- Lecture 21 - Milk Fat
- Lecture 22 - Milk Fat (Continued...)
- Lecture 23 - Milk Fat (Continued...)
- Lecture 24 - Milk Fat (Continued...)
- Lecture 25 - Protein
- Lecture 26 - Protein (Continued...)
- Lecture 27 - Amino Acids
- Lecture 28 - Amino Acids (Continued...)
- Lecture 29 - Milk Protein

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Casein Micelle
- Lecture 31 - Whey Protein
- Lecture 32 - Whey Protein (Continued...)
- Lecture 33 - Lactoferrin
- Lecture 34 - Carbohydrates in Milk
- Lecture 35 - Small Constituents of Milk
- Lecture 36 - Enzymes in Milk
- Lecture 37 - Chemical and Microbial Spoilage of Milk and Milk Products
- Lecture 38 - Extrinsic Factors for Microbial Growth
- Lecture 39 - Natural or Other Type of Spoilage
- Lecture 40 - Packaging
- Lecture 41 - Milk Pasteurization
- Lecture 42 - Thermal Death Time
- Lecture 43 - Pasteurization Effectiveness
- Lecture 44 - Milk Pasteurization and Homogenization
- Lecture 45 - Milk Pasteurization and Homogenization (Continued...)
- Lecture 46 - Milk Homogenization
- Lecture 47 - Milk Centrifugation
- Lecture 48 - Types of Available Milk
- Lecture 49 - Types of Available Milk in the Market
- Lecture 50 - New Technologies in Dairy Industries
- Lecture 51 - Cheese
- Lecture 52 - Cheddar Cheese
- Lecture 53 - Ice Cream
- Lecture 54 - Process of Ice Cream Preparation
- Lecture 55 - Ice Cream Lilies
- Lecture 56 - Over Run and Calculation for Preparing Ice Cream Mix
- Lecture 57 - Transportation of Ice Cream vis a vis Frozen Foods
- Lecture 58 - Packaging of Food Materials
- Lecture 59 - Modified Atmosphere Packaging
- Lecture 60 - Flow Chart for Manufacturing Some Dairy and Food Products

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Organic Farming for Sustainable Agricultural Production

Subject Co-ordinator - Prof. Dilip Kumar Swain

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Organic Farming
- Lecture 2 - Organic Farming
- Lecture 3 - Organic Farming and its Components
- Lecture 4 - Organic Farming Concepts and Principles
- Lecture 5 - Organic Farming Concepts and Principles (Continued...)
- Lecture 6 - SWOT Analysis of Organic Farming
- Lecture 7 - Sustainable Agriculture
- Lecture 8 - Key Indicators of Sustainable Agriculture
- Lecture 9 - Organic Farming and Climate Change
- Lecture 10 - Organic Farming and Climate Change (Continued...)
- Lecture 11 - Principles of Compost Production
- Lecture 12 - Vermicompost Production Technology
- Lecture 13 - Vermicompost Production Technology (Continued...)
- Lecture 14 - Vermicompost Production Technology (Continued...)
- Lecture 15 - Enriched Vermicompost Production Technology
- Lecture 16 - Vermicompost Quality and Marketing
- Lecture 17 - Introduction to Pest and Disease Management
- Lecture 18 - Pest and Disease Management in Organic Farming
- Lecture 19 - Level C Pest and Disease Management
- Lecture 20 - Level C Pest and Disease Management (Continued...)
- Lecture 21 - Introduction to Organic Crop Management
- Lecture 22 - Introduction to Organic Crop Management (Continued...)
- Lecture 23 - Organic Vegetable Crop Management
- Lecture 24 - Organic Vegetable Crop Management (Cereals)
- Lecture 25 - Organic Vegetable Crop Management (Cereals) (Continued...)
- Lecture 26 - Organic Field Crop Management (Pulse and Oilseed Crop)
- Lecture 27 - Organic Plantation Crop Management
- Lecture 28 - Organic Meat Production
- Lecture 29 - Introduction on transition to organic crop production

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Crop planning and rotation design in organic system
- Lecture 31 - Crop planning and rotation design in organic system (Continued...)
- Lecture 32 - Integrated Farming System and Urban Agriculture
- Lecture 33 - Quality of Organic Food
- Lecture 34 - Natural Sources of Antioxidants for Health Defense
- Lecture 35 - Antioxidant Capacity of fruits and vegetables
- Lecture 36 - Organic Food and Human Health
- Lecture 37 - Organic Standard
- Lecture 38 - Organic Certification Process
- Lecture 39 - Operational Structure of Organic Certification
- Lecture 40 - Marketing of Organic Products

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Novel Technologies for Food Processing and Shelf Life Extension

Subject Co-ordinator - Prof. Hari Niwas Mishra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction; Food Constituents and Functions
- Lecture 2 - Quality and Safety Aspects of Food
- Lecture 3 - Factors Affecting Quality During Processing and Storage
- Lecture 4 - Role of Water in Food and its Shelf Life
- Lecture 5 - Gelatinization and Retrogradation of Starch
- Lecture 6 - Browning Reactions
- Lecture 7 - Food Proteins
- Lecture 8 - Principles of Food Preservation
- Lecture 9 - Traditional Food Preservation Technologies - Part 1
- Lecture 10 - Traditional Food Preservation Technologies - Part 2
- Lecture 11 - High Pressure Processing of Food - Part 1
- Lecture 12 - High Pressure Processing of Food - Part 2
- Lecture 13 - Membrane Technology - Part 1
- Lecture 14 - Membrane Technology - Part 2
- Lecture 15 - Food Irradiation - Part 1
- Lecture 16 - Food Irradiation - Part 2
- Lecture 17 - Microwave Heating
- Lecture 18 - Radio Frequency Drying
- Lecture 19 - Super Critical Fluid Extraction - Part 1
- Lecture 20 - Super Critical Fluid Extraction - Part 2
- Lecture 21 - Freeze Drying - Part 1
- Lecture 22 - Freeze Drying - Part 2
- Lecture 23 - Food Extrusion Technology - Part 1
- Lecture 24 - Food Extrusion Technology - Part 2
- Lecture 25 - Textured Vegetable Protein (TVP)
- Lecture 26 - Aseptic Processing and Packaging
- Lecture 27 - Hurdle Technology
- Lecture 28 - Natural Antimicrobials
- Lecture 29 - Food Lipids

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- Lecture 30 - Extraction of Oil - Part 1
- Lecture 31 - Extraction of Oil - Part 2
- Lecture 32 - Refining of Oil - Part 1
- Lecture 33 - Refining of Oil - Part 2
- Lecture 34 - Modified Fats
- Lecture 35 - Rancidity
- Lecture 36 - Natural Antioxidants
- Lecture 37 - Microencapsulation - Part 1
- Lecture 38 - Microencapsulation - Part 2
- Lecture 39 - Food nanotechnology
- Lecture 40 - Respiration and Ripening
- Lecture 41 - Modified Atmospheric Storage (MAP)
- Lecture 42 - Active Packaging Technology
- Lecture 43 - Edible coating technology
- Lecture 44 - Multiproduct CA/MA Storage Unit
- Lecture 45 - Grain Storage
- Lecture 46 - Ozonation of Food Grains
- Lecture 47 - Hyper Spectral Imaging for Quality Analysis of Food Grains
- Lecture 48 - Non-Destructive Methods for Analysis of Grain Quality
- Lecture 49 - Detection of Spoilage in Grains using Biosensors
- Lecture 50 - Food Fortification
- Lecture 51 - Iron Fortified Rice (IFR)
- Lecture 52 - Nutri Dal and Fortified Noodles
- Lecture 53 - High Energy RTE Food Paste - Part 1
- Lecture 54 - High Energy RTE Food Paste - Part 2
- Lecture 55 - Functional Foods and Nutraceuticals
- Lecture 56 - Algae Based Health Foods
- Lecture 57 - Gluten Free Bread and Pasta
- Lecture 58 - Food Powder and Premixes
- Lecture 59 - GMP/GHP in Food Industry
- Lecture 60 - FCTL R&D and Course Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Soil Science and Technology

Subject Co-ordinator - Prof. Somsubhra Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Overview of Soil
- Lecture 2 - Weathering and Soil Formation
- Lecture 3 - Weathering and Soil Formation (Continued...)
- Lecture 4 - Weathering and Soil Formation (Continued...)
- Lecture 5 - Weathering and Soil Formation (Continued...)
- Lecture 6 - Soil Taxonomy and Classification
- Lecture 7 - Soil Taxonomy and Classification (Continued...)
- Lecture 8 - Soil Taxonomy and Classification (Continued...)
- Lecture 9 - Soil Orders, Soil Colour and Texture
- Lecture 10 - Soil Texture and Structure
- Lecture 11 - Soil Tillage and Soil Density
- Lecture 12 - Soil Porosity and Consistency
- Lecture 13 - Soil Consistency and Soil Water
- Lecture 14 - Soil Water
- Lecture 15 - Tutorial
- Lecture 16 - Soil Water Movement
- Lecture 17 - Qualitative Description of Soil Wetness
- Lecture 18 - Soil Air
- Lecture 19 - Soil Temperature
- Lecture 20 - Tutorial
- Lecture 21 - Silicate Clays
- Lecture 22 - Silicate Clays (Continued...)
- Lecture 23 - Sources of Charges in Soil
- Lecture 24 - Cation Exchange Capacity (CEC)
- Lecture 25 - Sorption of Pesticides
- Lecture 26 - Diffuse Double Layer
- Lecture 27 - Adsorption Isotherms
- Lecture 28 - Soil Acidity
- Lecture 29 - Soil Salinity and Alkalining

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Submerged Soils
- Lecture 31 - Essential Plant Nutrients
- Lecture 32 - Soil N
- Lecture 33 - Biological N Fixation
- Lecture 34 - Soil P and K
- Lecture 35 - Fertilizers
- Lecture 36 - Soil Testing - I
- Lecture 37 - Soil Testing - II
- Lecture 38 - Soil Organic Matter
- Lecture 39 - Soil Organisms
- Lecture 40 - Compost
- Lecture 41 - Land Degradation and Soil Erosion
- Lecture 42 - Universal Soil Loss Equation
- Lecture 43 - Conservation Tillage
- Lecture 44 - Wind Erosion and Tillage Erosion
- Lecture 45 - Organic Pollutants in Soil
- Lecture 46 - Remediation of Organic Pollutant
- Lecture 47 - Toxic Inorganic Substances in Soil
- Lecture 48 - Removal of Toxic Inorganic Substances
- Lecture 49 - Soil Survey
- Lecture 50 - Remote Sensing in Soil Survey
- Lecture 51 - GIS and GPS
- Lecture 52 - Geostatistics
- Lecture 53 - Basics of VisNIR - DRS
- Lecture 54 - VisNIR-DRS Applications for Soil
- Lecture 55 - PXRF Soil Applications
- Lecture 56 - Basic Overview of DSM
- Lecture 57 - Modeling Continuous Variables
- Lecture 58 - Modeling Continuous Variables (Continued...)
- Lecture 59 - Modeling Categorical Variables
- Lecture 60 - Pedotransfer Functions and Uncertainty of DSM

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Thermal Operations in Food Process Engineering: Theory and Application

Subject Co-ordinator - Prof. Tridib Kumar Goswami

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Food Processing and Preservation
- Lecture 2 - Fundamentals of Food Processing and Preservation (Continued...)
- Lecture 3 - Preservation Techniques
- Lecture 4 - Fundamentals of Food Processing and Preservation (Continued...)
- Lecture 5 - Fundamentals of Food Processing and Preservation (Continued...)
- Lecture 6 - Fundamentals of Food Processing and Preservation why and how do food spoil
- Lecture 7 - One Dimensional Conduction Heat Transfer in Cartesian Coordinate
- Lecture 8 - One Dimensional Conduction Heat Transfer in Cartesian Coordinate (Continued...)
- Lecture 9 - One Dimensional Steady State Heat Conduction
- Lecture 10 - One Dimensional Steady State Heat Conduction (Continued...)
- Lecture 11 - One Dimensional Heat Transfer Through Cylinders
- Lecture 12 - One Dimensional Heat Transfer Through Cylinders (Continued...)
- Lecture 13 - One Dimensional Heat Transfer Through Cylinders (Continued...)
- Lecture 14 - One Dimensional Heat Transfer
- Lecture 15 - Thermal Resistance
- Lecture 16 - Thermal contact Resistance and Finned Surface
- Lecture 17 - Finned Surface
- Lecture 18 - Finned Surface (Continued...)
- Lecture 19 - Finned Surface (Continued...)
- Lecture 20 - Heat Transfer in Finned Surfaces
- Lecture 21 - Transient Heat Transfer
- Lecture 22 - Transient Heat Transfer (Continued...)
- Lecture 23 - Transient Heat Transfer (Continued...)
- Lecture 24 - Transient Heat Transfer (Continued...)
- Lecture 25 - Heister Chart
- Lecture 26 - Heister Chart (Continued...)
- Lecture 27 - Heat Transfer by Convection
- Lecture 28 - Heat Transfer by Convection(Continued...)
- Lecture 29 - Heat Transfer by Convection(Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heat Transfer by Convection(Continued...)
- Lecture 31 - Heat Transfer by Convection(Continued...)
- Lecture 32 - Heat Transfer by Convection(Continued...)
- Lecture 33 - Heat Transfer by Convection(Continued...)
- Lecture 34 - Heat Transfer by Radiation
- Lecture 35 - Heat Transfer by Radiation (Continued...)
- Lecture 36 - Heat Transfer by Convection (Continued...)
- Lecture 37 - Heat Transfer by Radiation (Continued...)
- Lecture 38 - Heat Transfer by Radiation (Continued...)
- Lecture 39 - Boiling and Condensation
- Lecture 40 - Boiling (Continued...)
- Lecture 41 - Condensation
- Lecture 42 - Condensation (Continued...)
- Lecture 43 - Heat Exchangers
- Lecture 44 - Heat Exchangers (Continued...)
- Lecture 45 - Heat Exchangers (Continued...)
- Lecture 46 - Heat Exchangers (Continued...)
- Lecture 47 - Log mean Temperature Difference
- Lecture 48 - Heat Exchangers (Continued...)
- Lecture 49 - Heat Exchangers (Continued...)
- Lecture 50 - Heat Exchangers (Continued...)
- Lecture 51 - Heat Exchangers (Continued...)
- Lecture 52 - Heat Exchangers (Continued...)
- Lecture 53 - Heat Exchangers (Continued...)
- Lecture 54 - Thermal Death Reaction Kinetics
- Lecture 55 - Preservation by High Temperature Processing
- Lecture 56 - Preservation by High Temperature Processing (Continued...)
- Lecture 57 - Distillation
- Lecture 58 - Distillation (Continued...)
- Lecture 59 - Distillation (Continued...)
- Lecture 60 - Drying and Multiple Effect Evaporator

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Micro Irrigation Engineering

Subject Co-ordinator - Prof. Kamlesh Narayan Tiwari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Micro-Irrigation: Introduction and Scope
- Lecture 2 - Fundamentals of Fluid Mechanics and its Application in MI
- Lecture 3 - Soil Water Concept
- Lecture 4 - Soil Water Constants and Infiltration
- Lecture 5 - Tutorial 1 - Numerical Examples on Fluid Mechanics and Soil water
- Lecture 6 - Evapotranspiration
- Lecture 7 - Determination of Evapotranspiration
- Lecture 8 - Crop Coefficients and Crop Water Requirement
- Lecture 9 - Demonstration of Agro Metrological Instruments
- Lecture 10 - Demonstration of Lysimeter
- Lecture 11 - Tutorial 2 - Numerical Examples on Crop Water Requirement
- Lecture 12 - Irrigation Scheduling
- Lecture 13 - Soil and Plant Water Monitoring Instruments
- Lecture 14 - Measurement of Irrigation Water
- Lecture 15 - Irrigation Efficiency
- Lecture 16 - Tutorial 3 - Numerical Examples on Irrigation water Management
- Lecture 17 - Introduction of Water Lifts and Pumps
- Lecture 18 - Variable Displacement Pumps
- Lecture 19 - Irrigation Water Quality
- Lecture 20 - Tutorial 4 - Numerical Examples on Water Measurements and Pumps
- Lecture 21 - Irrigation methods
- Lecture 22 - Micro Irrigation System: Concept and Types
- Lecture 23 - Drip Irrigation: Introduction and Types
- Lecture 24 - Drip Irrigation: Design Considerations and System Layout
- Lecture 25 - Types and Selection of Emission Devices
- Lecture 26 - Hydraulics Drip Irrigation System Pipe Network
- Lecture 27 - Tutorial 5 - Numerical Example on Design of Drip Irrigation System
- Lecture 28 - Fertigation
- Lecture 29 - Fertigation Application Methods

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- Lecture 30 - Drip Irrigation: Filtration System
- Lecture 31 - Tutorial 6 - Numerical Examples on Emission Devices and Fertigation
- Lecture 32 - Installation and Operation of Drip Irrigation System
- Lecture 33 - Maintenance of Drip Irrigation System
- Lecture 34 - Demonstration of Drip Irrigation Components and Evaluation of Drip Emitter
- Lecture 35 - Soil Water Movement under Drip Emitter
- Lecture 36 - Design and Development of Drip Emitter
- Lecture 37 - Tutorial 7- Numerical Examples on Drip Irrigation System
- Lecture 38 - Micro Sprinkler Irrigation System
- Lecture 39 - Bubbler Irrigation System
- Lecture 40 - Sprinkler Irrigation System
- Lecture 41 - Sprinkler Irrigation System Design
- Lecture 42 - Performance Evaluation of Sprinkler Irrigation System
- Lecture 43 - Tutorial 8 - Numerical Examples on Sprinkler Irrigation System
- Lecture 44 - Tutorial 9 - Numerical Examples on Design of Sprinkler Irrigation System
- Lecture 45 - Sprinkler Irrigation System: Layout, Installation, Operation and Maintenance
- Lecture 46 - Standards and Quality Assurance of MIS Components
- Lecture 47 - Standards and Quality Assurance of Sprinkler Irrigation System Components
- Lecture 48 - Solar Photovoltaic System for Irrigation - Part 1
- Lecture 49 - Solar Photovoltaic System for Irrigation - Part 2
- Lecture 50 - Tutorial 10 - Numerical Examples on Solar PV Irrigation System
- Lecture 51 - Automation of Micro Irrigation System - Part 1
- Lecture 52 - Automation of Micro Irrigation System - Part 2
- Lecture 53 - Automation of Micro Irrigation System - Part 3
- Lecture 54 - Automation of Micro Irrigation System - Part 4
- Lecture 55 - Economic Analysis of Micro Irrigation System - Part 1
- Lecture 56 - Economic Analysis of MIS - Part 2
- Lecture 57 - Economic Analysis of MIS - Part 3
- Lecture 58 - Tutorial 11- Numerical Examples on Economics of Micro Irrigation System
- Lecture 59 - Precision Agriculture
- Lecture 60 - Micro Irrigation Engineering: Epilogue

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Instrumentation and Process Control in Food Industry

Subject Co-ordinator - Prof. Ashis Kumar Datta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Process Control

Lecture 2 - Laplace Transform Review - I

Lecture 3 - Laplace Transform Review - II

Lecture 4 - Zero and First Order Instruments

Lecture 5 - First Order Instruments

Lecture 6 - Second Order Instruments - I

Lecture 7 - Second Order Instruments - II

Lecture 8 - Food Instrumentation

Lecture 9 - Chromatography

Lecture 10 - Mass Spectrometry - I

Lecture 11 - Mass Spectrometry - II

Lecture 12 - Model Development

Lecture 13 - PID Controller Response Analysis

Lecture 14 - Block Diagram Representation of CSTR Systems

Lecture 15 - Transient Response of Controlled Systems/Solved Examples

Lecture 16 - Solved Examples on Controlled System

Lecture 17 - Complex Variables as Roots of Characteristic Equation

Lecture 18 - Routh Tests for Stability of Systems

Lecture 19 - Poles and Zeros of the OLTf

Lecture 20 - Plotting of Root Loci

Lecture 21 - Root Loci of PI Controlled Systems

Lecture 22 - Root Loci of PID Controlled Systems

Lecture 23 - First and Second Order Systems Responses

Lecture 24 - A Control Problem

Lecture 25 - PI/PD/PID Controllers and Worked Out Example 1

Lecture 26 - Linear Lag/Transportation Systems/First Order/Second Order Systems- Sinusoidal Input

Lecture 27 - PI/PD/PID Controllers

Lecture 28 - Linear Lag/Transportation system/ First order/ Second order system

Lecture 29 - Worked Out Example 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Concepts of Gain Margin and Phase Margins
- Lecture 31 - Worked Out Examples
- Lecture 32 - Z-Transforms of Sampled Functions
- Lecture 33 - Functions Reconstruction and Manipulation
- Lecture 34 - Open Loop Z-Transfer Functions
- Lecture 35 - Neuro - Fuzzy Logic Controller
- Lecture 36 - Auto - Pilot Control Algorithm
- Lecture 37 - Fuzzy logic controller algorithm for Soan Papri Manufacture
- Lecture 38 - Appendices - Set Theory
- Lecture 39 - Fuzzy Sets Theory
- Lecture 40 - Worked Out Examples
- Lecture 41 - Temperature Standards, Calibration and sensor
- Lecture 42 - Vacuum Measurement
- Lecture 43 - Viscometer and Cream Separator
- Lecture 44 - Spray Dryer and Plate Freezer

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Machine Learning for Soil and Crop Management

Subject Co-ordinator - Prof. Somsubhra Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General Overview of ML and DL Applications in Agriculture
- Lecture 2 - General Overview of ML and DL Applications in Agriculture (Continued...)
- Lecture 3 - General Overview of ML and DL Applications in Agriculture (Continued...)
- Lecture 4 - General Overview of ML and DL Applications in Agriculture (Continued...)
- Lecture 5 - General Overview of ML and DL Applications in Agriculture (Continued...)
- Lecture 6 - Basics of Multivariate Data Analytics
- Lecture 7 - Basics of Multivariate Data Analytics (Continued...)
- Lecture 8 - Basics of Multivariate Data Analytics (Continued...)
- Lecture 9 - Basics of Multivariate Data Analytics (Continued...)
- Lecture 10 - Basics of Multivariate Data Analytics (Continued...)
- Lecture 11 - Principal Component Analysis and Regression Applications in Agriculture
- Lecture 12 - Principal Component Analysis and Regression Applications in Agriculture (Continued...)
- Lecture 13 - Principal Component Analysis and Regression Applications in Agriculture (Continued...)
- Lecture 14 - Principal Component Analysis and Regression Applications in Agriculture (Continued...)
- Lecture 15 - Principal Component Analysis and Regression Applications in Agriculture (Continued...)
- Lecture 16 - Applications of Classification and Clustering Methods in Agriculture
- Lecture 17 - Applications of Classification and Clustering Methods in Agriculture (Continued...)
- Lecture 18 - Applications of Classification and Clustering Methods in Agriculture (Continued...)
- Lecture 19 - Applications of Classification and Clustering Methods in Agriculture (Continued...)
- Lecture 20 - Applications of Classification and Clustering Methods in Agriculture (Continued...)
- Lecture 21 - Diffuse Reflectance Spectroscopy: Basics and Applications for Crop and Soil
- Lecture 22 - Diffuse Reflectance Spectroscopy: Basics and Applications for Crop and Soil (Continued...)
- Lecture 23 - Diffuse Reflectance Spectroscopy: Basics and Applications for Crop and Soil (Continued...)
- Lecture 24 - Diffuse Reflectance Spectroscopy: Basics and Applications for Crop and Soil (Continued...)
- Lecture 25 - Diffuse Reflectance Spectroscopy: Basics and Applications for Crop and Soil (Continued...)
- Lecture 26 - Use of ML for Portable Proximal Soil and Crop Sensors
- Lecture 27 - Use of ML for Portable Proximal Soil and Crop Sensors (Continued...)
- Lecture 28 - Use of ML for Portable Proximal Soil and Crop Sensors (Continued...)
- Lecture 29 - Use of ML for Portable Proximal Soil and Crop Sensors (Continued...)

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- Lecture 30 - Use of ML for Portable Proximal Soil and Crop Sensors (Continued...)
- Lecture 31 - ML and DL for Soil and Crop Image Processing
- Lecture 32 - ML and DL for Soil and Crop Image Processing (Continued...)
- Lecture 33 - ML and DL for Soil and Crop Image Processing (Continued...)
- Lecture 34 - ML and DL for Soil and Crop Image Processing (Continued...)
- Lecture 35 - ML and DL for Soil and Crop Image Processing (Continued...)
- Lecture 36 - UAV and ML Applications in Agriculture
- Lecture 37 - UAV and ML Applications in Agriculture (Continued...)
- Lecture 38 - UAV and ML Applications in Agriculture (Continued...)
- Lecture 39 - UAV and ML Applications in Agriculture (Continued...)
- Lecture 40 - UAV and ML Applications in Agriculture (Continued...)
- Lecture 41 - Hyperspectral Remote Sensing and ML Applications in Agriculture
- Lecture 42 - Hyperspectral Remote Sensing and ML Applications in Agriculture (Continued...)
- Lecture 43 - Hyperspectral Remote Sensing and ML Applications in Agriculture (Continued...)
- Lecture 44 - Hyperspectral Remote Sensing and ML Applications in Agriculture (Continued...)
- Lecture 45 - Hyperspectral Remote Sensing and ML Applications in Agriculture (Continued...)
- Lecture 46 - Digital Soil Mapping - General Overview
- Lecture 47 - Digital Soil Mapping - General Overview (Continued...)
- Lecture 48 - Digital Soil Mapping - General Overview (Continued...)
- Lecture 49 - Digital Soil Mapping - General Overview (Continued...)
- Lecture 50 - Digital Soil Mapping - General Overview (Continued...)
- Lecture 51 - Digital Soil Mapping With Continuous Variables
- Lecture 52 - Digital Soil Mapping With Continuous Variables (Continued...)
- Lecture 53 - Digital Soil Mapping With Continuous Variables (Continued...)
- Lecture 54 - Digital Soil Mapping With Continuous Variables (Continued...)
- Lecture 55 - Digital Soil Mapping With Continuous Variables (Continued...)
- Lecture 56 - Digital Soil Mapping With Categorical Variables
- Lecture 57 - Digital Soil Mapping With Categorical Variables (Continued...)
- Lecture 58 - Digital Soil Mapping With Categorical Variables (Continued...)
- Lecture 59 - Digital Soil Mapping With Categorical Variables (Continued...)
- Lecture 60 - Digital Soil Mapping With Categorical Variables (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Advanced Aquaculture Technology

Subject Co-ordinator - Prof. Gourav Dhar Bhowmick

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Aquaculture systems and input factors
- Lecture 3 - Important species in aquaculture
- Lecture 4 - Propagation; Water budget
- Lecture 5 - Conservation strategies
- Lecture 6 - Transformation of open culture to closed high-tech technologies
- Lecture 7 - Intensive farming in high-tech tanks
- Lecture 8 - Re-circulatory system
- Lecture 9 - Flow-through system
- Lecture 10 - Raceway culture
- Lecture 11 - Polyculture, IMTA
- Lecture 12 - Coastal aquaculture
- Lecture 13 - Mariculture
- Lecture 14 - Algal Culture
- Lecture 15 - Seaweed Culture; Pearl Culture
- Lecture 16 - Introduction to freshwater prawn culture
- Lecture 17 - Introduction to shrimp culture
- Lecture 18 - Introduction to shrimp culture (Continued...)
- Lecture 19 - Introduction to crab culture
- Lecture 20 - Introduction to crab culture (Continued...)
- Lecture 21 - Larval rearing and hatcheries
- Lecture 22 - Design of hatchery for Carps
- Lecture 23 - Design of prawn hatchery
- Lecture 24 - Design of Shrimp hatchery
- Lecture 25 - Maintenance of optimum conditions
- Lecture 26 - Balanced diet
- Lecture 27 - Balanced diet and Feed formulation
- Lecture 28 - Feed formulation: Linear Programming
- Lecture 29 - Feed additives

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Feed additives, Food conversion ratio (FCR)
- Lecture 31 - Important water quality parameters and criteria
- Lecture 32 - Aeration
- Lecture 33 - Aerator performance
- Lecture 34 - Important calculations on aerators
- Lecture 35 - Chemical treatment
- Lecture 36 - Overview of Wastewater Treatment Methods
- Lecture 37 - Overview of Wastewater Treatment Methods (Continued...)
- Lecture 38 - Bio-electrochemical system based wastewater treatment
- Lecture 39 - Bio-electrochemical system-based wastewater treatment (Continued...)
- Lecture 40 - Bio-electrochemical system-based wastewater treatment (Continued...)
- Lecture 41 - Organic Aquaculture Standards
- Lecture 42 - Wastewater-fed aquaculture
- Lecture 43 - Integrated farming
- Lecture 44 - Integrated farming (Continued...)
- Lecture 45 - Bio-floc Technology
- Lecture 46 - Green aquaculture
- Lecture 47 - Smart Aquaponic system
- Lecture 48 - Bioremediation
- Lecture 49 - Biofiltration
- Lecture 50 - Eco-labelling
- Lecture 51 - Fish and fish products preservation
- Lecture 52 - Fish and fish products preservation (Continued...)
- Lecture 53 - Fish by-products
- Lecture 54 - Fish by-products (Continued...)
- Lecture 55 - Zero waste recycling
- Lecture 56 - Impact of Climate Change on aquaculture
- Lecture 57 - Impact of Climate Change on aquaculture (Continued...)
- Lecture 58 - Mitigation and adaptive strategies
- Lecture 59 - Mitigation and adaptive strategies (Continued...)
- Lecture 60 - Mitigation and adaptive strategies (Continued...)
- Lecture 61 - Opportunities in Aquaculture sectors for the entrepreneurs from the coastal regions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Post Harvest Operations and Processing of Fruits, Vegetables, Spices and

Subject Co-ordinator - Prof. Hari Niwas Mishra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Introduction

Lecture 2 - Fruits and Vegetables

Lecture 3 - Fruits and Vegetable (Part II : Respiration, Ripening and Senescence)

Lecture 4 - Indian Spices

Lecture 5 - Plantation Crops

Lecture 6 - Post Harvest Losses: Causes and Preventive Measures

Lecture 7 - Post Harvest Operations

Lecture 8 - Handling and Transportation

Lecture 9 - Supply Chain Management and Storage

Lecture 10 - Quality Assurance and Control (QA/QC)

Lecture 11 - Basics of Processing and Preservation

Lecture 12 - Processing by Removal of Water

Lecture 13 - Processing by Addition of Heat

Lecture 14 - Processing by Removal of Heat

Lecture 15 - Irradiation of Fruits, Vegetables and Spices

Lecture 16 - Cleaning and Washing

Lecture 17 - Sorting and Grading

Lecture 18 - Peeling, Coring, Slicing

Lecture 19 - Containers and Packaging Materials for Fresh Produce

Lecture 20 - Packaging Methods and Equipment

Lecture 21 - Minimal Processing

Lecture 22 - Hurdle Technology Concepts

Lecture 23 - Intermediate and High Moisture Fruit Products

Lecture 24 - Cut Fruits and Vegetables - Part I

Lecture 25 - Cut Fruits and Vegetables - Part II

Lecture 26 - Juice Extraction and Clarification

Lecture 27 - Concentrates and Pastes

Lecture 28 - Aseptic processing and packaging

Lecture 29 - RTS and RTD beverages

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quality and Safety Aspects
- Lecture 31 - Techniques and Equipment
- Lecture 32 - Powders and Premixes - Part I
- Lecture 33 - Powders and Premixes - Part II
- Lecture 34 - RTE Fruit Products
- Lecture 35 - Dehydrated and Instant Cooking Vegetables
- Lecture 36 - Tea and Tea Products
- Lecture 37 - Coffee Processing
- Lecture 38 - Cocoa and Chocolate Technology
- Lecture 39 - Processing of Vanilla Beans and Production of Vanilla Flavour
- Lecture 40 - Coconut and Cashew Processing
- Lecture 41 - Processing of spices
- Lecture 42 - Spice powders
- Lecture 43 - Spice Pastes, Sauces and Gravies
- Lecture 44 - Essential Oil and Oleoresin
- Lecture 45 - Condiments Technology
- Lecture 46 - Fermentation Technology
- Lecture 47 - Fruit Wines and Ciders
- Lecture 48 - Probiotic / Fermented Vegetable Products
- Lecture 49 - Carbonated Fruit Juices and Premixes
- Lecture 50 - Quality Characteristics
- Lecture 51 - Packaging Technology
- Lecture 52 - Smart Packaging
- Lecture 53 - Edible Coatings and Films
- Lecture 54 - Modified Atmosphere Packaging
- Lecture 55 - Controlled Atmosphere Storage
- Lecture 56 - Green Technologies and Near Zero Waste Processing
- Lecture 57 - Extraction of Bioactive and Pigments from Processing Waste
- Lecture 58 - Valorisation of Waste into Value-added Products
- Lecture 59 - FSSAI Regulations and FSMS Guidelines for Fruits, Vegetables, Spices and Plantation Crops
- Lecture 60 - Course Summary and Summing-up

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Soil Fertility and Fertilizers

Subject Co-ordinator - Prof. Somsubhra Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Importance of Soil Nutrient Management and Basic Soil-Plant Relationship
- Lecture 2 - Importance of Soil Nutrient Management and Basic Soil-Plant Relationship (Continued...)
- Lecture 3 - Importance of Soil Nutrient Management and Basic Soil-Plant Relationship (Continued...)
- Lecture 4 - Importance of Soil Nutrient Management and Basic Soil-Plant Relationship (Continued...)
- Lecture 5 - Importance of Soil Nutrient Management and Basic Soil-Plant Relationship (Continued...)
- Lecture 6 - Soil Nitrogen for Plant Nutrition
- Lecture 7 - Soil Nitrogen for Plant Nutrition (Continued...)
- Lecture 8 - Soil Nitrogen for Plant Nutrition (Continued...)
- Lecture 9 - Soil Nitrogen for Plant Nutrition (Continued...)
- Lecture 10 - Soil Nitrogen For Plant Nutrition (Continued...)
- Lecture 11 - Soil P and K for Plant Nutrition
- Lecture 12 - Soil P and K for Plant Nutrition (Continued...)
- Lecture 13 - Soil P and K for Plant Nutrition (Continued...)
- Lecture 14 - Soil P and K for Plant Nutrition (Continued...)
- Lecture 15 - Soil P and K for Plant Nutrition (Continued...)
- Lecture 16 - Soil Secondary Nutrients and their role in Plant Nutrition
- Lecture 17 - Soil Secondary Nutrients and their role in Plant Nutrition (Continued...)
- Lecture 18 - Soil Secondary Nutrients and their role in Plant Nutrition (Continued...)
- Lecture 19 - Soil Secondary Nutrients and their role in Plant Nutrition (Continued...)
- Lecture 20 - Soil Secondary Nutrients and their role in Plant Nutrition (Continued...)
- Lecture 21 - Soil Micronutrients and their role in Plant Nutrition
- Lecture 22 - Soil Micronutrients and their role in Plant Nutrition (Continued...)
- Lecture 23 - Soil Micronutrients and their role in Plant Nutrition (Continued...)
- Lecture 24 - Soil Micronutrients and their role in Plant Nutrition (Continued...)
- Lecture 25 - Soil Micronutrients and their role in Plant Nutrition (Continued...)
- Lecture 26 - Soil Testing and Soil Fertility Evaluation Methods
- Lecture 27 - Soil Testing and Soil Fertility Evaluation Methods (Continued...)
- Lecture 28 - Soil Testing and Soil Fertility Evaluation Methods (Continued...)
- Lecture 29 - Soil Testing and Soil Fertility Evaluation Methods (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Soil Testing and Soil Fertility Evaluation Methods (Continued...)
- Lecture 31 - Soil Health and Quality, Problem Soil, Land Capability Classification
- Lecture 32 - Soil Health and Quality, Problem Soil, Land Capability Classification (Continued...)
- Lecture 33 - Soil Health and Quality, Problem Soil, Land Capability Classification (Continued...)
- Lecture 34 - Soil Health and Quality, Problem Soil, Land Capability Classification (Continued...)
- Lecture 35 - Soil Health and Quality, Problem Soil, Land Capability Classification (Continued...)
- Lecture 36 - Organic Manures, Manufacturing, Properties, and fate of N, P, K and Micronutrient .....
- Lecture 37 - Organic Manures, Manufacturing, Properties, and fate of N, P, K and Micronutrient (Continued...)
- Lecture 38 - Organic Manures, Manufacturing, Properties, and fate of N, P, K and Micronutrient (Continued...)
- Lecture 39 - Organic Manures, Manufacturing, Properties, and fate of N, P, K and Micronutrient (Continued...)
- Lecture 40 - Organic Manures, Manufacturing, Properties, and fate of N, P, K and Micronutrient (Continued...)
- Lecture 41 - Fertilizer Quality Control, Fertilizer Adulteration and Fertilizer Testing
- Lecture 42 - Fertilizer Quality Control, Fertilizer Adulteration and Fertilizer Testing (Continued...)
- Lecture 43 - Fertilizer Quality Control, Fertilizer Adulteration and Fertilizer Testing (Continued...)
- Lecture 44 - Fertilizer Quality Control, Fertilizer Adulteration and Fertilizer Testing (Continued...)
- Lecture 45 - Fertilizer Quality Control, Fertilizer Adulteration and Fertilizer Testing (Continued...)
- Lecture 46 - Biofertilizers and Management of fertilizers and manures in Soil
- Lecture 47 - Biofertilizers and Management of fertilizers and manures in Soil (Continued...)
- Lecture 48 - Biofertilizers and Management of fertilizers and manures in Soil (Continued...)
- Lecture 49 - Biofertilizers and Management of fertilizers and manures in Soil (Continued...)
- Lecture 50 - Biofertilizers and Management of fertilizers and manures in Soil (Continued...)
- Lecture 51 - Fertilizer Recommendation Approaches and Integrated Plant Nutrient Management
- Lecture 52 - Fertilizer Recommendation Approaches and Integrated Plant Nutrient Management (Continued...)
- Lecture 53 - Fertilizer Recommendation Approaches and Integrated Plant Nutrient Management (Continued...)
- Lecture 54 - Fertilizer Recommendation Approaches and Integrated Plant Nutrient Management (Continued...)
- Lecture 55 - Fertilizer Recommendation Approaches and Integrated Plant Nutrient Management (Continued...)
- Lecture 56 - Agricultural Productivity and Environmental Quality
- Lecture 57 - Agricultural Productivity and Environmental Quality (Continued...)
- Lecture 58 - Agricultural Productivity and Environmental Quality (Continued...)
- Lecture 59 - Agricultural Productivity and Environmental Quality (Continued...)
- Lecture 60 - Agricultural Productivity and Environmental Quality (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Cooling Technology: Why and How utilized in Food Processing and Allied

Subject Co-ordinator - Prof. Tridib Kumar Goswami

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Cooling
- Lecture 2 - Why Cooling is required ?
- Lecture 3 - Definitions
- Lecture 4 - How to produce Safe Foods
- Lecture 5 - How to produce Safe Foods ? (Continued...)
- Lecture 6 - Cooling Load Calculation
- Lecture 7 - Cooling Load Calculation (Continued...)
- Lecture 8 - Cooling Load Calculation (Continued...)
- Lecture 9 - Cooling Load Calculation (Continued...)
- Lecture 10 - Basics of Thermodynamics
- Lecture 11 - Basics of Thermodynamics (Continued...)
- Lecture 12 - Basics of Thermodynamics (Continued...)
- Lecture 13 - Basics of Thermodynamics (Continued...)
- Lecture 14 - Basics of Thermodynamics (Continued...)
- Lecture 15 - Basics of Thermodynamics (Continued...)
- Lecture 16 - Basics of Thermodynamics (Continued...)
- Lecture 17 - Basics of Thermodynamics (Continued...)
- Lecture 18 - Psychrometrics
- Lecture 19 - Psychrometrics (Continued...)
- Lecture 20 - Psychrometrics (Continued...)
- Lecture 21 - Psychrometrics (Continued...)
- Lecture 22 - Psychrometrics (Continued...)
- Lecture 23 - Psychrometrics (Continued...)
- Lecture 24 - Psychrometrics (Continued...)
- Lecture 25 - The Carnot Cycle
- Lecture 26 - Carnot Cycle (Continued...)
- Lecture 27 - Carnot Cycle (Continued...)
- Lecture 28 - Carnot Cycle (Continued...)
- Lecture 29 - Carnot Refrigeration Cycles

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Carnot Refrigeration Cycles (Continued...)
- Lecture 31 - Practical Difficulties with Carnot Cycle
- Lecture 32 - Dry Compression
- Lecture 33 - Problem Solving with Carnot System
- Lecture 34 - Pure Substance as Refrigerant
- Lecture 35 - Pure Substance as Refrigerant (Continued...)
- Lecture 36 - Gas as Refrigerant
- Lecture 37 - Gas as Refrigerant (Continued...)
- Lecture 38 - Gas as Refrigerant (Continued...)
- Lecture 39 - Basics of Refrigeration and Air Conditioning
- Lecture 40 - Basics of Refrigeration and Air Conditioning (Continued...)
- Lecture 41 - Selection of Condenser
- Lecture 42 - Compressor
- Lecture 43 - Reciprocating Compressor
- Lecture 44 - Reciprocating Compressor (Continued...)
- Lecture 45 - Reciprocating Compressor (Continued...)
- Lecture 46 - Centrifugal Compressor
- Lecture 47 - Rotary, Positive Displacement Type Compressors
- Lecture 48 - Condenser
- Lecture 49 - Condenser (Continued...)
- Lecture 50 - Evaporator and Expansion Device
- Lecture 51 - Freezing
- Lecture 52 - Crystallization in Freezing
- Lecture 53 - Freezing Curve
- Lecture 54 - Freezers
- Lecture 55 - Control Atmosphere Storage
- Lecture 56 - Use of Phase Change Materials (PCM)
- Lecture 57 - Cold Chain and Cold Storage
- Lecture 58 - Cold Storage
- Lecture 59 - Ice Cream
- Lecture 60 - Ice Cream (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Traction Engineering

Subject Co-ordinator - Prof. Hifjur Raheman

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concept of Traction and Traction Devices
- Lecture 2 - Classification of wheels, Forces and moments acting on wheel
- Lecture 3 - Tyre constructions and its specification
- Lecture 4 - Tractive performance parameters
- Lecture 5 - Tutorial 1
- Lecture 6 - Mechanics of wheel and its tractive performance
- Lecture 7 - Measurement of soil strength, cohesion and angle of internal friction
- Lecture 8 - Measurement and characterization of terrain response
- Lecture 9 - Characterization of shear stress and shear strength in different soil conditions
- Lecture 10 - Tutorial 2 - Measurement of shear strength, modulus of sinkage and cone index
- Lecture 11 - Rolling resistance of a rigid towed wheel
- Lecture 12 - Rolling resistance of a pneumatic wheel
- Lecture 13 - Motion resistance of a track
- Lecture 14 - Tractive effort and slip of a powered rigid wheel
- Lecture 15 - Tutorial 3 - Computation of rolling resistance of rigid wheel and pneumatic wheel
- Lecture 16 - Tractive effort and slip of a track
- Lecture 17 - Tractive effort and slip of a pneumatic wheel
- Lecture 18 - Tractive performance prediction models - Wismer and Luth
- Lecture 19 - Tractive performance prediction models - Brixius
- Lecture 20 - Tutorial 4 - Tractive Performance Estimation Using Brixius Model
- Lecture 21 - Effect of tyre parameters on tractive performance of tyre
- Lecture 22 - Selection of tyre
- Lecture 23 - Comparison of single tyre with dual tyres
- Lecture 24 - Performance evaluation of a walking tractor fitted with track
- Lecture 25 - Tutorial 5
- Lecture 26 - Measurement of Cone Index
- Lecture 27 - Pressure Sinkage Relationship in a Sandy Clay Loam Soil
- Lecture 28 - Measurement of Theoretical Velocity, Actual Velocity and Slip for a Pneumatic Wheel
- Lecture 29 - Measurement of Contact Area of a Pneumatic Tyre on a Hard Surface

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Measurement of Tractice Efficiency
- Lecture 31 - Performance comparison of track with wheel
- Lecture 32 - Traction Aids for Tractors
- Lecture 33 - Ballasting of Wheeled Tractors to achieve Maximum Power Output in Frictional-Cohesive soils
- Lecture 34 - Optimum ballasting of a front wheel assisted tractor
- Lecture 35 - Tutorial 7
- Lecture 36 - Cornering Properties of tyres
- Lecture 37 - Lateral force developed by an unpowered tractor wheel
- Lecture 38 - Steering of wheeled vechiles and steady state handling of front wheel steered vechiles
- Lecture 39 - Classification of steady state handling characteristics and handling diagram
- Lecture 40 - Tutorial 8

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Food Oils and Fats : Chemistry and Technology

Subject Co-ordinator - Prof. Hari. Niwas Mishra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Oil and Fats Processing Industry - Current Status, Issues and Challenges
- Lecture 2 - Plant Sources of Edible Oils and Fats
- Lecture 3 - Composition, Nutrition and Health Values of Plant Oils
- Lecture 4 - Animal Sources of Edible Oils and Fats
- Lecture 5 - Composition, Nutrition and Health Values of Animal Fats and Oils
- Lecture 6 - Lipids and Their Classification
- Lecture 7 - Fatty acids and their types
- Lecture 8 - Glycerides - Type, Structure and Function
- Lecture 9 - Triglycerides - Function in Nutrition and Food Processing
- Lecture 10 - Phospholipids and Sterols
- Lecture 11 - Engineering Properties of Edible Oils
- Lecture 12 - Chemical Properties of Edible Oils
- Lecture 13 - Rancidity and Reversion
- Lecture 14 - Oxidative Rancidity
- Lecture 15 - Antioxidants in Edible Oil
- Lecture 16 - Pre-Treatment Techniques
- Lecture 17 - Physical Methods for Oil Extraction - Concept and Mechanism
- Lecture 18 - Expression - Pressing
- Lecture 19 - Screw Expelling
- Lecture 20 - Recent Developments in Oil Expression Technology
- Lecture 21 - Extraction principles and mechanisms
- Lecture 22 - Factors affecting extraction process
- Lecture 23 - Solvent Extraction Technology and Equipment
- Lecture 24 - Miscella Distillation and Meal Desolventization
- Lecture 25 - Novel techniques of oil extraction
- Lecture 26 - Crude Oil Characteristics and Processing
- Lecture 27 - Clarification and Degumming
- Lecture 28 - Chemical Refining and Neutralization
- Lecture 29 - Bleaching

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Physical Refining and Deodorization
- Lecture 31 - Hydrogenation
- Lecture 32 - Interesterification and Winterization
- Lecture 33 - Fractionation and Plasticization
- Lecture 34 - Margarine and Shortenings
- Lecture 35 - Trans-free modifications
- Lecture 36 - Animal fats
- Lecture 37 - Fish oil and Algal oil
- Lecture 38 - Dairy Cream
- Lecture 39 - Butter
- Lecture 40 - Ghee (Butter Oil)
- Lecture 41 - Characteristics and specifications
- Lecture 42 - Frying Technology
- Lecture 43 - Seed Oils
- Lecture 44 - Fruit and Nut Oils
- Lecture 45 - Rice Bran Oil
- Lecture 46 - Tree Nut Oils
- Lecture 47 - Tropical Exotic Oils and Butter
- Lecture 48 - Essential Oil
- Lecture 49 - Cocoa/Shea Butter and Structured Triacylglycerols
- Lecture 50 - Oil powder and liposomes
- Lecture 51 - Major by-Products, Their Composition and Uses
- Lecture 52 - By-Products Utilization - I
- Lecture 53 - By-Products Utilization - II
- Lecture 54 - Lecithin Production
- Lecture 55 - Biodiesel Production from Waste Cooking Oil
- Lecture 56 - Edible Oil Blending and Fortification
- Lecture 57 - Packaging materials and methods
- Lecture 58 - Handling and Storage
- Lecture 59 - Quality Analysis and Control
- Lecture 60 - Regulatory Requirements and Course summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Watershed Hydrology

Subject Co-ordinator - Prof. Rajendra Singh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Precipitation
- Lecture 3 - Rainfall data analysis - I
- Lecture 4 - Rainfall data analysis - II
- Lecture 5 - Rainfall Frequency Analysis
- Lecture 6 - Hydrological Abstractions
- Lecture 7 - Evaporation
- Lecture 8 - Evapotranspiration
- Lecture 9 - Infiltration - I
- Lecture 10 - Infiltration - II
- Lecture 11 - Streamflow Processes
- Lecture 12 - Streamflow Measurement - 1
- Lecture 13 - Streamflow Measurement - 2
- Lecture 14 - Streamflow Measurement - 3
- Lecture 15 - Flow Duration Curve and Flow Mass Curve
- Lecture 16 - Runoff
- Lecture 17 - Estimation of Runoff
- Lecture 18 - Estimation of Runoff - Rational Method
- Lecture 19 - Estimation of Runoff - SCS-Curve Number Method
- Lecture 20 - Numerical on Estimation of Runoff
- Lecture 21 - Hydrograph - I
- Lecture 22 - Hydrograph - II
- Lecture 23 - Derivation of Unit Hydrograph - I
- Lecture 24 - Derivation of Unit Hydrograph - II
- Lecture 25 - Numerical on Hydrograph
- Lecture 26 - Synthetic Unit Hydrograph - I
- Lecture 27 - Synthetic Unit Hydrograph - II
- Lecture 28 - IUH and Distribution Graph
- Lecture 29 - Numerical on Synthetic UH, IUH and Distribution Graph - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Numerical on Synthetic UH, IUH and Distribution Graph - II
- Lecture 31 - Drainage Basin Characteristics
- Lecture 32 - Drainage Basin Geomorphology
- Lecture 33 - Morphometric analysis using RS and GIS
- Lecture 34 - Watershed Management - I
- Lecture 35 - Watershed Management - II
- Lecture 36 - Hydrological Modelling: Introduction and Protocol
- Lecture 37 - Hydrological Models: Classification
- Lecture 38 - Hydrological Model: Calibration, Validation and Evaluation
- Lecture 39 - Sensitivity Analysis and Machine Learning in Hydrology
- Lecture 40 - Machine Learning in Hydrology - II
- Lecture 41 - Floods
- Lecture 42 - Design Flood
- Lecture 43 - Flood Frequency Analysis
- Lecture 44 - Flood Control and Management
- Lecture 45 - Floodplain Zoning and Numerical on Floods
- Lecture 46 - Flood Routing: Introduction
- Lecture 47 - Hydrologic Reservoir Routing
- Lecture 48 - Hydrologic Channel Routing
- Lecture 49 - Hydraulic Channel Routing - Hydraulic routing
- Lecture 50 - Numerical on Flood Routing
- Lecture 51 - Drought: Introduction
- Lecture 52 - Classification of Drought
- Lecture 53 - Agricultural Drought - I
- Lecture 54 - Agricultural Drought - II
- Lecture 55 - Drought Management
- Lecture 56 - Hydrological Model Demonstration
- Lecture 57 - Miscellaneous Topics
- Lecture 58 - Objectives on Watershed Hydrology
- Lecture 59 - Objectives on Watershed Hydrology
- Lecture 60 - Solution of Numerical Problems in Assignments

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Water Quality Management Practices

Subject Co-ordinator - Prof. Gourav Dhar Bhowmick

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Water Quality
- Lecture 2 - Classification of Major Water Pollutants
- Lecture 3 - Emerging Concerns in Wastewater Treatment in Global Scenario
- Lecture 4 - Environmental Legislation and Regulatory Standards
- Lecture 5 - Commonly used terminologies and definitions
- Lecture 6 - Collection and Preservation of Samples and the Measurement of pH, Acidity, Alkalinity
- Lecture 7 - Measurement of DO and Solids in wastewater (TSS/VSS/TDS), Turbidity
- Lecture 8 - Determination of BOD, COD and TOC
- Lecture 9 - Modelling of BOD and its relation with COD and TOC
- Lecture 10 - Determination of Nitrogen, Phosphorus and Microbial Counts
- Lecture 11 - Wastewater Treatment Classification and Plant Analysis
- Lecture 12 - Order of Reaction and Types of Reactors Used in Wastewater Treatment
- Lecture 13 - Concept of Mass Balance
- Lecture 14 - Overview of Sewage Treatment Plant
- Lecture 15 - Self-Purification and its Factors
- Lecture 16 - Screens
- Lecture 17 - Grit Chamber and its Classification - I
- Lecture 18 - Grit Chamber and its Classification - II and Skimming Tank
- Lecture 19 - Theory of Sedimentation and Introduction to Primary Sedimentation Tank and its Types
- Lecture 20 - PST: Performance factors affecting efficiency and design recommendations
- Lecture 21 - Equalization
- Lecture 22 - Neutralization, Dissolved Air Flootation
- Lecture 23 - Coagulation
- Lecture 24 - Flocculation
- Lecture 25 - Pre-aeration and other advanced primary treatment units
- Lecture 26 - Bacterial Metabolism and Their Use in Wastewater
- Lecture 27 - Factors Affecting Bacterial Growth and Wastewater Treatment Using Bacteria
- Lecture 28 - Role of enzymes and algae in biological wastewater treatment
- Lecture 29 - Important nomenclature on aerobic treatment units

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Types of aeration used in aerobic treatment units and Analysis of Gas Transfer
- Lecture 31 - Activated Sludge Process: Description and Types
- Lecture 32 - Bacterial growth kinetics in ASP: Biomass mass balance and substrate mass balance
- Lecture 33 - Equalization Estimation of values of other operating parameters in ASP
- Lecture 34 - Numericals on ASP
- Lecture 35 - Sequencing Batch Reactor
- Lecture 36 - Trickling Filter- Physical Overview, Types and Process Description
- Lecture 37 - Aerated Lagoon, Fluidised Bed Bioreactor, Biological Active Filter
- Lecture 38 - Aerated Lagoons, Fluidized Bed Bioreactors, Biological Active Filters
- Lecture 39 - Rotating Biological Contactor and Hanging Sponge Reactor
- Lecture 40 - Membrane Bioreactor (MBR)
- Lecture 41 - Principles of Anaerobic process for wastewater treatment and Methane Production
- Lecture 42 - Types of Anaerobic Treatment Systems
- Lecture 43 - Factors Affecting Anaerobic Treatment Systems
- Lecture 44 - Designs of Anaerobic Reactors: UASB reactor - I
- Lecture 45 - Designs of Anaerobic Reactors: UASB reactor - II
- Lecture 46 - Pond System, Components, Factors and Terminologies
- Lecture 47 - Constructed Wetlands
- Lecture 48 - Bio-electrochemical Systems: Types and Definition
- Lecture 49 - Hybrid Bio-electrochemical Systems
- Lecture 50 - Modular Designs for Smart Cities
- Lecture 51 - Nitrification and Denitrification: Major factors
- Lecture 52 - Systems used for Nitrification and Denitrification, Anammox Process
- Lecture 53 - Biological Phosphorus Removal and Factors affecting it
- Lecture 54 - Advanced Oxidation Processes
- Lecture 55 - Other Tertiary treatment systems
- Lecture 56 - Disinfection of Wastewater
- Lecture 57 - Sludge Management
- Lecture 58 - Life-Cycle Costing
- Lecture 59 - Case studies
- Lecture 60 - Future of Sustainable Wastewater Treatment Technologies

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Modern Food Packaging Technologies: Regulatory Aspects and Global Trends

Subject Co-ordinator - Prof. Prem Prakash Srivastav

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Food Packaging
- Lecture 2 - Introduction to Food Packaging (Continued...)
- Lecture 3 - Introduction to Food Packaging (Continued...)
- Lecture 4 - Introduction to Food Packaging (Continued...)
- Lecture 5 - Introduction to Food Packaging (Continued...)
- Lecture 6 - Introduction to Food Packaging (Continued...)
- Lecture 7 - Type of Packaging Materials (Paper)
- Lecture 8 - Type of Packaging Materials (Paper) (Continued...)
- Lecture 9 - Type of Packaging Materials (Paper) (Continued...)
- Lecture 10 - Testing of Paper and Paperboard
- Lecture 11 - Types of Packaging Materials (Glass)
- Lecture 12 - Types of Packaging Materials (Glass) (Continued...)
- Lecture 13 - Types of Packaging Materials (Glass) (Continued...)
- Lecture 14 - Types of Packaging Materials (Glass) (Continued...)
- Lecture 15 - Types of Packaging Materials (Plastic 1)
- Lecture 16 - Types of Packaging Materials (Plastic 1) (Continued...)
- Lecture 17 - Types of Packaging Materials (Plastic 1) (Continued...)
- Lecture 18 - Types of Packaging Materials (Plastic 1) (Continued...)
- Lecture 19 - Types of Packaging Materials (Plastic 2)
- Lecture 20 - Types of Packaging Materials (Plastic 2) (Continued...)
- Lecture 21 - Properties of Plastic Polymers
- Lecture 22 - Properties of Plastic Polymers (Continued...)
- Lecture 23 - Coating, Printing and Labeling of Plastic Films
- Lecture 24 - Retort Pouches
- Lecture 25 - Metals as a Packaging Material
- Lecture 26 - Metals as a Packaging Material (Continued...)
- Lecture 27 - Metals as a Packaging Material (Can Making Process)
- Lecture 28 - Metals as a Packaging Material (can end making process)
- Lecture 29 - Metals as a Packaging Material (Aluminium Container)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Metals as a Packaging Material (Corrosion of Metal Packaging)
- Lecture 31 - Testing and Regulatory Aspects of Food Packging
- Lecture 32 - Testing and Regulatory Aspects of Food Packging (Continued...)
- Lecture 33 - Testing and Regulatory Aspects of Food Packging (Continued...)
- Lecture 34 - Special Packging Methods (form-fill-seal machine)
- Lecture 35 - Special Packging Methods (controlled atmospheric packaging)
- Lecture 36 - Special Packaging Methods (modified atmospheric packaging)
- Lecture 37 - Special Packaging Methods (aseptic packaging)
- Lecture 38 - Special Packaging Methods (active and intelligent packaging)
- Lecture 39 - Packaging of Food Products (meat and poultry products)
- Lecture 40 - Packaging of Food Products (meat and poultry products) (Continued...)
- Lecture 41 - Packaging of Food Products (meat and poultry products) (Continued...)
- Lecture 42 - Packaging of Food Products (dairy and dairy based products)
- Lecture 43 - Packaging of Food Products (dairy and dairy based products) (Continued...)
- Lecture 44 - Packaging of Food Products (dairy and dairy based products) (Continued...)
- Lecture 45 - Packaging of Food Products (fruits and vegetables)
- Lecture 46 - Packaging of Food Products (fruits and vegetables) (Continued...)
- Lecture 47 - Packaging of Food Products (cereals and flours)
- Lecture 48 - Packaging of Food Products (bakery and rte products)
- Lecture 49 - Packaging of Food Products (confectionery products)
- Lecture 50 - Packaging of Food Products (beverages)
- Lecture 51 - Overview to Modern Food Packaging
- Lecture 52 - Challenges and Variations in Packaging Industries
- Lecture 53 - Recent Trends in Packaging Materials - Biodegradable
- Lecture 54 - Recent Trends in Packaging Materials - Edible
- Lecture 55 - Recycling and Disposal of Plastic Waste and Environmental Concern
- Lecture 56 - Packaging Processes and Machinery
- Lecture 57 - Packaging Processes and Machinery (Continued...)
- Lecture 58 - Packaging Processes and Machinery (Continued...)
- Lecture 59 - Packaging Laws and Regulation
- Lecture 60 - FSSAI Regulations on Packaging and Labelling Requirements

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Agriculture - NOC:Basics of Crop Breeding and Plant Biotechnology

Subject Co-ordinator - Prof. Joydeep Banerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Mendelian Genetics  
Lecture 2 - Mendelian Genetics  
Lecture 3 - Mendelian Genetics  
Lecture 4 - Concept of Gene and Experiments on Plant Hybridization  
Lecture 5 - Concept of Gene and Experiments on Plant Hybridization  
Lecture 6 - Pureline Selection  
Lecture 7 - Pedigree Method  
Lecture 8 - Backcross Breeding  
Lecture 9 - Back Cross Method (Recessive Gene Transfer)  
Lecture 10 - Merits and Demerits of Backcross Breeding and Cytoplasm Transfer Through BB  
Lecture 11 - Mass Selection  
Lecture 12 - Modifications of Mass Selection  
Lecture 13 - Recurrent Selection  
Lecture 14 - Reciprocal Recurrent Selection  
Lecture 15 - Heterosis and Inbreeding Depression  
Lecture 16 - Degree of Inbreeding and Genetic Basis of Heterosis and Inbreeding Depression  
Lecture 17 - Genetic Basis of Heterosis and Inbreeding Depression  
Lecture 18 - Population Genetics - Part I  
Lecture 19 - Population Genetics - Part II  
Lecture 20 - Population Genetics - Part III  
Lecture 21 - Polyploidy - Introduction  
Lecture 22 - Autopolyploidy  
Lecture 23 - Features and Limitations of Autopolyploids  
Lecture 24 - Allopolyploidy  
Lecture 25 - Introduction to Reverse Breeding  
Lecture 26 - Applications of Reverse Breeding  
Lecture 27 - Introduction to Markers  
Lecture 28 - RFLP  
Lecture 29 - RAPD

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- Lecture 30 - AFLP
- Lecture 31 - ISSR, SSR, CAPS
- Lecture 32 - Backcross breeding through molecular marker - Part I
- Lecture 33 - Backcross breeding through molecular marker - Part II
- Lecture 34 - Enzymatic tools used in Molecular Biology
- Lecture 35 - Vectors and Plasmids used in Molecular Biology
- Lecture 36 - Types of Vectors used in Plant Transformation and Selectable Marker Gene
- Lecture 37 - Scorable Marker Gene and Plant Tissue Culture
- Lecture 38 - Gene Cloning
- Lecture 39 - Promoters and Preparation of Over expression Construct
- Lecture 40 - Preparation of Gene Silencing Construct
- Lecture 41 - Unidirectional and Bidirectional Promoter, Numerical Question on Promoter Analysis
- Lecture 42 - Application of Plant Tissue Culture - Part I
- Lecture 43 - Application of Plant Tissue Culture - Part II
- Lecture 44 - Haploids and Artificial Seeds
- Lecture 45 - Gene Transfer Methods
- Lecture 46 - Agrobacterium Mediated Transformation in Tobacco and Rice
- Lecture 47 - PCR Screening
- Lecture 48 - Southern and Northern Blot
- Lecture 49 - Western Blot
- Lecture 50 - Microarray and Other Screening Methods
- Lecture 51 - Molecular Analysis of Transgenic Plants - I
- Lecture 52 - Molecular Analysis of Transgenic Plants - II
- Lecture 53 - Double Integration - Part I
- Lecture 54 - Double Integration - Part II
- Lecture 55 - Golden Rice, Bt Cotton, FLAVR SAVR
- Lecture 56 - Characterisation of OsGLP1 Gene from Rice - Part I
- Lecture 57 - Characterization of OsGLP1 Gene from Rice - Part II
- Lecture 58 - Seed Sterilisation and Transformation (Rice and Tobacco)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Landscape Architecture and Site Planning - Basic Fundamentals

Subject Co-ordinator - Prof. Uttam Kumar Bannerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview

Lecture 2 - Introduction to Landscape

Lecture 3 - Categories and Materials in Landscape

Lecture 4 - Objective and Professional Scope of Landscape Design

Lecture 5 - Objective and Professional Scope of Landscape Design (Continued...)

Lecture 6 - Introduction to History of Landscape Design

Lecture 7 - Introduction to History of Landscape Design (Continued...)

Lecture 8 - Introduction to History of Landscape Design (Continued...)

Lecture 9 - Introduction to History of Landscape Design (Continued...)

Lecture 10 - Introduction to History of Landscape Design (Continued...)

Lecture 11 - Introduction to History of Landscape Design (Continued...)

Lecture 12 - Introduction to History of Landscape Design (Continued...)

Lecture 13

Lecture 14

Lecture 15

Lecture 16 - Behavioral Principle

Lecture 17 - Behavioral Principle (Continued...)

Lecture 18 - Behavioral Principle (Continued...)

Lecture 19 - Behavioral Principle (Continued...)

Lecture 20 - Behavioral Principle (Continued...)

Lecture 21

Lecture 22

Lecture 23

Lecture 24

Lecture 25

Lecture 26

Lecture 27

Lecture 28

Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30
- Lecture 31 - Landform Design
- Lecture 32 - Landform Design (Continued...)
- Lecture 33 - Landform Design (Continued...)
- Lecture 34 - Landform Design (Continued...)
- Lecture 35 - Landform Design (Continued...)
- Lecture 36 - Planting Design
- Lecture 37 - Planting Design (Continued...)
- Lecture 38 - Planting Design (Continued...)
- Lecture 39 - Planting Design (Continued...)
- Lecture 40 - Planting Design (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Architectural Conservation and Historic Preservation

Subject Co-ordinator - Prof. Sanghamitra Basu

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Introduction (Continued...)

Lecture 3 - Need, Debate and Purpose

Lecture 4 - Heritage Significance and Values

Lecture 5 - Heritage Significance and Values (Continued...)

Lecture 6 - Assessing Heritage Values and Significance

Lecture 7 - Heritage Values and Significance (Continued...)

Lecture 8 - Assessing Heritage Significance Concept and Process

Lecture 9 - Assessing Heritage Significance Concept and Process (Continued...)

Lecture 10 - Divergent Approaches for Managing and Rehabilitating Heritage Properties

Lecture 11 - Divergent Approaches for Managing and Rehabilitating Heritage Properties

Lecture 12 - Divergent Approaches for Managing and Rehabilitating Heritage Properties

Lecture 13 - Ethics of Conservation

Lecture 14 - Evolution of Heritage Conservation

Lecture 15 - Evolution of Heritage Conservation (Continued...)

Lecture 16 - World Heritage Sites - Part 1

Lecture 17 - World heritage Sites - Part 2

Lecture 18 - World Heritage Sites - Part 3

Lecture 19 - World Heritage Sites - Part 4

Lecture 20 - World Heritage Sites - Part 5

Lecture 21 - Causes of decay in cultural property - Part 1

Lecture 22 - Causes of decay - Part 2

Lecture 23 - Causes of decay - Part 3

Lecture 24 - Causes of decay - Part 4

Lecture 25 - Documenting heritage properties

Lecture 26 - Documenting Heritage Properties

Lecture 27 - Investigation and Conservation of Historic Structures

Lecture 28 - Investigation and Conservation of Historic Structures

Lecture 29 - Investigation and Conservation of Historic Structures

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Conservation of Historic Structures
- Lecture 31 - Conservation of Historic Structures
- Lecture 32 - Historic Cities and Heritage Areas
- Lecture 33 - Historic Cities and Heritage Areas (Continued...)
- Lecture 34 - Historic Cities and Heritage Areas (Continued...)
- Lecture 35 - Historic Cities and Heritage Areas (Continued...)
- Lecture 36 - Historic Cities and Heritage Zones - India
- Lecture 37 - Historic Areas and Heritage Zones - India (Continued...)
- Lecture 38 - New Buildings in Historic Settings
- Lecture 39 - Heritage Impact Assessment in Historic Settings
- Lecture 40 - Adaptive Reuse
- Lecture 41 - Legislative and Organizational Policies for India
- Lecture 42 - Heritage Regulations and Role of Voluntary Organisations
- Lecture 43 - Heritage Conservation - Issues and Potentials

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Architectural Acoustics

Subject Co-ordinator - Prof. Sumana Gupta, Prof. Sankha Pratim Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Historical Overview
- Lecture 2 - Introduction to Acoustical Physics
- Lecture 3 - Frequency and Octave
- Lecture 4 - Sound Pressure and Intensity Levels
- Lecture 5 - Near and Far Field Propagation and Loudness
- Lecture 6 - Room Acoustics - I
- Lecture 7 - Room Acoustics - II
- Lecture 8 - Indoor Acoustics, Reflection and Absorption
- Lecture 9 - Concept of Reverberation
- Lecture 10 - Application of Reverberation Time
- Lecture 11 - Introduction to Acoustical Absorbers
- Lecture 12 - Panel Absorbers and Resonators
- Lecture 13 - Absorption in spaces of different volumes
- Lecture 14 - Acoustical Absorbers
- Lecture 15 - Reverberation time and Intelligibility
- Lecture 16 - Acoustical Criteria and Space Design
- Lecture 17 - Acoustical Criteria and Space Design (Continued...)
- Lecture 18 - Acoustical Criteria and Space Design (Continued...)
- Lecture 19 - Acoustical Criteria and Space Design (Continued...)
- Lecture 20 - Acoustical Criteria and Space Design (Continued...)
- Lecture 21 - Introduction to Auditorium Design
- Lecture 22 - Introduction to Auditorium Design (Continued...)
- Lecture 23 - Introduction to Auditorium Design (Continued...)
- Lecture 24 - Introduction to Auditorium Design Balcony and ceiling design
- Lecture 25 - Introduction to Auditorium Design
- Lecture 26 - Electro Acoustics - I
- Lecture 27 - Electro Acoustics - II
- Lecture 28 - Meteorological conditions and propagation of sound
- Lecture 29 - Topography and sound propagation Historical contexts

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Open air Theatre considerations
- Lecture 31 - Air Borne Sound Transmission
- Lecture 32 - Air Borne Sound Transmission (Continued...)
- Lecture 33 - Air Borne Sound Transmission (Continued...)
- Lecture 34 - Structure Borne Sound Transmission
- Lecture 35 - Structure Borne Sound Transmission (Continued...)
- Lecture 36 - Environmental Acoustics - I
- Lecture 37 - Environmental Acoustics - II
- Lecture 38 - Urban Noise Control
- Lecture 39 - Urban Noise Control
- Lecture 40 - Urban Noise Control

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Building Materials and Composites

Subject Co-ordinator - Prof. Sumana Gupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Clay products - 1
- Lecture 3 - Clay products - 2
- Lecture 4 - Stone
- Lecture 5 - Stone (Continued...)
- Lecture 6 - Introduction to wood
- Lecture 7 - Wood
- Lecture 8 - Defects of wood and Wood joinery
- Lecture 9 - Engineered wood
- Lecture 10 - Bamboo
- Lecture 11 - Glass
- Lecture 12 - Glass (Continued...)
- Lecture 13 - Glass (Continued...)
- Lecture 14 - Glass wall and glass insulation
- Lecture 15 - Ceramic tiles and vitrified tiles
- Lecture 16 - Introduction to concrete
- Lecture 17 - Fine Aggregates
- Lecture 18 - Coarse Aggregates
- Lecture 19 - Cement
- Lecture 20 - Water, Plasticizer admixture and tests
- Lecture 21 - Introduction to prefabricated items
- Lecture 22 - CMU, AAC and Pavement Blocks
- Lecture 23 - Precast Wall Panels
- Lecture 24 - Floor panels
- Lecture 25 - Columns, foundation, ferro-cement
- Lecture 26 - Introduction to metals
- Lecture 27 - Ferrous Metals 1 - Cast and Wrought Iron
- Lecture 28 - Ferrous metals 2 - Steel
- Lecture 29 - Ferrous metals 2 - Reinforcement bars, Corrosion, Light Gauge Steel

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Non-ferrous metals
- Lecture 31 - Damp proofing
- Lecture 32 - Damp proofing methods and materials
- Lecture 33 - Thermal insulation and sound insulation
- Lecture 34 - Insulation, Bitumen and Gypsum
- Lecture 35 - Composites
- Lecture 36 - Paints
- Lecture 37 - Paints (Continued...)
- Lecture 38 - Paints (Continued...)
- Lecture 39 - Plastics
- Lecture 40 - Plastics (Continued...)

## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTTEL Video Course - Architecture - NOC:Environmental Soil Chemistry

Subject Co-ordinator - Prof. Somsubhra Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Evolution of Soil Chemistry  
Lecture 2 - Evolution of Soil Chemistry (Continued...)  
Lecture 3 - Evolution of Soil Chemistry (Continued...)  
Lecture 4 - Evolution of Soil Chemistry (Continued...)  
Lecture 5 - Evolution of Soil Chemistry (Continued...)  
Lecture 6 - Inorganic Soil Components  
Lecture 7 - Inorganic Soil Components (Continued...)  
Lecture 8 - Inorganic Soil Components (Continued...)  
Lecture 9 - Inorganic Soil Components (Continued...)  
Lecture 10 - Inorganic Soil Components (Continued...)  
Lecture 11 - Chemistry of Soil Organic Matter  
Lecture 12 - Chemistry of Soil Organic Matter (Continued...)  
Lecture 13 - Chemistry of Soil Organic Matter (Continued...)  
Lecture 14 - Chemistry of Soil Organic Matter (Continued...)  
Lecture 15 - Chemistry of Soil Organic Matter (Continued...)  
Lecture 16 - Soil Solution-Solid Phase Equilibria and Sorption in Solids  
Lecture 17 - Soil Solution-Solid Phase Equilibria and Sorption in Solids (Continued...)  
Lecture 18 - Soil Solution-Solid Phase Equilibria and Sorption in Solids (Continued...)  
Lecture 19 - Soil Solution-Solid Phase Equilibria and Sorption in Solids (Continued...)  
Lecture 20 - Soil Solution-Solid Phase Equilibria and Sorption in Solids (Continued...)  
Lecture 21 - Ion Exchange Processes  
Lecture 22 - Ion Exchange Processes (Continued...)  
Lecture 23 - Ion Exchange Processes (Continued...)  
Lecture 24 - Ion Exchange Processes (Continued...)  
Lecture 25 - Ion Exchange Processes (Continued...)  
Lecture 26 - Kinetics of Soil Chemical Processes  
Lecture 27 - Kinetics of Soil Chemical Processes (Continued...)  
Lecture 28 - Kinetics of Soil Chemical Processes (Continued...)  
Lecture 29 - Kinetics of Soil Chemical Processes (Continued...)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Kinetics of Soil Chemical Processes (Continued...)
- Lecture 31 - Redox Chemistry of Soils
- Lecture 32 - Redox Chemistry of Soils (Continued...)
- Lecture 33 - Redox Chemistry of Soils (Continued...)
- Lecture 34 - Redox Chemistry of Soils (Continued...)
- Lecture 35 - Redox Chemistry of Soils (Continued...)
- Lecture 36 - Soil Pollutants
- Lecture 37 - Soil Pollutants (Continued...)
- Lecture 38 - Soil Pollutants (Continued...)
- Lecture 39 - Soil Pollutants (Continued...)
- Lecture 40 - Soil Pollutants (Continued...)
- Lecture 41 - Pollutant-Soil Solution Interaction
- Lecture 42 - Pollutant-Soil Solution Interaction (Continued...)
- Lecture 43 - Pollutant-Soil Solution Interaction (Continued...)
- Lecture 44 - Pollutant-Soil Solution Interaction (Continued...)
- Lecture 45 - Pollutant-Soil Solution Interaction (Continued...)
- Lecture 46 - Retention of Pollutants on and within Soil Solid Phases
- Lecture 47 - Retention of Pollutants on and within Soil Solid Phases (Continued...)
- Lecture 48 - Retention of Pollutants on and within Soil Solid Phases (Continued...)
- Lecture 49 - Retention of Pollutants on and within Soil Solid Phases (Continued...)
- Lecture 50 - Retention of Pollutants on and within Soil Solid Phases (Continued...)
- Lecture 51 - Modeling the Fate of Pollutants in Soil, Risk and Remedies
- Lecture 52 - Modeling the Fate of Pollutants in Soil, Risk and Remedies (Continued...)
- Lecture 53 - Modeling the Fate of Pollutants in Soil, Risk and Remedies (Continued...)
- Lecture 54 - Modeling the Fate of Pollutants in Soil, Risk and Remedies (Continued...)
- Lecture 55 - Modeling the Fate of Pollutants in Soil, Risk and Remedies (Continued...)
- Lecture 56 - Analytical Techniques for Assessing Soil Pollution
- Lecture 57 - Analytical Techniques for Assessing Soil Pollution (Continued...)
- Lecture 58 - Analytical Techniques for Assessing Soil Pollution (Continued...)
- Lecture 59 - Analytical Techniques for Assessing Soil Pollution (Continued...)
- Lecture 60 - Analytical Techniques for Assessing Soil Pollution (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Structural System in Architecture

Subject Co-ordinator - Prof. Sankha Pratim Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Structural System

Lecture 2 - Force System

Lecture 3 - Moment, Couple and Static Equilibrium

Lecture 4 - Supports and Reactions

Lecture 5 - Structural Loading and Support Reactions

Lecture 6 - Theory of Elasticity - 1

Lecture 7 - Theory of Elasticity - 2

Lecture 8 - Shear Force Diagram

Lecture 9 - Bending Moment Diagram

Lecture 10 - SFD and BMD

Lecture 11 - Bending Stress in Beam - I

Lecture 12 - Bending Stress in Beam - II

Lecture 13 - Bending Stress in Beam - III

Lecture 14 - Shear Stress in Beam

Lecture 15 - Theory of Column

Lecture 16 - Deflection of Beams

Lecture 17 - Indeterminate Beams

Lecture 18 - Analysis of Fixed Beam, BMD and Deflected Shape, Portal Frame

Lecture 19 - Structural Grid and Framing

Lecture 20 - Structural Design

Lecture 21 - Introduction to Truss

Lecture 22 - Analysis of Truss - 1

Lecture 23 - Analysis of Truss - 2

Lecture 24 - Application of Truss in Architecture

Lecture 25 - Space Frame Structures

Lecture 26 - Introduction to Arch

Lecture 27 - Structural Principle and Application of Arch

Lecture 28 - Shell Structures

Lecture 29 - Application of Arch and Shell in Architecture

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- Lecture 30 - Structural Concept and Application of Dome in Architecture
- Lecture 31 - Cable Supported Structures
- Lecture 32 - Membrane Structures
- Lecture 33 - Application of Tensile Structures in Architecture
- Lecture 34 - Flat Plate and Flate Slab Structures
- Lecture 35 - Waffle Slab and Folded Plate Structures
- Lecture 36 - Temporary Structures
- Lecture 37 - Building Foundation
- Lecture 38 - Structural System for High-rise Buildings - I
- Lecture 39 - Structural System for High-rise Buildings - II
- Lecture 40 - Structural Detailing

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Urban Landuse and Transportation Planning

Subject Co-ordinator - Prof. Debapratim Pandit

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Landuse transportation planning
- Lecture 2 - Plans and planning process
- Lecture 3 - Urban landuse planning
- Lecture 4 - Comprehensive mobility plan
- Lecture 5 - Landuse transport interaction
- Lecture 6 - Theoretical foundations - Part 1
- Lecture 7 - Theoretical foundations - Part 2
- Lecture 8 - Modeling approaches
- Lecture 9 - Existing integrated land use transportation models
- Lecture 10 - Land use transportation model components and future challenges
- Lecture 11 - Sampling Theory - 1
- Lecture 12 - Sampling Theory - 2
- Lecture 13 - Data and Surveys
- Lecture 14 - Transport Planning surveys - Part 1
- Lecture 15 - Transport Planning surveys - Part 2
- Lecture 16 - Demographic Transition
- Lecture 17 - Demographic Models - 1
- Lecture 18 - Demographic Models - 2
- Lecture 19 - Microsimulation and Population Synthesis - 1
- Lecture 20 - Microsimulation and Population Synthesis - 2
- Lecture 21 - Urban Growth Assessment
- Lecture 22 - Urban land suitability assessment
- Lecture 23 - Accessibility - 1
- Lecture 24 - Accessibility - 2
- Lecture 25 - Land Price Model
- Lecture 26 - Discrete choice theory
- Lecture 27 - Residential mobility and location choice - 1
- Lecture 28 - Residential mobility model using binary logistic regression
- Lecture 29 - Residential mobility and location choice - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Residential location choice model using multinomial logistic regression
- Lecture 31 - Travel demand forecasting and Trip generation
- Lecture 32 - Multiple linear regression
- Lecture 33 - Trip Production and Attraction - 1
- Lecture 34 - Trip Production and Attraction - 2
- Lecture 35 - Trip distribution
- Lecture 36 - Mode choice theory
- Lecture 37 - Mode choice model
- Lecture 38 - Hybrid mode choice model - 1 (Factor Analysis)
- Lecture 39 - Hybrid mode choice model - 2 (Joint RP SP model)
- Lecture 40 - Nested logit model
- Lecture 41 - Introduction to Trip Assignment
- Lecture 42 - Route Choice
- Lecture 43 - Link assignment - 1
- Lecture 44 - Link assignment - 2
- Lecture 45 - Dynamic traffic assignment
- Lecture 46 - Transportation Software
- Lecture 47 - CUBE Overview
- Lecture 48 - Travel demand modelling using CUBE and VISUM
- Lecture 49 - Activity based modelling in CUBE
- Lecture 50 - Vehicular emission and pollution modelling
- Lecture 51 - Urban Freight Planning
- Lecture 52 - Urban Freight Planning
- Lecture 53 - Urban Freight Planning
- Lecture 54 - Last Mile Logistics - 1
- Lecture 55 - Last Mile Logistics - 2
- Lecture 56 - Employment location choice and Real estate Development location choice
- Lecture 57 - Activity based model - 1
- Lecture 58 - Activity based model - 2
- Lecture 59 - Mode choice using Machine Learning
- Lecture 60 - Shared Mobility

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Urban utilities Planning : Water Supply, Sanitation and Drainage

Subject Co-ordinator - Prof. Debapratim Pandit

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Urban Utilities Planning Issues
- Lecture 2 - Planning Strategies
- Lecture 3 - Planning Strategies (Continued...)
- Lecture 4 - Urban Utilities
- Lecture 5 - Water Sensitive Urban Planning
- Lecture 6 - Water Demand Prediction and Management
- Lecture 7 - Types of Urban Water Demand
- Lecture 8 - Fluctuations in Urban Water Demand
- Lecture 9 - Role of Government
- Lecture 10 - Cost of water supply
- Lecture 11 - Rainfall, Runoff and Ground Water
- Lecture 12 - Groundwater Properties and Flow Characteristics
- Lecture 13 - Groundwater Intakes and Issues
- Lecture 14 - Groundwater Yield
- Lecture 15 - Surface Water Intakes
- Lecture 16 - Pumping Stations
- Lecture 17 - Pumps
- Lecture 18 - Sizing of Pumps
- Lecture 19 - Service Reservoir - Part I
- Lecture 20 - Service Reservoir - Part II
- Lecture 21 - Distribution System Layout
- Lecture 22 - Conveyance of water - Part I
- Lecture 23 - Conveyance of water - Part II
- Lecture 24 - Pipes, Joints, Meters and SCADA Systems
- Lecture 25 - Distribution Network Design
- Lecture 26 - Water quality and testing - Part I
- Lecture 27 - Water quality and testing - Part II
- Lecture 28 - Water treatment - Part I
- Lecture 29 - Water treatment - Part II

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- Lecture 30 - Water treatment - Part III
- Lecture 31 - Sanitation basics - Part I
- Lecture 32 - Sanitation Basics - Part II
- Lecture 33 - Sewage Systems - Part I
- Lecture 34 - Sewage Systems - Part II
- Lecture 35 - Sewage Systems - Part III
- Lecture 36 - Water Carriage System and Sewerage Layout
- Lecture 37 - Quantity of Sanitary Sewage
- Lecture 38 - Storm Water Drainage Planning - Part I
- Lecture 39 - Storm Water Drainage Planning - Part II
- Lecture 40 - Storm Water Drainage Planning - Part III
- Lecture 41 - Sewer Design
- Lecture 42 - Runoff estimation - Part 1
- Lecture 43 - Runoff estimation - Part 2
- Lecture 44 - Sewerage Network Design - Part 1
- Lecture 45 - Sewerage Network Design - Part 2
- Lecture 46 - Sewer appurtenances - Part 1
- Lecture 47 - Sewer appurtenances - Part 2
- Lecture 48 - Storm water drains
- Lecture 49 - Sewer maintenance and cleaning
- Lecture 50 - Laying of sewer and utility corridors
- Lecture 51 - Sewage disposal and treatment in India: Introduction
- Lecture 52 - Natural methods of sewage treatment
- Lecture 53 - Artificial sewage treatment - Part 1: Primary treatment
- Lecture 54 - Artificial sewage treatment - Part 2: Secondary treatment
- Lecture 55 - Artificial sewage treatment - Part 3: Advanced methods
- Lecture 56 - Ground water Recharge - Part 1
- Lecture 57 - Ground water Recharge - Part 2
- Lecture 58 - Urban flood management and drainage plans - Part 1
- Lecture 59 - Urban flood management and drainage plans - Part 2
- Lecture 60 - Urban flood management and drainage plans - Part 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Urban Services Planning

Subject Co-ordinator - Prof. Debapratim Pandit

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Strategic Aspects
- Lecture 3 - Regulatory Framework
- Lecture 4 - Municipal Management and Finance - Part I
- Lecture 5 - Municipal Management and Finance - Part II
- Lecture 6 - Service Planning Basics - Part I
- Lecture 7 - Service Planning Basics - Part II
- Lecture 8 - Service Planning Basics - Part III
- Lecture 9 - Service Planning Basics - Part IV
- Lecture 10 - Service Planning Basics - Part V
- Lecture 11 - Solid Waste Management Rules and Guidelines
- Lecture 12 - Solid Waste Management Rules 2016
- Lecture 13 - MSWM Plan Preparation - Part I
- Lecture 14 - MSWM Plan Preparation - Part II
- Lecture 15 - MSWM Plan Preparation - Part III
- Lecture 16 - Waste Generation - Part I
- Lecture 17 - Waste generation - Part II
- Lecture 18 - Waste quantification and characteristics
- Lecture 19 - Waste composition
- Lecture 20 - Waste storage
- Lecture 21 - Primary and Secondary waste collection - Part I
- Lecture 22 - Primary and Secondary waste collection - Part II
- Lecture 23 - Primary and Secondary waste collection - Part III
- Lecture 24 - Routing and scheduling for solid waste vehicles - Part I
- Lecture 25 - Routing and scheduling for solid waste vehicles - Part II
- Lecture 26 - Waste processing, recycling and recovery - Part 1
- Lecture 27 - Waste processing, recycling and recovery - Part 2
- Lecture 28 - Composting - Part 1
- Lecture 29 - Composting - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Composting - Part 3
- Lecture 31 - SWM 2016 Specifications for Sanitary Landfills
- Lecture 32 - Site selection for Sanitary Landfills
- Lecture 33 - Sanitary Landfill Design - Part I
- Lecture 34 - Sanitary Landfill Design - Part II
- Lecture 35 - Sanitary Landfill design - Part III
- Lecture 36 - Waste to Energy - Part I: Biomethanation
- Lecture 37 - Waste to Energy - Part II: Refuse Derived Fuel
- Lecture 38 - Waste to Energy - Part III: Incineration
- Lecture 39 - Waste to Energy - Part IV
- Lecture 40 - Life Cycle Assessment
- Lecture 41 - Street sweeping and Cleaning of surface drains
- Lecture 42 - Construction and demolition waste management - Part I
- Lecture 43 - Construction and demolition waste management - Part II
- Lecture 44 - Special waste management - Part I
- Lecture 45 - Special waste management - Part II
- Lecture 46 - Healthcare facility standards - Part I
- Lecture 47 - Healthcare facility standards - Part II
- Lecture 48 - Urban Health Services - Part I
- Lecture 49 - Urban Health Services - Part II
- Lecture 50 - Health in Urban Planning
- Lecture 51 - Municipal Social Services: Introduction
- Lecture 52 - Economic and Social development
- Lecture 53 - Urban Poverty Alleviation
- Lecture 54 - Education
- Lecture 55 - Vulnerable population groups
- Lecture 56 - Vector Borne Disease Control
- Lecture 57 - Street Lighting
- Lecture 58 - Urban Forestry, Parks and Open Spaces
- Lecture 59 - Fire Stations
- Lecture 60 - Crematoriums and Burial Grounds

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Introduction to History of Architecture in India

Subject Co-ordinator - Prof. Pushkar Sohoni

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Early Architecture
- Lecture 2 - Buddhist and Early Temple Architecture
- Lecture 3 - Sacrificial Altars and Divine Shelters
- Lecture 4 - The Great Temple
- Lecture 5 - Week-1 Review
- Lecture 6 - Delhi Sultanate
- Lecture 7 - Regional Sultanates
- Lecture 8 - Temple and Mosque
- Lecture 9 - Daulatabad Fort
- Lecture 10 - Week-2 Review
- Lecture 11 - Mughal Architecture - Part 1
- Lecture 12 - Mughal Architecture - Part 2
- Lecture 13 - Imbrication of Sultanate and Maratha Architecture
- Lecture 14 - Maratha Temple
- Lecture 15 - Week-3 Review
- Lecture 16 - Princely States of India
- Lecture 17 - Colonial Architecture In India
- Lecture 18 - International, Art Deco, Modern
- Lecture 19 - Architecture Today Commerce and Creativity
- Lecture 20 - Week-4 Review

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Strategies for Sustainable Design

Subject Co-ordinator - Prof. Shiva Ji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Strategies for Sustainable Design - Welcome Lecture

Lecture 2 - Various Perspectives around Sustainability

Lecture 3 - Spheres of Energy Efficient/Green/Environmental/Sustainable Designs

Lecture 4 - Environmental Sustainability

Lecture 5 - Social Sustainability

Lecture 6 - Economic Sustainability

Lecture 7 - Climate Change Mitigation and the Way Forward

Lecture 8 - Future of Human Habitation Design

Lecture 9 - Relevance of Sustainable Design in Contemporary Context

Lecture 10 - Built Environment and Energy Consumption

Lecture 11 - Reliance and Dependence of Building Design on Energy

Lecture 12 - Current Scenario of Sustainable Design: Indian

Lecture 13 - Current Scenario of Sustainable Design: International

Lecture 14 - Designing Strategically for Preventing pollution: Air, Water, Soil, Noise, Light Radiation, etc

Lecture 15 - Low Environmental Impact

Lecture 16 - Thinking for Alternatives through Systemic Design

Lecture 17 - Consumption and Consumerist Lifestyle

Lecture 18 - Environmental impact Assessment

Lecture 19 - Lifecycle Analysis - Part A

Lecture 20 - Lifecycle Analysis - Part B

Lecture 21 - Growth and Development in Construction and Allied Sectors

Lecture 22 - Policy Push in Real Estate and Manufacturing Sectors

Lecture 23 - Policy Push for Development of the Low Economic Regions

Lecture 24 - Sustainable Building Materials

Lecture 25 - Reduce/Reuse/Recycle

Lecture 26 - National Building Code 2016 - Part 11 and Energy Conservation Building Code

Lecture 27 - Guidelines for Building Design by SA Methods: GRIHA

Lecture 28 - UN SDG for Sustainable Development

Lecture 29 - LeNS Design Method and Tools such as SPSS, MSDS, DE

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Vernacular Design Case Example
- Lecture 31 - Climate Responsiveness
- Lecture 32 - Thinking the Unthinkable: Need for Innovation in Design Process
- Lecture 33 - Design for Net-Zero Energy, Lighting, Ventilation, Views and Human Comfort
- Lecture 34 - D4S with Inspiration from Nature
- Lecture 35 - D4S for Optimization of Manufacturing
- Lecture 36 - International Conventions, Laws and Emerging Technologies for SD
- Lecture 37 - Environmental Laws
- Lecture 38 - Emerging Technologies and their Possible Intervention in Design
- Lecture 39 - Case 1 - Campus Planning and Design of IIT Gandhinagar
- Lecture 40 - Case 2 - A Comparative Analysis of Product Designs
- Lecture 41 - Case 3 - Design of First Net-Zero Building of India
- Lecture 42 - Case 4 - A Comparative Analysis of International Design Projects
- Lecture 43 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Housing Policy and Planning

Subject Co-ordinator - Prof. Uttam Kumar Roy

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Housing
- Lecture 2 - Housing Classifications
- Lecture 3 - Housing Situation
- Lecture 4 - Policy and Public intervention - 1
- Lecture 5 - Policy and Public intervention - 2
- Lecture 6 - Urban Reform
- Lecture 7 - Housing Policy
- Lecture 8 - Legal and Institutional Framework for Housing
- Lecture 9 - Land for Housing - 1
- Lecture 10 - Land for Housing - 2
- Lecture 11 - Affordability and Housing Finance
- Lecture 12 - Technology Systems in Housing Delivery - 1
- Lecture 13 - Technology Systems in Housing Delivery - 2
- Lecture 14 - Housing for All Mission (PMAY) and Technology Sub-mission
- Lecture 15 - Summing up of Part-1 (Policy) and Introduction to Housing Planning
- Lecture 16 - Urban and Regional Planning - 1
- Lecture 17 - Urban and Regional Planning - 2
- Lecture 18 - Development Controls
- Lecture 19 - Housing Infrastructure and Services-1
- Lecture 20 - Housing Infrastructure and Services-2
- Lecture 21 - Housing Infrastructure and Services-3
- Lecture 22 - Housing Strategy for City-1
- Lecture 23 - Housing Strategy for City-2
- Lecture 24 - Housing Strategy for City-3
- Lecture 25 - Planning for Plotted Housing
- Lecture 26 - Planning for Group Housing
- Lecture 27 - Community Development in Housing
- Lecture 28 - Cooperative Housing
- Lecture 29 - Institutional and rental housing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Working Person's hostel and Serviced Apartments
- Lecture 31 - Informal Housing Typologies
- Lecture 32 - Approaches in Improving Slums and Squatters
- Lecture 33 - Urban Village and Unauthorized Construction
- Lecture 34 - Pavement Dwellers and Night Shelters
- Lecture 35 - Old Age Home
- Lecture 36 - Disaster Resistant Housing
- Lecture 37 - Housing and Real Estate Development
- Lecture 38 - Housing Management
- Lecture 39 - Housing
- Lecture 40 - Course Summary and Conclusion



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Visual Communication Design for Digital Media

Subject Co-ordinator - Prof. Saptarshi Kolay

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Visual Communication Design for Digital Media

Lecture 2 - Elements of Design - Part 1

Lecture 3 - Elements of Design - Part 2

Lecture 4 - Principles of Design - Part 1

Lecture 5 - Principles of Design - Part 2

Lecture 6 - Types of digital media technology - an overview of the field

Lecture 7 - Typography - 1

Lecture 8 - Typography - 2

Lecture 9 - Semiotics - 1

Lecture 10 - Semiotics - 2

Lecture 11 - Visual perception

Lecture 12 - Contemporary Visual Language - 1

Lecture 13 - Contemporary Visual Language - 2

Lecture 14 - Technology Advancements in Digital Media

Lecture 15 - Visual Design Methodology - 1\_Generic Design

Lecture 16 - Visual Design Methodology - 2\_Generic Design

Lecture 17 - Visual Design Methodology - 3\_Animation

Lecture 18 - Visual Design Methodology - 4\_web design

Lecture 19 - Visual Design Methodology - 5\_graphic-design

Lecture 20 - Case Studies of Visual Design on Digital Paradigm

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Culturally Responsive Built Environments

Subject Co-ordinator - Prof. Ram Sateesh Pasupuleti

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - A Place

Lecture 2 - Place and Identity

Lecture 3 - Habitus - A Sense of Place

Lecture 4 - A Home - Introduction to Vernacular Architecture

Lecture 5 - The New Vernacular

Lecture 6 - Understanding Vernacular - Towards Anthropology

Lecture 7 - Understanding Rock Shelters

Lecture 8 - The Ecological and Sacred Dimension

Lecture 9 - Winter Landscape and Urbanism

Lecture 10 - Winter Cities

Lecture 11 - Power in Built Form

Lecture 12 - Spatial Analysis

Lecture 13 - The Forbidden Space

Lecture 14 - Religious Architecture

Lecture 15 - Understanding Construction Workers' Housing

Lecture 16 - Culture and Disasters - Towards Method and Framework

Lecture 17 - Understanding Post Tsunami Response (Tamilnadu)

Lecture 18 - Cultural Heritage

Lecture 19 - Understanding the Cultural Context in Disasters and Development

Lecture 20 - Culture, Climate Change Adaptation And Disaster Risk Reduction

Lecture 21 - Conservation

Lecture 22 - Conservation

Lecture 23 - Learning from Vernacular

Lecture 24 - Protection of the World Cultural and Natural Heritage

Lecture 25 - Intangible Cultural Heritage

Lecture 26 - City HRIDAY Plan of Badami

Lecture 27 - Cultural planning Approaches

Lecture 28 - Urban Transformations in Doha

Lecture 29 - How The Other Half Builds?

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - How To/Not To Relocate Slums?
- Lecture 31 - Stone- as a Vernacular Building material
- Lecture 32 - Timber as Vernacular Building material
- Lecture 33 - Timber Construction (A journey from Advanced to Vernacular)
- Lecture 34 - How To Study Vernacular Architecture?
- Lecture 35 - Architecture with out Architects
- Lecture 36 - Social Change in India (Sanskritisation)
- Lecture 37 - Social Change in India (Westernization)
- Lecture 38 - Social Change in India (Modernization- Globalization)
- Lecture 39 - Pluralism in Built Environment Education
- Lecture 40 - Summary and Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Contemporary Architecture and Design

Subject Co-ordinator - Prof. Saptarshi Kolay

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - World Architecture and Design History
- Lecture 3 - Industrial Revolution and Beginning of Modern Era
- Lecture 4 - Post Industrial Revolution
- Lecture 5 - Post Industrial Revolution
- Lecture 6 - Post Industrial Revolution
- Lecture 7 - Post Industrial Revolution
- Lecture 8 - Evolution and Timeline of Modern Architecture and Design
- Lecture 9 - Phases of Modern Architecture - Bauhaus
- Lecture 10 - Phases of Modern Architecture - De Stijl
- Lecture 11 - Phases of Modern Architecture - Chicago School
- Lecture 12 - Phases of Modern Architecture - Chicago and Prairie School
- Lecture 13 - Phases of Modern Architecture - Prairie School
- Lecture 14 - Phases of Modern Architecture - Organic - Part 1
- Lecture 15 - Phases of Modern Architecture - Organic - Part 2
- Lecture 16 - Phases of Modern Architecture - Art Deco - Part 1
- Lecture 17 - Phases of Modern Architecture - Art Deco - Part 2
- Lecture 18 - Phases of Modern Architecture - Internationalism - Part 1
- Lecture 19 - Phases of Modern Architecture - Internationalism - Part 2
- Lecture 20 - Phases of Modern Architecture - Expressionism
- Lecture 21 - Phases of Modern Architecture - Monolithic Style
- Lecture 22 - Phases of Modern Architecture - Tensile and Steel Structures - Part 1
- Lecture 23 - Phases of Modern Architecture - Tensile and Steel Structures - Part 2
- Lecture 24 - Phases of Modern Architecture - Brutalism
- Lecture 25 - Phases of Modern Architecture - Metabolism
- Lecture 26 - Phases of Modern Architecture - Brutalism and Metabolism in India
- Lecture 27 - Phases of Modern Art - Part 1
- Lecture 28 - Phases of Modern Art - Part 2
- Lecture 29 - Phases of Post Modern Architecture - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Phases of Post Modern Architecture - Part II
- Lecture 31 - Phases of Post Modern Architecture - Historicism
- Lecture 32 - Phases of Post Modern Architecture - High Tech
- Lecture 33 - Phases of Post Modern Architecture - Neo Modern
- Lecture 34 - Phases of Post Modern Architecture - Critical Regionalism
- Lecture 35 - Phases of Post Modern Architecture - Memphis Milano
- Lecture 36 - Phases of Post Modern Architecture - Deconstructivism - Part I
- Lecture 37 - Phases of Post Modern Architecture - Deconstructivism - Part II
- Lecture 38 - Phases of Post Modern Architecture - Pop Art
- Lecture 39 - Evolution of Typography in Contemporary Era
- Lecture 40 - Phases of Post Modern Architecture - Industrial Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Role of Craft and Technology in Interior-Architecture

Subject Co-ordinator - Prof. Smriti Saraswat

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Interior-Architecture

Lecture 2 - Craft

Lecture 3 - Interior-Architecture and Craft and Technology

Lecture 4 - Interior-Architecture and Craft and Technology

Lecture 5 - Summary and Discourse - I

Lecture 6 - Interior-Architecture

Lecture 7 - Traditional Knowledge Systems and the Ingenious skills of the communities

Lecture 8 - Interior-Architecture

Lecture 9 - Traditional Knowledge Systems and the Indigenous materials; tools and techniques

Lecture 10 - Summary and Discourse - II

Lecture 11 - Creative and Cultural Industries

Lecture 12 - Building Crafts

Lecture 13 - Building Crafts

Lecture 14 - Building Crafts; Craft and Technology and its Role in Creating/Enhancing Interior-Architecture

Lecture 15 - Summary and Discourse - III

Lecture 16 - Best Studies related to the Craft Sector

Lecture 17 - Case Studies from Gujarat

Lecture 18 - Case Studies from Rajasthan

Lecture 19 - Case Studies from Uttarakhand

Lecture 20 - Summary and Discourse - IV

Lecture 21 - Craft and Technology in Interior Architecture

Lecture 22 - Craft and Technology in Interior Architecture; Decoding Systems

Lecture 23 - Craft and Technology in Interior Architecture

Lecture 24 - Craft and Technology in Interior Architecture; Transformation through Time

Lecture 25 - Summary and Discourse - V

Lecture 26 - Overview of the Craft Sector Today

Lecture 27 - Craft Sector

Lecture 28 - Craft Sector

Lecture 29 - Craft Sector

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Summary and Discourse - VI
- Lecture 31 - Continuity and Revival
- Lecture 32 - Continuity and Revival
- Lecture 33 - Continuity and Revival
- Lecture 34 - Continuity and Revival
- Lecture 35 - Summary and Discourse - VII
- Lecture 36 - Interventions
- Lecture 37 - Interventions
- Lecture 38 - Interventions
- Lecture 39 - Interventions
- Lecture 40 - Summary and Discourse - VIII

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Urban Governance and Development Management

Subject Co-ordinator - Prof. Uttam Kumar Roy

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Urbanisation
- Lecture 2 - Introduction to Urban Governance
- Lecture 3 - Constitutional Provision for Urban Local Governance
- Lecture 4 - Legislative Provisions
- Lecture 5 - Interfaces
- Lecture 6 - People & Community - 1
- Lecture 7 - People & Community - 2
- Lecture 8 - Land as Basic Resource
- Lecture 9 - Urban Environment and Ecology
- Lecture 10 - Distinctive Features of Non-Municipal Urban (NMU) and Nagar Panchayats
- Lecture 11 - Organisation Development
- Lecture 12 - Transparency and Accountability
- Lecture 13 - Capacity Building - 1
- Lecture 14 - Capacity Building - 2
- Lecture 15 - Improving Systems and Processes for Urban Governance
- Lecture 16 - Urban Reform and Managing Change - 1
- Lecture 17 - Urban Reform and Managing Change - 2
- Lecture 18 - Visioning for Cities
- Lecture 19 - Resolving Conflicts for Managing Change
- Lecture 20 - Leadership and Team Building
- Lecture 21 - Basic Concepts of Planning and Development
- Lecture 22 - Regional and Metropolitan Planning
- Lecture 23 - Urban Planning
- Lecture 24 - Urban Infrastructure and Services - 1
- Lecture 25 - Urban Infrastructure and Services - 2
- Lecture 26 - Overview of Municipal Finance
- Lecture 27 - Alternate Sources of Municipal Finance
- Lecture 28 - Municipal Accounts
- Lecture 29 - Value Capture Financing

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Public Private Partnership (PPP) in Urban Governance
- Lecture 31 - Housing Strategy for Cities
- Lecture 32 - Housing & Urban Poverty
- Lecture 33 - Real Estate Regulation and Development
- Lecture 34 - Urban Land Management
- Lecture 35 - Urban Risk and Disaster Management
- Lecture 36 - Managing Urban Environment - 1
- Lecture 37 - Managing Urban Environment - 2 (Mandates for Blue and Green Infrastructures)
- Lecture 38 - Traffic and Transportation Management - 1
- Lecture 39 - Traffic and Transportation Management - 2
- Lecture 40 - Designing Urban Public Spaces
- Lecture 41 - Centrally Sponsored Programmes and Schemes
- Lecture 42 - AMRUT
- Lecture 43 - Smart City
- Lecture 44 - Swachh Bharat Mission and HRIDAY
- Lecture 45 - PMAY and NULM
- Lecture 46 - Fundamentals of Project Planning
- Lecture 47 - Formulation of Projects
- Lecture 48 - Project Monitoring and Management
- Lecture 49 - Essentials of Infrastructure and Engineering Design
- Lecture 50 - Managing Trans-municipal and Large Projects
- Lecture 51 - Enhancing City Image
- Lecture 52 - Essential Competencies of City Managers
- Lecture 53 - Problem Solving and Decision Making
- Lecture 54 - Effective Negotiation
- Lecture 55 - Communication Skills
- Lecture 56 - Time Management
- Lecture 57 - Stress Management
- Lecture 58 - Best Practices in Urban Management
- Lecture 59 - Reflective Learning and Excellence
- Lecture 60 - Course Summary, Doubt Clearing and Further Reading

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:User Interface Design

Subject Co-ordinator - Prof. Saptarshi Kolay

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - User Interface Designer
- Lecture 3 - Design methods - I
- Lecture 4 - Design Methods - II
- Lecture 5 - Human Factor in Interaction Design
- Lecture 6 - User Research - I
- Lecture 7 - User Research - II
- Lecture 8 - Low Fidelity Design - I
- Lecture 9 - Low Fidelity Design - II
- Lecture 10 - High Fidelity Design
- Lecture 11 - Visual Cognition
- Lecture 12 - Contemporary Visual Language in Design - I
- Lecture 13 - Contemporary Visual Language in Design - II
- Lecture 14 - Usage of Typography in User Interface Design - I
- Lecture 15 - Usage of Typography in User Interface Design - II
- Lecture 16 - Design Semiotics and Visual Perception
- Lecture 17 - Visual Communication Design
- Lecture 18 - User Testing - I
- Lecture 19 - User Testing - II
- Lecture 20 - Contemporary Interface Design Technology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Disaster Recovery and Build Back Better

Subject Co-ordinator - Prof. Subhojyothi Samaddar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Disaster risk
- Lecture 2 - Disaster Recovery and Build Back Better
- Lecture 3 - Risk Perception and Disaster Risk Preparedness - Part 2
- Lecture 4 - Build Back Better - People's Perspectives
- Lecture 5 - Architecture at Risk
- Lecture 6 - Culture, climate change adaptation and disaster risk reduction
- Lecture 7 - Ayutthaya at Risk
- Lecture 8 - Disaster vulnerability
- Lecture 9 - Cultural Heritage
- Lecture 10 - Rock shelters at risk
- Lecture 11 - The Built Environment Professions in Disaster Risk Reduction and Response
- Lecture 12 - Gadri discussions
- Lecture 13 - Community Participation in Disaster Risk Governance
- Lecture 14 - Community Participation in Disaster Risk Governance
- Lecture 15 - Frameworks
- Lecture 16 - Disaster Preparedness from Cognitive and Heuristic Perspectives
- Lecture 17 - Information for Disaster Preparedness
- Lecture 18 - The Role of Social Networks in Disaster Preparedness
- Lecture 19 - Diffusion of Disaster Preparedness Technology
- Lecture 20 - Cities and Climate Change
- Lecture 21 - Temporary Shelter Construction in India
- Lecture 22 - Temporary shelter construction in Kenya
- Lecture 23 - Build back better in Nepal recovery
- Lecture 24 - Lessons from Peru
- Lecture 25 - Progressive Housing in El Salvador
- Lecture 26 - Decentralizing (re)construction in Colombia
- Lecture 27 - Tsunami reconstruction in Tamilnadu - Part 1 (Approach)
- Lecture 28 - Tsunami reconstruction in Tamilnadu - Part 2 (Findings)
- Lecture 29 - Culture and (disaster)risk

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cultural theory of risk
- Lecture 31 - Guidance to DRR
- Lecture 32 - Self-help housing in Turkey
- Lecture 33 - The Production of refugee place in time
- Lecture 34 - Assessments
- Lecture 35 - Designing culturally responsive built environment in disaster context
- Lecture 36 - Disaster Risk Communication
- Lecture 37 - CAM and CBDRM
- Lecture 38 - How to teach disaster recovery and built back better in-built environment education
- Lecture 39 - Source, Message and Receiver in Disaster Risk Communication
- Lecture 40 - Summary and Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Sustainable Architecture

Subject Co-ordinator - Prof. Avlokita Agrawal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Sustainability
- Lecture 2 - Buildings, Needs and 'Sustainability'
- Lecture 3 - Sustainability and Sustainable Development
- Lecture 4 - Historic Origins of Sustainability
- Lecture 5 - Pioneers of Sustainable Development
- Lecture 6 - Environmental Impacts of Development
- Lecture 7 - Environmental Impacts of Development
- Lecture 8 - Social and Economic Impacts of Development
- Lecture 9 - Agenda 21 and UN Goals
- Lecture 10 - Established needs for Sustainability in Building Sector
- Lecture 11 - Definition and Characteristics of Sustainability
- Lecture 12 - Flavors of Sustainable Architecture
- Lecture 13 - Indicators and Terminologies in Sustainable Architecture
- Lecture 14 - Process of Designing Green Buildings
- Lecture 15 - Green Building Ratings and Components
- Lecture 16 - Fundamentals of Thermal Comfort
- Lecture 17 - Climatic Considerations, Physiological Objectives of Design
- Lecture 18 - Fundamentals of Climate Responsive Buildings - I
- Lecture 19 - Fundamentals of Climate Responsive Buildings - II
- Lecture 20 - Visual and Acoustic Comfort
- Lecture 21 - Sustainable Sites - I
- Lecture 22 - Sustainable Sites - II
- Lecture 23 - Sustainable Sites - III
- Lecture 24 - Sustainable Sites - IV
- Lecture 25 - Sustainable Sites - V
- Lecture 26 - Water Conservation - I
- Lecture 27 - Water Conservation - II
- Lecture 28 - Water Conservation - III
- Lecture 29 - Water Conservation - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Water Conservation - V
- Lecture 31 - Materials and Resources - I
- Lecture 32 - Materials and Resources - II
- Lecture 33 - Materials and Resources - III
- Lecture 34 - Materials and Resources - IV
- Lecture 35 - Materials and Resources - V
- Lecture 36 - Energy Efficiency - I
- Lecture 37 - Energy Efficiency - II
- Lecture 38 - Energy Efficiency - III
- Lecture 39 - Energy Efficiency - IV
- Lecture 40 - Energy Efficiency - V
- Lecture 41 - Indoor Environmental Quality - I
- Lecture 42 - Indoor Environmental Quality - II
- Lecture 43 - Indoor Environmental Quality - III
- Lecture 44 - Indoor Environmental Quality - IV
- Lecture 45 - Indoor Environmental Quality - V
- Lecture 46 - Vernacular Architecture - I
- Lecture 47 - Vernacular Architecture - II
- Lecture 48 - Codes and Standards
- Lecture 49 - Introduction to Whole Building Simulation - I
- Lecture 50 - Introduction to Whole Building Simulation - II
- Lecture 51 - Whole Building Performance - I
- Lecture 52 - Whole Building Performance - II
- Lecture 53 - Whole Building Performance - III
- Lecture 54 - Whole Building Performance - IV
- Lecture 55 - Whole Building Performance - V
- Lecture 56 - Whole Building Performance - VI
- Lecture 57 - Whole Building Performance - VII
- Lecture 58 - Whole Building Performance - VIII
- Lecture 59 - Whole Building Performance - IX
- Lecture 60 - Whole Building Performance - X

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Structure, Form and Architecture: The Synergy

Subject Co-ordinator - Prof. Shubhajit Sadhukhan

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Structure, Form and Architecture
- Lecture 2 - Relationship of Structure to Architectural Buildings - Part I
- Lecture 3 - Relationship of Structure to Architectural Buildings - Part II
- Lecture 4 - Loads on Structures
- Lecture 5 - Synthesis of Architectural and Structural Form
- Lecture 6 - Connecting Structure and Architecture - Part I
- Lecture 7 - Connecting Structure and Architecture - Part II
- Lecture 8 - Structural Transformation in Architectural History
- Lecture 9 - Factors affecting the Structural Forms
- Lecture 10 - Learning from Animal's Architecture
- Lecture 11 - Basic Structural Properties
- Lecture 12 - Structural Requirements
- Lecture 13 - Structural Arrangement
- Lecture 14 - Structural Forms and Shapes
- Lecture 15 - Structural Materials
- Lecture 16 - Structural Typology
- Lecture 17 - Compressive Structures
- Lecture 18 - Tensile Structures
- Lecture 19 - Load Bearing Structures
- Lecture 20 - Temporary Structures
- Lecture 21 - Framed Structure
- Lecture 22 - Arch Structures
- Lecture 23 - Vault Structures
- Lecture 24 - Dome Structures
- Lecture 25 - Grid Structures
- Lecture 26 - Shell Structures
- Lecture 27 - Trusses and Space Frames
- Lecture 28 - Folded Plate Structures
- Lecture 29 - Membrane Structures

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pneumatic Structures
- Lecture 31 - Structure and Architectural Forms in Windy Areas
- Lecture 32 - Structure and Architectural Forms in Seismic Prone Areas
- Lecture 33 - Structure and Architectural Forms in Flood Prone Areas
- Lecture 34 - Cost Effective Structure and Architecture
- Lecture 35 - Structure and Light in Architecture
- Lecture 36 - Evolution of Highrise Structural System
- Lecture 37 - Highrise Structural Components - Part I
- Lecture 38 - Highrise Structural Components - Part II
- Lecture 39 - Mega Structure and Architecture-Case Studies
- Lecture 40 - Architecture and Structure - Past, Present and Future



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Engineering-Architectural Graphics - Part I: Orthographic projection

Subject Co-ordinator - Prof. Avlokita Agrawal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Engineering Graphics

Lecture 2 - Drawing Instruments

Lecture 3 - Sheet Layout and Fixing Sheet

Lecture 4 - Types of Lines and Graphic Symbols

Lecture 5 - Lettering

Lecture 6 - Dimensioning

Lecture 7 - Basic Geometrical Construction

Lecture 8 - Scales

Lecture 9 - Curves used in Engineering Practice: Conic Sections

Lecture 10 - Curves used in Engineering Practice: Cycloids, Trochoids and Involutives

Lecture 11 - Introduction to Orthographic Projection

Lecture 12 - Orthographic Projections - 1st Quadrant Vs 3rd Quadrant

Lecture 13 - Orthographic Projections - Projection of Points

Lecture 14 - Orthographic Projections - Introduction to Projection of Lines

Lecture 15 - Locus of Points

Lecture 16 - Projection of lines parallel to both the reference planes

Lecture 17 - Projection of line parallel to one and perpendicular to another plane

Lecture 18 - Projection of lines inclined to one plane

Lecture 19 - Projection of lines inclined to both the planes

Lecture 20 - Projection of a point and line on auxiliary plane

Lecture 21 - Projection of a plane perpendicular to both the reference planes

Lecture 22 - Projection of a plane perpendicular to one and parallel to another plane

Lecture 23 - Projection of a plane inclined to one and perpendicular to the other plane

Lecture 24 - Projection of a plane inclined to both the reference planes - I

Lecture 25 - Projection of a plane inclined to both the reference planes - II

Lecture 26 - Introduction to types of solids

Lecture 27 - Projection of solids in simple positions

Lecture 28 - Projection of solids with axis inclined to one of the reference planes and parallel to another

Lecture 29 - Projection of solids with axis inclined to both the reference planes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Projection of spheres
- Lecture 31 - Orthographic Projections Introduction to Sections of Solids
- Lecture 32 - Orthographic Projections Sections of Prisms
- Lecture 33 - Orthographic Projections Sections of Pyramids
- Lecture 34 - Orthographic Projections Sections of Cylinders
- Lecture 35 - Orthographic Projections Sections of Cones
- Lecture 36 - Orthographic Projections Sections of Spheres
- Lecture 37 - Development of Surfaces - I
- Lecture 38 - Development of Surfaces - II
- Lecture 39 - Intersection of Surfaces - I
- Lecture 40 - Intersection of Surfaces - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Introduction to Urban Planning

Subject Co-ordinator - Prof. Harshit Sosan Lakra

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Conceptual Understanding of the Urban Areas
- Lecture 2 - Urbanization and Sustainable Development
- Lecture 3 - Urban Planning and 73-74 Constitution Amendment Acts
- Lecture 4 - Types and Level of Plans
- Lecture 5 - Regional Plan - I
- Lecture 6 - Regional Plan - II
- Lecture 7 - Development Plan - I
- Lecture 8 - Development Plan - II (Case Study- Draft Bhopal Development Plan 2031)
- Lecture 9 - Zonal Plan
- Lecture 10 - Town Planning Scheme
- Lecture 11 - Local Area Plan (Urban Redevelopment Plan)
- Lecture 12 - Special Purpose Plan (AMRUT)
- Lecture 13 - Special Purpose Plan (HRIDAY)
- Lecture 14 - Special Purpose Plan (Smart City)
- Lecture 15 - Perspective Plan (Agenda 2030 SDGs)
- Lecture 16 - Contextualizing Cities (Egyptian, Mesopotamian, and Indus Valley Civilization)
- Lecture 17 - Contextualizing Cities (Vedic Period)
- Lecture 18 - Contextualizing Cities (Greek and Roman)
- Lecture 19 - Contextualizing Cities (Industrial Revolution)
- Lecture 20 - Contextualizing Cities (1900-1939)
- Lecture 21 - Contextualizing Cities (1940-1979)
- Lecture 22 - Contextualizing Cities (1980-2021)
- Lecture 23 - Public Health and Urban Planning - I
- Lecture 24 - Public Health and Urban Planning - II
- Lecture 25 - Public Health and Urban Planning - III
- Lecture 26 - Public Health and Urban Planning - IV
- Lecture 27 - Housing Issues in India
- Lecture 28 - Culture and Planning of Cities
- Lecture 29 - Urbanization and Environmental Problems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Urbanization and Slums
- Lecture 31 - Introduction to Planning Legislation
- Lecture 32 - Evolution and Growth of Planning Legislation - I
- Lecture 33 - Evolution and Growth of Planning Legislation - II (USA)
- Lecture 34 - Evolution and Growth of Planning Legislation - III (India)
- Lecture 35 - Land Acquisition Act
- Lecture 36 - Legal Requirements for Industrial Development
- Lecture 37 - National Environmental Legal Requirements
- Lecture 38 - Section I - Cantonment Act and Section II - Legal Requirement for Heritage Conservation
- Lecture 39 - Zoning Regulation
- Lecture 40 - Contemplating Learning Outcomes and Future Direction in Urban Planning

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Engineering, Architectural Graphics - Part II (Isometric and Axonometric)

Subject Co-ordinator - Prof. Avlokita Agrawal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to isometric projection and isometric Scale
- Lecture 2 - Isometric projection of planar figures - quadrilaterals
- Lecture 3 - Isometric projection of planar figures - circles, semi circles and curves
- Lecture 4 - Isometric projection of straight prisms
- Lecture 5 - Isometric projection of straight pyramids
- Lecture 6 - Isometric projection of Straight Cylinders
- Lecture 7 - Isometric projection of Cones
- Lecture 8 - Isometric projection of Frustums of cones and pyramids
- Lecture 9 - Isometric projection of section of solids
- Lecture 10 - Isometric projection of spheres
- Lecture 11 - Isometric projection of combination of solids
- Lecture 12 - Isometric Projection of intersecting solids
- Lecture 13 - Converting orthographic views to isometric drawing - 1
- Lecture 14 - Converting orthographic views to isometric drawing - 2
- Lecture 15 - Converting Isometric drawing to orthographic views
- Lecture 16 - Introduction to axonometric projection
- Lecture 17 - Axonometric projection of planar figures- quadrilaterals, circles and curves
- Lecture 18 - Axonometric projection of prisms and pyramids
- Lecture 19 - Axonometric projection of Cylinders, cones and spheres
- Lecture 20 - Axonometric projection of intersecting solids and combination of solids

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Environmental Impact Assessment

Subject Co-ordinator - Prof. Harshit Sosan Lakra

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - State of Global Environment (Air)
- Lecture 2 - State of Global Environment (Biodiversity)
- Lecture 3 - State of Global Environment (Oceans and Coasts)
- Lecture 4 - State of Global Environment (Land and Soil)
- Lecture 5 - State of Global Environment (Freshwater)
- Lecture 6 - Definition, Process and Purpose of EIA
- Lecture 7 - EIA Impact Areas, Current and Emerging - Part I
- Lecture 8 - EIA Impact Areas, Current and Emerging - Part II
- Lecture 9 - EIA Origin in USA and World-Wide Development
- Lecture 10 - EIA in India
- Lecture 11 - World Sustainable Development Timeline (1970-1999)
- Lecture 12 - World Sustainable Development Timeline (2000-2021)
- Lecture 13 - EIA Law, Policy and Institutional arrangements for EIA systems - Part I
- Lecture 14 - EIA Law, Policy and Institutional Arrangements for EIA Systems - Part II - Air
- Lecture 15 - EIA Law, Policy and Institutional Arrangements for EIA Systems - Part III - Air
- Lecture 16 - EIA Law, Policy and Institutional arrangements for EIA Systems - Part IV - Water and Geology
- Lecture 17 - EIA Law, Policy and Institutional Arrangements for EIA Systems - Part V - Ecology
- Lecture 18 - EIA Law, Policy and Institutional Arrangements for EIA Systems - Part VI - Coastal Ecology and G
- Lecture 19 - EIA Law, Policy and Institutional arrangements for EIA Systems - Part VII - Noise
- Lecture 20 - EIA Law, Policy and Institutional arrangements for EIA Systems - Part VIII - Ecosystem Services
- Lecture 21 - EIA Law, Policy and Institutional Arrangements for EIA Systems - Part IX - Cultural Heritage and
- Lecture 22 - EIA Law, Policy and Institutional Arrangements for EIA Systems - Part X
- Lecture 23 - EIA Law, Policy and Institutional Arrangements for EIA Systems - Part XI
- Lecture 24 - EIA Law, Policy and Institutional Arrangements for EIA Systems - Part XII
- Lecture 25 - EIA Law, Policy and Institutional Arrangements for EIA Systems - Part XIII
- Lecture 26 - EIA Process - Starting and Initial Stage
- Lecture 27 - EIA Process - Impact Prediction
- Lecture 28 - EIA Process - Impact Evaluation, Mitigation and Enhancement
- Lecture 29 - EIA Process - Participation, Presentation and Review

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- Lecture 30 - EIA Process - Follow-Up (Monitoring and Auditing)
- Lecture 31 - EIA Methods - Air Assessment - Part I
- Lecture 32 - EIA Methods - Air Assessment - Part II
- Lecture 33 - EIA Methods - Water Assessment
- Lecture 34 - EIA Methods - Soil, Land and Geology
- Lecture 35 - EIA Methods - Climate and Climate Change - Part I
- Lecture 36 - EIA Methods - Climate and Climate Change - Part II
- Lecture 37 - EIA Methods for Ecology (Definitions and Concepts)
- Lecture 38 - EIA Methods for Ecology (Baseline Study)
- Lecture 39 - EIA Methods for Ecology (Impact Prediction and Evaluation)
- Lecture 40 - EIA Methods - Ecosystem Services - Part I
- Lecture 41 - EIA Methods - Ecosystem Services - Part II
- Lecture 42 - EIA Methods - Coastal Ecology and Geomorphology - Part I
- Lecture 43 - EIA Methods - Coastal Ecology and Geomorphology - Part II
- Lecture 44 - EIA Methods - Noise
- Lecture 45 - EIA Methods - Transport
- Lecture 46 - EIA Methods - Landscape and Visuals
- Lecture 47 - EIA Methods - Cultural Heritage
- Lecture 48 - EIA Methods - Health
- Lecture 49 - EIA Methods - Socio-Economic Impacts (SIA) - Part I
- Lecture 50 - EIA Methods - Socio-Economic Impacts (SIA) - Part II
- Lecture 51 - EIA Methods - Land Acquisition, Resettlement and Livelihoods
- Lecture 52 - EIA Methods - Resource Efficiency
- Lecture 53 - EIA Methods - Risk and Risk Assessment
- Lecture 54 - EIA Methods - Cumulative Effects
- Lecture 55 - EIA - Environmental Management Plans
- Lecture 56 - EIA - Widening the scope: Strategic Environmental Assessment
- Lecture 57 - EIA - Reporting and Review of EIA Quality
- Lecture 58 - EIA Case Study - Mumbai Metro Line 3, Colaba - Bandra - SEEPZ
- Lecture 59 - EIA Case Study - Development of Water Aerodrome, Andaman and Nicobar - Part - I
- Lecture 60 - EIA Case Study - Development of Water Aerodrome, Andaman and Nicobar - Part - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Modern Indian Architecture

Subject Co-ordinator - Prof. P.S. Chani

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Part 1

Lecture 2 - Introduction - Part 2

Lecture 3 - Pre-Independence - Part 1: Indo-Saracenic Architecture

Lecture 4 - Pre-Independence - Part 2: Colonial Architecture and Art Deco

Lecture 5 - Pre-Independence to Independence - Part 1

Lecture 6 - Pre-Independence to Independence - Part 2

Lecture 7 - Revivalism

Lecture 8 - The First Generation (1945-1970) - Part 1

Lecture 9 - The First Generation (1945-1970) - Part 2

Lecture 10 - The First Generation (1945-1970) - Part 3

Lecture 11 - The First Generation (1945-1970) - Part 4

Lecture 12 - The First Generation (1945-1970) - Part 5

Lecture 13 - The First Generation (1945-1970) - Part 6

Lecture 14 - Impact of Western Architects: Le Corbusier - Part 1

Lecture 15 - Impact of Western Architects: Le Corbusier - Part 2

Lecture 16 - Impact of Western Architects: Le Corbusier - Part 3

Lecture 17 - Impact of Western Architects: Le Corbusier - Part 4

Lecture 18 - Impact of Western Architects: Le Corbusier - Part 5

Lecture 19 - Impact of Western Architects: Le Corbusier - Part 6

Lecture 20 - Impact of Western Architects: Walter Gropius - Part 1

Lecture 21 - Impact of Western Architects: Walter Gropius - Part 2

Lecture 22 - Impact of Western Architects: Louis I Kahn - Part 1

Lecture 23 - Impact of Western Architects: Louis I Kahn - Part 2

Lecture 24 - Impact of Western Architects: Louis I Kahn - Part 3

Lecture 25 - Impact of Western Architects: Louis I Kahn - Part 4

Lecture 26 - Introduction to Critical Regionalism - Part 1

Lecture 27 - Introduction to Critical Regionalism - Part 2

Lecture 28 - Critical Regionalism in Indian Architecture - Part 1

Lecture 29 - Critical Regionalism in Indian Architecture - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Critical Regionalism in Indian Architecture - Part 3
- Lecture 31 - Critical Regionalism in Indian Architecture - Part 4
- Lecture 32 - Critical Regionalism in Indian Architecture - Part 5
- Lecture 33 - Structure: The Works of Mahendra Raj
- Lecture 34 - Point-Blocks and High Rises - Part 1
- Lecture 35 - Point-Blocks and High Rises - Part 2
- Lecture 36 - Search for a new Architecture - Part 1
- Lecture 37 - Search for a new Architecture - Part 2
- Lecture 38 - Search for a new Architecture - Part 3
- Lecture 39 - Search for a new Architecture - Part 4
- Lecture 40 - Search for a new Architecture - Part 5

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:International Studies in Vernacular Architecture

Subject Co-ordinator - Prof. Ram Sateesh Pasupuleti

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Culture, Identity and Built Environment
- Lecture 2 - Space and Meaning in Balinese Vernacular Architecture
- Lecture 3 - Adobe Construction and Religious Structures
- Lecture 4 - Social System, Beliefs and its Architecture
- Lecture 5 - Anthropology of Shelter-Conclusion
- Lecture 6 - Stone as a Vernacular Resource Material
- Lecture 7 - Earth as Vernacular Resource Material
- Lecture 8 - Bamboo as Vernacular Resource Material
- Lecture 9 - Timber as Vernacular Resource Material
- Lecture 10 - Advanced Material Adaptations: The conclusion
- Lecture 11 - Cultural Geography and Vernacular Architecture
- Lecture 12 - Cultural Geography and Small-scale Features in the Landscape
- Lecture 13 - Acculturation in Architecture
- Lecture 14 - Tradition and Transmission
- Lecture 15 - Transformation in Vernacular Context
- Lecture 16 - Disasters Vulnerability and Traditions
- Lecture 17 - Learning Disaster Mitigation from the Vernacular
- Lecture 18 - The Second Birth: Lessons from Disaster Recovery
- Lecture 19 - Climate Change and Traditions
- Lecture 20 - Yonmenkaigi (Four square table system) Method for Collaborative Knowledge Development

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Introduction to Interaction Design

Subject Co-ordinator - Dr. Sonal Atreya

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Interaction Design
- Lecture 2 - Components of Interaction Design
- Lecture 3 - Interaction Design Process
- Lecture 4 - Understanding User
- Lecture 5 - Conceptual Design - Part 1
- Lecture 6 - Conceptual Design - Part 2
- Lecture 7 - Role of Cognition
- Lecture 8 - Role of Social Interaction
- Lecture 9 - Designing for Emotional Interaction
- Lecture 10 - Interactive Interfaces
- Lecture 11 - Data Gathering
- Lecture 12 - Data Analysis
- Lecture 13 - Discovering Requirements
- Lecture 14 - User Personas and Scenarios
- Lecture 15 - Design and Prototyping - Part 1
- Lecture 16 - Design and Prototyping - Part 2
- Lecture 17 - Visual Interface Design
- Lecture 18 - Elements of User Interface
- Lecture 19 - Affordances and UI Transformations
- Lecture 20 - Component-Based Design Systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Understanding and Reducing Ghg Emissions - Focus on Scope 1 and 2 Emi

Subject Co-ordinator - Prof. Avlokita Agrawal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction, Sustainability, And Sustainable Development

Lecture 2 - Sustainable Development And Sustainable Goals

Lecture 3 - Sustainable Development Goals and Climate Change

Lecture 4 - Climate Risk

Lecture 5 - Impact of Development on Climate Natural Components

Lecture 6 - UNFCCC

Lecture 7 - Kyoto Protocol

Lecture 8 - The Paris Agreement

Lecture 9 - Green House Gases

Lecture 10 - Carbon Footprint and Calculation

Lecture 11 - The GHG Protocol

Lecture 12 - ISO International Standards

Lecture 13 - Identification and Determination of Scope 1,2 and 3 GHG Emissions

Lecture 14 - Identification and Determination of Scope 1,2 and 3 GHG Emissions - Part II

Lecture 15 - Identification and Determination of Scope 1,2 and 3 GHG Emissions - Part III

Lecture 16 - India Specific GHG Programs - I

Lecture 17 - India Specific GHG Programs - II

Lecture 18 - Accounting Methods and Data Collection

Lecture 19 - Tools for Calculation of GHG

Lecture 20 - Understanding the Role of Buildings and Related Emissions

Lecture 21 - Understanding Emissions of Airports

Lecture 22 - Understanding Emissions of University Campuses

Lecture 23 - Understanding Emissions of Fuel Supply Companies

Lecture 24 - Understanding Emissions of IT Companies

Lecture 25 - Understanding Emissions of Real Estate Companies

Lecture 26 - Thermal Comfort in Building

Lecture 27 - Passive Design Measures

Lecture 28 - Advanced Passive Design Measures

Lecture 29 - Natural and Mechanical Ventilation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Daylighting and Lighting Design
- Lecture 31 - Factors Affecting Material Selection in Building?
- Lecture 32 - Material Selection for Emission Reduction
- Lecture 33 - Reducing Emission from purchased Electricity
- Lecture 34 - Strategies of Renovation and Retrofitting for Emission Reduction
- Lecture 35 - Case studies of Various Efficient Building Design
- Lecture 36 - Calculation of Emissions Reduction from HVAC System
- Lecture 37 - Calculation of Emission Reduction from Fenestration
- Lecture 38 - Calculation of Emission Reduction from Building Envelope
- Lecture 39 - Calculation of Emission Reduction from Source of Energy
- Lecture 40 - Course Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Architecture - NOC:Research Methodology for Planning and Architectural Studies

Subject Co-ordinator - Prof. Shubhajit Sadhukhan

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Types of Research
- Lecture 3 - Qualitative vs. Quantitative Research
- Lecture 4 - Research Methods vs Research Methodology
- Lecture 5 - Issues and Challenges in Planning and Architectural Research
- Lecture 6 - Research Process - I
- Lecture 7 - Research Process - II
- Lecture 8 - Research Process - III
- Lecture 9 - Research Writing - I
- Lecture 10 - Research Writing - II
- Lecture 11 - Basics of Literature Review
- Lecture 12 - Bibliometric Analysis
- Lecture 13 - Systematic Literature Review
- Lecture 14 - Meta Analysis
- Lecture 15 - Referencing
- Lecture 16 - Types of Data in Research
- Lecture 17 - Measurement and Scaling Techniques - I
- Lecture 18 - Measurement and Scaling Techniques - II
- Lecture 19 - Types of Surveys - I
- Lecture 20 - Types of Surveys - II
- Lecture 21 - Determining the Sample Size
- Lecture 22 - Sampling Techniques - I
- Lecture 23 - Sampling Techniques - II
- Lecture 24 - Sources of Data
- Lecture 25 - Preparation of Survey Questionnaire
- Lecture 26 - Methods of Data Collection - I
- Lecture 27 - Methods of Data Collection - II
- Lecture 28 - Methods of Data Collection - III
- Lecture 29 - Ethics in Data Management and Use

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Similarity vs. Plagiarism
- Lecture 31 - Processing of Data and Database Management
- Lecture 32 - Interpreting Data
- Lecture 33 - Descriptive Statistics
- Lecture 34 - Representation of Data and Inferences - I
- Lecture 35 - Representation of Data and Inferences - II
- Lecture 36 - Hypothesis Testing
- Lecture 37 - Parametric Tests
- Lecture 38 - Non-parametric Tests
- Lecture 39 - Quantitative Research Approach
- Lecture 40 - Quantitative Research - Case Study - I
- Lecture 41 - Quantitative Research - Case Study - II
- Lecture 42 - Quantitative Research - Case Study - III
- Lecture 43 - Quantitative Research - Case Study - IV
- Lecture 44 - Quantitative Research - Case Study - V
- Lecture 45 - Qualitative Research Approach
- Lecture 46 - Qualitative Research - Case Study - I
- Lecture 47 - Qualitative Research - Case Study - II
- Lecture 48 - Qualitative Research - Case Study - III
- Lecture 49 - Qualitative Research - Case Study - IV
- Lecture 50 - Qualitative Research - Case Study - V
- Lecture 51 - Mixed Method Research Approach
- Lecture 52 - Mixed Method Research Approach - Case Study
- Lecture 53 - Spatial Methods in Planning Research
- Lecture 54 - Spatial Methods in Planning Research - Case Study
- Lecture 55 - Research Methods for Behavioral Studies - The Basics
- Lecture 56 - Simulation Based Studies in Planning and Architecture
- Lecture 57 - Handling Big Data Research - The Basics
- Lecture 58 - Role of AI in Architecture and Planning Studies - The Basics
- Lecture 59 - Programming Language and Software for Research in Planning and Architecture
- Lecture 60 - Emerging Research Potential in Planning and Architecture

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Atmospheric Science - Introduction to Atmospheric Science

Subject Co-ordinator - Prof. C. Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Atmosphere-A brief survey (Pressure, Temperature and Chemical composition)
- Lecture 3 - Atmosphere-A brief survey (Continued...) (Vertical structure of the atmosphere)
- Lecture 4 - Vertical structure of atmosphere (Continued...) and The Earth system - Oceans
- Lecture 5 - The Earth system - Oceans (Continued...) and Marine biosphere
- Lecture 6 - The Earth system - Hydrological cycle
- Lecture 7 - The Earth system - Hydrological cycle (Continued...) and Carbon cycle
- Lecture 8 - The Earth system - Carbon cycle (Continued...), and Carbon in the oceans Earth's crust
- Lecture 9 - The Earth system - Carbon in the oceans Earth's crust
- Lecture 10 - Atmospheric Thermodynamics- Introduction
- Lecture 11 - The hydrostatic equation
- Lecture 12 - Hypsometric equation and pressure at sea level
- Lecture 13 - Basic Thermodynamics
- Lecture 14 - Concept of air parcel and dry adiabatic lapse rate
- Lecture 15 - Potential temperature
- Lecture 16 - Skew-T ln-P chart
- Lecture 17 - Problems using Skew-T ln-P chart
- Lecture 18 - Problems using Skew-T ln-P chart (Continued...)
- Lecture 19 - Problems using Skew-T ln-P chart (Continued...)
- Lecture 20 - Lifting Condensation Level (LCL)
- Lecture 21 - Lifting Condensation Level (LCL) (Continued...)
- Lecture 22 - Saturated Adiabatic and Pseudo-adiabatic processes
- Lecture 23 - Equivalent potential temperature and wet bulb potential temperature
- Lecture 24 - Normand's rule - Chinook winds
- Lecture 25 - Problems on Chinook wind and static stability
- Lecture 26 - Static stability-Brunt-Visala frequency
- Lecture 27 - Conditional and convective instability
- Lecture 28 - Static stability - Problems using radiosonde data and skew T ln P chart
- Lecture 29 - The second law of thermodynamics  $\hat{a}$  Clausius Clapeyron relation

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- Lecture 30 - Clausius Clapeyron relation (Continued...)
- Lecture 31 - Atmospheric radiation & Radiation laws
- Lecture 32 - Planck's distribution and Inverse square law
- Lecture 33 - Physics of scattering, emission and absorption
- Lecture 34 - Physics of scattering, emission and absorption (Continued...)
- Lecture 35 - Radiative Transfer Equation & Derivation
- Lecture 36 - Radiative Transfer Equation (Continued...)
- Lecture 37 - Radiative heating profiles of the atmosphere
- Lecture 38 - Climate Dynamics & Introduction
- Lecture 39 - Climate sensitivity and feedback
- Lecture 40 - Climate change
- Lecture 41 - Atmospheric dynamics

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Atmospheric Science - Radiation Heat Transfer

Subject Co-ordinator - Prof. J. Srinivasan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Blackbody radiation
- Lecture 3 - Properties of real surfaces
- Lecture 4 - Spectral and directional variations
- Lecture 5 - Shape factor
- Lecture 6 - Triangular enclosure
- Lecture 7 - Evaluation of shape factors
- Lecture 8 - Radiation in enclosures
- Lecture 9 - Electrical analogy
- Lecture 10 - Applications
- Lecture 11 - Non-gray enclosures
- Lecture 12 - Enclosure with Specular surfaces
- Lecture 13 - Integral method for enclosures
- Lecture 14 - Introduction to gas radiation
- Lecture 15 - Plane parallel model
- Lecture 16 - Diffusion approximation
- Lecture 17 - Radiative equilibrium
- Lecture 18 - Optically thick limit
- Lecture 19 - Radiation spectroscopy
- Lecture 20 - Isothermal gas emissivity
- Lecture 21 - Band models
- Lecture 22 - Total Emissivity method
- Lecture 23 - Isothermal gas enclosures
- Lecture 24 - Well-stirred furnace model
- Lecture 25 - Gas radiation in complex enclosures
- Lecture 26 - Interaction between radiation and other modes of heat transfer
- Lecture 27 - Radiation heat transfer during flow over flat plate
- Lecture 28 - Radiation and Climate
- Lecture 29 - Radiative-convective equilibrium

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Radiative equilibrium with scattering
- Lecture 31 - Radiation measurement
- Lecture 32 - Radiation with internal heat source
- Lecture 33 - Particle scattering
- Lecture 34 - Scattering in the atmosphere
- Lecture 35 - Non-isotropic scattering
- Lecture 36 - Approximate methods in scattering
- Lecture 37 - Approximate methods in scattering
- Lecture 38 - Monte Carlo method

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Atmospheric Science - The monsoon and its variability

Subject Co-ordinator - Prof. Sulochana Gadgil

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Preamble and Introduction to the Indian Monsoon

Lecture 2 - Nature of the variability of the Indian Monsoon

Lecture 3 - Monsoon variability through the eye in the sky, seasonal variation of the surface wind and pressure

Lecture 4 - Background about the atmosphere and rotating systems

Lecture 5 - Rainfall and clouds over the tropics

Lecture 6 - Organization of clouds over mesoscale, synoptic scale and planetary scales

Lecture 7 - The Indian monsoon

Lecture 8 - Monsoons and the seasonal variation of tropical circulation and rainfall

Lecture 9 - Evolution of the ideas about the basic system responsible for the Indian monsoon - Part 1

Lecture 10 - Evolution of the ideas about the basic system responsible for the Indian monsoon - Part 2

Lecture 11 - Tropical Convergence Zones and the Indian monsoon - Part 1

Lecture 12 - Tropical Convergence Zones and the Indian monsoon - Part 2

Lecture 13 - Variability of organized convection over the tropical oceans

Lecture 14 - Heat lows and the TCZ

Lecture 15 - Monsoonal regions of the world

Lecture 16 - Seasonal transitions - Part 1

Lecture 17 - Seasonal transitions - Part 2

Lecture 18 - Seasonal transitions - Part 3

Lecture 19 - Climatic clusters of the Indian region

Lecture 20 - Active-weak spells and breaks in the monsoon - Part 1

Lecture 21 - Active-weak spells and breaks in the monsoon - Part 2

Lecture 22 - Intraseasonal variation and intraseasonal oscillations

Lecture 23 - The tropical oceans

Lecture 24 - El Nino Southern Oscillation (ENSO) - Part 1

Lecture 25 - El Nino Southern Oscillation (ENSO) - Part 2

Lecture 26 - El Nino Southern Oscillation (ENSO) - Part 3

Lecture 27 - El Nino Southern Oscillation (ENSO) - Part 4

Lecture 28 - El Nino Southern Oscillation (ENSO) - Part 5

Lecture 29 - El Nino Southern Oscillation (ENSO) - Part 6

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Indian Ocean and the monsoon - Part 1
- Lecture 31 - Indian Ocean and the monsoon - Part 2
- Lecture 32 - Indian Ocean Dipole - Part 1
- Lecture 33 - Indian Ocean Dipole - Part 2
- Lecture 34 - Interannual variation of the Indian summer Monsoon rainfall
- Lecture 35 - Monsoon Variability and Agriculture - Part 1
- Lecture 36 - Monsoon Variability and Agriculture - Part 2
- Lecture 37 - Monsoon Variability and Agriculture - Part 3
- Lecture 38 - Monsoon Variability and Agriculture - Part 4
- Lecture 39 - Indian Summer Monsoon, GDP and Agriculture
- Lecture 40 - Monsoon Prediction - Part 1
- Lecture 41 - Monsoon Prediction - Part 2
- Lecture 42 - Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Applied Mechanics

Subject Co-ordinator - Prof. Sanjeev Sanghi, Prof. R.K. Mittal

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Preliminary Concepts

Lecture 2 - Vector Analysis

Lecture 3 - Analysis of Forces

Lecture 4 - Analysis of Equilibrium

Lecture 5 - Structural Mechanics - Part-1

Lecture 6 - Structural Mechanics - Part-2

Lecture 7 - Friction and its Applications - Part-1

Lecture 8 - Friction and its Applications - Part-2

Lecture 9 - Friction and its Applications - Part-3

Lecture 10 - Properties of Surfaces - Part-1

Lecture 11 - Properties of Surfaces - Part-2

Lecture 12 - Properties of Surfaces - Part-3

Lecture 13 - Moments and Products of Inertia

Lecture 14 - Methods of Virtual Work and Potential Energy - Part-1

Lecture 15 - Methods of Virtual Work and Potential Energy - Part-2

Lecture 16 - Stability of Equilibrium

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Management Science I

Subject Co-ordinator - Prof. Anuradha Sharma

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Motivation  
Lecture 3 - Management  
Lecture 4 - Work Ethics  
Lecture 5 - Comparison Between Theories  
Lecture 6 - Job Enrichment  
Lecture 7 - Team Building and Participation  
Lecture 8 - Other Leadership Styles  
Lecture 9 - Empowerment  
Lecture 10 - Barriers to Communication  
Lecture 11 - Issues in Leadership  
Lecture 12 - Participation Management and Team Working Part - 1  
Lecture 13 - Participation Management and Team Working Part - 2  
Lecture 14 - Participation Management and Team Working Part - 3  
Lecture 15 - Participative Management and Team Working Part - 5  
Lecture 16 - Organizations  
Lecture 17 - Some Management Concepts - Part - 1  
Lecture 18 - Some Management Concepts - Part - 2  
Lecture 19 - Some Management Concepts - Part - 3  
Lecture 20 - Diversity at Work Place and Management Issues  
Lecture 21 - Industrial Relations and Conflict Management - Part - 1  
Lecture 22 - Industrial Relations and Conflict Management - Part - 2  
Lecture 23 - Selection and Training of Employees  
Lecture 24 - Performance Management - Part - 1  
Lecture 25 - Performance Management - Part - 2  
Lecture 26 - Performance Management - Part - 3  
Lecture 27 - Management Research  
Lecture 28 - Corporate Social Responsibilities  
Lecture 29 - Women, Work and Organizations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Women, Work and Organizations
- Lecture 31 - Selection, Recruitment and Training
- Lecture 32 - Management of Change in Organization
- Lecture 33 - Organizational Development
- Lecture 34 - Values, Ethics and Corporate Social Responsibilities - Part - 1
- Lecture 35 - Values, Ethics and Corporate Social Responsibilities - Part - 2
- Lecture 36 - Management
- Lecture 37 - Management
- Lecture 38 - Management
- Lecture 39 - Conclusions



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Materials Science

Subject Co-ordinator - Prof. S.K. Gupta

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Internal Energy Enthalpy  
Lecture 3 - Crystal Geometry  
Lecture 4 - Crystal Geometry  
Lecture 5 - Crystal Geometry  
Lecture 6 - Crystal Structure  
Lecture 7 - Close Packing of Spheres of Equal Size  
Lecture 8 - Structure of Solid Materials  
Lecture 9 - Non Crystalline Solids  
Lecture 10 - Polymers (Continued)  
Lecture 11 - Crystal Imperfections  
Lecture 12 - Crystal Imperfections  
Lecture 13 - Crystal Imperfections  
Lecture 14 - Crystal Imperfections  
Lecture 15 - Crystal Imperfections  
Lecture 16 - Phase Diagrams  
Lecture 17 - Phase Diagrams  
Lecture 18 - Phase Diagrams  
Lecture 19 - Diffusion in Solids  
Lecture 20 - Diffusion in Solids  
Lecture 21 - Phase Transformations  
Lecture 22 - Phase Transformations  
Lecture 23 - Phase Transformations  
Lecture 24 - Transformations in Steels  
Lecture 25 - Phase Transformations; Precipitation Hardening  
Lecture 26 - Mechanical Behaviour of Materials  
Lecture 27 - Plastic Deformation  
Lecture 28 - Plastic Deformation  
Lecture 29 - Plastic Deformation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strengthening Mechanisms Creep
- Lecture 31 - Fracture
- Lecture 32 - Conductors and Resistors
- Lecture 33 - Conductors and Resistors
- Lecture 34 - Superconductors
- Lecture 35 - Superconductors
- Lecture 36 - Semiconductors

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Numerical Methods and Computation

Subject Co-ordinator - Prof. S.R.K. Iyengar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Errors in Computation and Numerical Instability  
Lecture 2 - Solution of Nonlinear Algebraic Equations - Part 1  
Lecture 3 - Solution of Nonlinear Algebraic Equations - Part 2  
Lecture 4 - Solution of Nonlinear Algebraic Equations - Part 3  
Lecture 5 - Solution of Nonlinear Algebraic Equations - Part 4  
Lecture 6 - Solution of Nonlinear Algebraic Equations - Part 5  
Lecture 7 - Solution of Nonlinear Algebraic Equations - Part 6  
Lecture 8 - Solution of Nonlinear Algebraic Equations - Part 7  
Lecture 9 - Solution of Nonlinear Algebraic Equations - Part 8  
Lecture 10 - Solution of Nonlinear Algebraic Equations - Part 9  
Lecture 11 - Solution of a System of Linear Algebraic Equations - Part 1  
Lecture 12 - Solution of a System of Linear Algebraic Equations - Part 2  
Lecture 13 - Solution of a System of Linear Algebraic Equations - Part 3  
Lecture 14 - Solution of a System of Linear Algebraic Equations - Part 4  
Lecture 15 - Solution of a System of Linear Algebraic Equations - Part 5  
Lecture 16 - Solution of a System of Linear Algebraic Equations - Part 6  
Lecture 17 - Solution of a System of Linear Algebraic Equations - Part 7  
Lecture 18 - Solution of a System of Linear Algebraic Equations - Part 8  
Lecture 19 - Solution of a System of Linear Algebraic Equations - Part 9  
Lecture 20 - Solution of a System of Linear Algebraic Equations - Part 10  
Lecture 21 - Solution of a System of Linear Algebraic Equations - Part 11  
Lecture 22 - Solution of a System of Linear Algebraic Equations - Part 12  
Lecture 23 - Solution of a System of Linear Algebraic Equations - Part 13  
Lecture 24 - Solution of a System of Linear Algebraic Equations - Part 14  
Lecture 25 - Interpolation and Approximation - Part 1  
Lecture 26 - Interpolation and Approximation - Part 2  
Lecture 27 - Interpolation and Approximation - Part 3  
Lecture 28 - Interpolation and Approximation - Part 4  
Lecture 29 - Interpolation and Approximation - Part 5

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interpolation and Approximation - Part 6
- Lecture 31 - Interpolation and Approximation - Part 7
- Lecture 32 - Interpolation and Approximation - Part 8
- Lecture 33 - Interpolation and Approximation - Part 9
- Lecture 34 - Numerical Differentiation and Integration - Part 1
- Lecture 35 - Numerical Differentiation and Integration - Part 2
- Lecture 36 - Numerical Differentiation and Integration - Part 3
- Lecture 37 - Numerical Differentiation and Integration - Part 4
- Lecture 38 - Numerical Differentiation and Integration - Part 5
- Lecture 39 - Numerical Differentiation and Integration - Part 6
- Lecture 40 - Numerical Differentiation and Integration - Part 7
- Lecture 41 - Numerical Differentiation and Integration - Part 8

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Engineering Mechanics

Subject Co-ordinator - Prof. Manoj K Harbola

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Engineering Mechanics
- Lecture 2 - Equilibrium - I
- Lecture 3 - Equilibrium - II
- Lecture 4 - Equilibrium - III
- Lecture 5 - Plan Trusses - I
- Lecture 6 - Plan Trusses - II
- Lecture 7 - Friction
- Lecture 8 - Properties of Surfaces - I
- Lecture 9 - Properties of Surfaces - II
- Lecture 10 - Properties of Surfaces - III
- Lecture 11 - Method of Virtual Work
- Lecture 12 - Motion of Particles Planar Polar Coordinates
- Lecture 13 - Motion With Constraints
- Lecture 14 - Motion of Particle With Friction
- Lecture 15 - Motion of Particles With Drag
- Lecture 16 - Momentum
- Lecture 17 - Work and Energy - I
- Lecture 18 - Work and Energy - II
- Lecture 19 - Work and Energy - III
- Lecture 20 - Work and Energy - IV
- Lecture 21 - Rotational Motion - I
- Lecture 22 - Rotational Motion - II
- Lecture 23 - Rotational Motion - III
- Lecture 24 - Rotational Motion - IV
- Lecture 25 - Rotational Motion - V
- Lecture 26 - Rotational Motion - VI
- Lecture 27 - Simple Harmonic Motion - I
- Lecture 28 - Simple Harmonic Motion - II
- Lecture 29 - Simple Harmonic Motion - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Motion in Uniformly Accelerating Frames

Lecture 31 - Motion In Rotating Frame

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Engineering Physics II

Subject Co-ordinator - Prof. V. Ravishankar, Prof. S. Raychaudhuri

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Module - 1 lecture - 1  
Module - 1 lecture - 2  
Module - 1 lecture - 3  
Module - 1 lecture - 4  
Module - 2 lecture - 1  
Module - 2 lecture - 2  
Module - 2 lecture - 3  
Module - 2 lecture - 4  
Module - 2 lecture - 5  
Module - 3 lecture - 1  
Module - 3 lecture - 2  
Module - 3 lecture - 3  
Module - 3 lecture - 4  
Module - 3 lecture - 5 (Lecture Missing)  
Module - 3 lecture - 6  
Module - 3 lecture - 7  
Module - 3 lecture - 8  
Module - 4 lecture - 1  
Module - 4 lecture - 2  
Module - 4 lecture - 3  
Module - 4 lecture - 4  
Module - 4 lecture - 5  
Module - 4 lecture - 6  
Module - 4 lecture - 7  
Module - 4 lecture - 8  
Module - 4 lecture - 9  
Module - 4 lecture - 10  
Module - 4 lecture - 11  
Module - 4 lecture - 12

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Mathematics I

Subject Co-ordinator - Prof. Swagato K. Ray, Prof. Shobha Madan, Dr. P. Shunmugaraj

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Real Number  
Lecture 2 - Sequences I  
Lecture 3 - Sequences II  
Lecture 4 - Sequences III  
Lecture 5 - Continuous Function  
Lecture 6 - Properties of Continuous Function  
Lecture 7 - Uniform Continuity  
Lecture 8 - Differentiable Functions  
Lecture 9 - Mean Value Theorem  
Lecture 10 - Maxima - Minima  
Lecture 11 - Taylor's Theorem  
Lecture 12 - Curve Sketching  
Lecture 13 - Infinite Series I  
Lecture 14 - Infinite Series II  
Lecture 15 - Tests of Convergence  
Lecture 16 - Power Series  
Lecture 17 - Riemann Integral  
Lecture 18 - Riemann Integrable Functions  
Lecture 19 - Applications of Riemann Integral  
Lecture 20 - Length of a curve  
Lecture 21 - Line Integrals  
Lecture 22 - Functions of Several Variables  
Lecture 23 - Differentiation  
Lecture 24 - Derivatives  
Lecture 25 - Mean Value Theorem  
Lecture 26 - Maxima Minima  
Lecture 27 - Method of Lagrange Multipliers  
Lecture 28 - Multiple Integrals  
Lecture 29 - Surface Integrals

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Green's Theorem
- Lecture 31 - Stokes Theorem
- Lecture 32 - Gauss Divergence Theorem

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Human Resource Management-I

Subject Co-ordinator - Prof. Kalyan Chakravarti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Nature and Scope of HRM
- Lecture 2 - Analysing and Designing Job - I
- Lecture 3 - Analysing and Designing Job - II
- Lecture 4 - Human Resource Planning - I
- Lecture 5 - Human Resource Planning - II
- Lecture 6 - Recruitment and Selection
- Lecture 7 - Performance Evaluation and Appraisal - I
- Lecture 8 - Performance Evaluation and Appraisal (Continued...)
- Lecture 9 - Training and Development
- Lecture 10 - Employee Welfare
- Lecture 11 - Safety, Health, Environment
- Lecture 12 - Industrial Relations
- Lecture 13 - Total Quality Management
- Lecture 14 - Organization Culture
- Lecture 15 - Change Management - Part - I
- Lecture 16 - Change Management - Part - II
- Lecture 17 - Wage and Salary Administration
- Lecture 18 - Career Planning - Part - I
- Lecture 19 - Career Planning - Part - II
- Lecture 20 - Contemporary Issues in HRM - I
- Lecture 21 - Contemporary Issues in HRM - II
- Lecture 22 - Contemporary Issues in HRM - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Leadership

Subject Co-ordinator - Prof. Kalyan Chakravarti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Leadership  
Lecture 2 - Leadership Roles  
Lecture 3 - Leadership Styles  
Lecture 4 - Leadership Behaviour  
Lecture 5 - Leadership Styles  
Lecture 6 - Case  
Lecture 7 - Leadership Skills  
Lecture 8 - Competencies and Skills of Leaders  
Lecture 9 - Case  
Lecture 10 - Case  
Lecture 11 - Case  
Lecture 12 - Case  
Lecture 13 - Case

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Management Information System

Subject Co-ordinator - Prof. Biswajit Mahanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - I  
Lecture 2 - Introduction - II  
Lecture 3 - Introduction - III  
Lecture 4 - Concept of Information - I  
Lecture 5 - Concept of Information - II  
Lecture 6 - Decision Making Process  
Lecture 7 - Impact of IS on Management - I  
Lecture 8 - Impact of IS on Management - II  
Lecture 9 - Hardware Software Overview - I  
Lecture 10 - Hardware Software Overview - II  
Lecture 11 - Knowledge Management  
Lecture 12 - Learning Organization  
Lecture 13 - Decision Analysis - I  
Lecture 14 - Decision Analysis - II  
Lecture 15 - Decision Analysis - III  
Lecture 16 - Data Flow Diagrams - I  
Lecture 17 - Data Flow Diagrams - II  
Lecture 18 - Data Flow Diagrams - III  
Lecture 19 - Data Flow Diagrams - IV  
Lecture 20 - System Design - I  
Lecture 21 - System Design - II  
Lecture 22 - DBMS - I  
Lecture 23 - DBMS - II  
Lecture 24 - DBMS - III  
Lecture 25 - DBMS - IV  
Lecture 26 - DBMS - V  
Lecture 27 - OOAD - I  
Lecture 28 - OOAD - II  
Lecture 29 - OOAD - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Physics I - Oscillations and Waves

Subject Co-ordinator - Prof. S. Bharadwaj

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Simple Harmonic Oscillators  
Lecture 2 - Damped Oscillator - I  
Lecture 3 - Damped Oscillator - II  
Lecture 4 - Oscillator With External Forcing - I  
Lecture 5 - Oscillator With External Forcing  
Lecture 6 - Resonance  
Lecture 7 - Coupled Oscillations  
Lecture 8 - Sinusoidal Plane Waves - I  
Lecture 9 - Electromagnetic waves - I  
Lecture 10 - Electromagnetic Waves - II  
Lecture 11 - The Vector Nature of Electromagnetic Waves  
Lecture 12 - The Electromagnetic Spectrum  
Lecture 13 - The Electromagnetic Spectrum - II  
Lecture 14 - Interference - I  
Lecture 15 - Interference - II  
Lecture 16 - Interference - III  
Lecture 17 - Interference - IV  
Lecture 18 - Coherence  
Lecture 19 - Coherence  
Lecture 20 - Diffraction - I  
Lecture 21 - Diffraction - II  
Lecture 22 - Diffraction - III  
Lecture 23 - Diffraction - IV  
Lecture 24 - X-Ray Diffraction  
Lecture 25 - Beats  
Lecture 26 - The Wave Equation  
Lecture 27 - Solving the Wave Equation  
Lecture 28 - Waves  
Lecture 29 - Standing Waves

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Standing Waves
- Lecture 31 - Polarization
- Lecture 32 - Compton Effect
- Lecture 33 - Wave - Particle Duality
- Lecture 34 - Wave - Particle Duality
- Lecture 35 - Probability Amplitude
- Lecture 36 - Probability
- Lecture 37 - Schrodinger Wave Equation
- Lecture 38 - Measurements
- Lecture 39 - Particle in a Potential
- Lecture 40 - Potential Well
- Lecture 41 - Potential Well
- Lecture 42 - Potential Well
- Lecture 43 - Quantum Tunneling
- Lecture 44 - Quantum Tunneling

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Strategic Management

Subject Co-ordinator - Prof. Kalyan Chakravarti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Strategy

Lecture 2 - Strategy

Lecture 3 - Case Study - Group Presentation on Case - I (Baddi`s Solvent)

Lecture 4 - Case Study - Group Presentation on Case - II

Lecture 5 - Case Study - Group Presentation on Case - III

Lecture 6 - Case Study - Group Presentation on Case - IV Form

Lecture 7 - Strategy

Lecture 8 - Strategy

Lecture 9 - Case Study

Lecture 10 - Case Study

Lecture 11 - Group Presentation - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Basic Electronics and Lab

Subject Co-ordinator - Prof. T.S. Natarajan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Basic Electronics

Lecture 2 - Electronic Devices 1

Lecture 3 - Electronics Devices II Resistor in series and parallel

Lecture 4 - Some Useful Laws in Basic Electronics

Lecture 5 - Some Useful Theorems in Basic Electronics

Lecture 6 - Semi Conductor Diodes

Lecture 7 - Applications of Diodes

Lecture 8 - Wave Shaping using Diodes

Lecture 9 - Zener Diode Characteristics

Lecture 10 - Transistors

Lecture 11 - Transistor Biasing - Common Emitter Circuits, Fixed Bias, Collector to base Bias

Lecture 12 - Transistor Biasing - Emitter Current Bias, Thermal Stability (RC Coupled Amplifier)

Lecture 13 - Basic Characteristic of an Amplifier - Simple Transistor model, Common emitter Amplifier

Lecture 14 - Hybrid Equivalent Circuit, H-Parameters

Lecture 15 - Circuit Analysis using H-Parameters

Lecture 16 - Frequency Response of Amplifiers

Lecture 17 - Frequency Analysis

Lecture 18 - Power Amplifiers

Lecture 19 - Differential Amplifiers Circuit

Lecture 20 - Integrated Chip

Lecture 21 - Typical Characteristic of Operation Amplifier

Lecture 22 - Four Types of Feed Back

Lecture 23 - Four Types of Feed Back

Lecture 24 - Mathematical Operations

Lecture 25 - Mathematical Operations

Lecture 26 - Mathematical Operations

Lecture 27 - Characteristics of Operation Amplifier

Lecture 28 - Characteristics of Operation Amplifier

Lecture 29 - Characteristics of Operation Amplifier

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Inverter/Non-Inverter Circuits
- Lecture 31 - Applications of Op Amps
- Lecture 32 - Non-Linear Op Amp circuits
- Lecture 33 - Applications of Op Amps
- Lecture 34 - Active Diode Circuits
- Lecture 35 - Oscillators
- Lecture 36 - Logarithmic and Anti-Logarithmic Amplifier
- Lecture 37 - Filters
- Lecture 38 - Unit Junction Transistor
- Lecture 39 - Silicon Controlled Rectifier
- Lecture 40 - Field Effect Transistor

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Classical Physics

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Newtonian mechanics
- Lecture 3 - Dynamics in phase space
- Lecture 4 - Linear dynamical systems
- Lecture 5 - Autonomous dynamical systems (Part 1)
- Lecture 6 - Autonomous dynamical systems (Part 2)
- Lecture 7 - Lagrangian formalism
- Lecture 8 - Summary of classical electromagnetism
- Lecture 9 - Charged particle in an electromagnetic field
- Lecture 10 - Hamiltonian dynamics (Part 1)
- Lecture 11 - Hamiltonian dynamics (Part 2)
- Lecture 12 - Hamiltonian dynamics (Part 3)
- Lecture 13 - Dynamical symmetry (Part 1)
- Lecture 14 - Dynamical symmetry (Part 2)
- Lecture 15 - Randomness in phase space; chaos
- Lecture 16 - Discrete-time dynamics
- Lecture 17 - Discrete-time dynamics
- Lecture 18 - Problems and solutions (Part 1)
- Lecture 19 - Problems and solutions (Part 2)
- Lecture 20 - Classical statistical mechanics
- Lecture 21 - Some probability distributions; isolated system
- Lecture 22 - The microcanonical ensemble
- Lecture 23 - Thermodynamics
- Lecture 24 - The canonical ensemble
- Lecture 25 - Connection between statistical mechanics and thermodynamics
- Lecture 26 - Probability distributions
- Lecture 27 - Probability distributions (concl'd.). Phase transitions (Part 1)
- Lecture 28 - Phase transitions (Part 2)
- Lecture 29 - Phase transitions (Part 3)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Phase transitions (Part 4); misc. topics
- Lecture 31 - Problems and solutions (Part 3)
- Lecture 32 - Continuous groups in physics (Part 1)
- Lecture 33 - Continuous groups in physics (Part 2)
- Lecture 34 - Continuous groups in physics (Part 3)
- Lecture 35 - Noether's Theorem. Special Relativity (Part 1)
- Lecture 36 - Special Relativity (Part 2)
- Lecture 37 - Special Relativity (Part 3)
- Lecture 38 - Special Relativity (Part 4)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Engineering Chemistry I

Subject Co-ordinator - Prof. K. Mangala Sunder

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Chemistry & Quantum Chemical Mechanics

Lecture 2 - Particle in a box (one and two dimensions)

Lecture 3 - Particle in a box (One and Two Dimensions) Continued

Lecture 4 - Harmonic Oscillator and Molecular Vibration

Lecture 5 - Harmonic Oscillator (Continued)

Lecture 6 - Hydrogen Atom - Radial Solution

Lecture 7 - Hydrogen Atom Part III Angular Solutions

Lecture 8 - Hydrogen Atom - Angular Solutions (Continued)

Lecture 9 - Hydrogen Atom - Angular Solutions (Continued)

Lecture 10 - Oppenheimer Approximation and Superposition

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Numerical Methods and Programming

Subject Co-ordinator - Prof. P.B. Sunil Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Programming Basics  
Lecture 2 - Introduction to Pointers  
Lecture 3 - Pointers And Arrays  
Lecture 4 - External Functions and Argument Passing  
Lecture 5 - Representation of Numbers  
Lecture 6 - Numerical Error  
Lecture 7 - Error Propagation and Stability  
Lecture 8 - Polynomial Interpolation-1  
Lecture 9 - Polynomial Interpolation-2  
Lecture 10 - Error In Interpolation Polynomial  
Lecture 11 - Polynomial Interpolation  
Lecture 12 - Cubic Spline Interpolation  
Lecture 13 - Data Fitting  
Lecture 14 - Data Fitting  
Lecture 15 - Data Fitting  
Lecture 16 - Matrix Elimination and Solution  
Lecture 17 - Solution To Linear Equations  
Lecture 18 - Matrix Elimination  
Lecture 19 - Eigen Values of A Matrix  
Lecture 20 - Eigen Values And Eigen Vectors  
Lecture 21 - Solving NonLinear Equations  
Lecture 22 - Solving NonLinear Equations Newton Raphson Method  
Lecture 23 - Methods For Solving NonLinear Equations  
Lecture 24 - System of NonLinear Equations  
Lecture 25 - Numerical Derivations  
Lecture 26 - High order Derivatives From Difference Formula  
Lecture 27 - Numerical Integration - Basic Rules  
Lecture 28 - Comparison of Different Basic Rules  
Lecture 29 - Gaussian Rules

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Comparison of Gaussian Rules
- Lecture 31 - Solving Ordinary Differential Equations
- Lecture 32 - Solving ordinary differential equations
- Lecture 33 - Adaptive step size Runge Kutta scheme
- Lecture 34 - Partial Differential Equations
- Lecture 35 - Explicit and Implicit Methods
- Lecture 36 - The Crank - Nicholson Scheme For Two Spatial
- Lecture 37 - Fourier Transforms
- Lecture 38 - Fast Fourier Transforms

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Quantum Physics

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Quantum Physics;Heisenberg's uncertainty principle

Lecture 2 - Introduction to linear vector spaces

Lecture 3 - Characteristics of linear vector spaces

Lecture 4 - Functions in a linear vector space

Lecture 5 - Linear operations in a linear vector space and their eigenvalues

Lecture 6 - Classical Vs Quantum Mechanics

Lecture 7 - Quantum Physics

Lecture 8 - Quantum Physics

Lecture 9 - Quantum Physics

Lecture 10 - Quantum Physics

Lecture 11 - Quantum Physics

Lecture 12 - Quantum Physics

Lecture 13 - Quantum Physics

Lecture 14 - Quantum Physics

Lecture 15 - Quantum Physics

Lecture 16 - Quantum Physics

Lecture 17 - Quantum Physics

Lecture 18 - Quantum Physics

Lecture 19 - Quantum Physics

Lecture 20 - Quantum Physics

Lecture 21 - Quantum Physics

Lecture 22 - Quantum Physics

Lecture 23 - Quantum Physics

Lecture 24 - Quantum Physics

Lecture 25 - Quantum Physics

Lecture 26 - Quantum Physics

Lecture 27 - Quantum Physics

Lecture 28 - Quantum Physics

Lecture 29 - Quantum Physics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Quantum Physics

Lecture 31 - Quantum Physics



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Engineering Physics I

Subject Co-ordinator - Prof. Rajdeep Chatterjee, Prof. B.K. Patra, Prof. M.K. Srivastava, Prof. G.D. Verma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Malus law & Superposition of ways
- Lecture 3 - Double Refraction
- Lecture 4 - Interference of polarized light
- Lecture 5 - Optical Activity
- Lecture 6 - Introduction
- Lecture 7 - Stationary Waves & Reflection, Refraction and Diffraction
- Lecture 8 - Ultrasonics
- Lecture 9 - Acoustics of Buildings - Part I
- Lecture 10 - Acoustics of Buildings - Part II
- Lecture 11 - Interference of light Part-1
- Lecture 12 - Interference of light Part-2
- Lecture 13 - Interference of light Part-3
- Lecture 14 - Interference by Division of Wave front
- Lecture 15 - Interference by Division of Amplitude
- Lecture 16 - Coherence and Application of Interference
- Lecture 17 - Diffraction Part-1
- Lecture 18 - Diffraction Part-2
- Lecture 19 - Diffraction Part-3
- Lecture 20 - Diffraction by a circular aperture
- Lecture 21 - Kinetic theory of gases - Part-1
- Lecture 22 - Kinetic theory of gases - Part-2
- Lecture 23 - Maxwellian distribution law of velocity - Part-1
- Lecture 24 - Maxwellian distribution law of velocity - Part-2
- Lecture 25 - Maxwellian distribution law of velocity - Part-3
- Lecture 26 - Vanderwaal's equation of states - Part-1
- Lecture 27 - Vanderwaal's equation of states - Part-2
- Lecture 28 - Vanderwaal's equation of states - Part-3
- Lecture 29 - Fluid Mechanics - Part-1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fluid Mechanics - Part-2
- Lecture 31 - Introduction of special relativity
- Lecture 32 - Consequences of special relativity-1
- Lecture 33 - Consequences of special relativity-2
- Lecture 34 - Consequences of special relativity-3
- Lecture 35 - Consequences of special relativity-4
- Lecture 36 - Consequences of special relativity-5
- Lecture 37 - Introduction
- Lecture 38 - Image formation by lenses
- Lecture 39 - Lens aberrations - Part I
- Lecture 40 - Lens aberrations - Part II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Mathematics II

Subject Co-ordinator - Dr. Sunita Gakkhar, Prof. H.G. Sharma, Dr. Tanuja Srivastava

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Complex Integration  
Lecture 2 - Contour Integration  
Lecture 3 - Cauchy's Integral Theorem  
Lecture 4 - Cauchy's Integral Formula  
Lecture 5 - Application of Cauchy Integral Formula  
Lecture 6 - Zeros, Singularities and Poles  
Lecture 7 - Residue Integration Method  
Lecture 8 - Residue Theorem  
Lecture 9 - Evaluation of Real Integrals  
Lecture 10 - Evaluation of Real Improper Integrals-1  
Lecture 11 - Evaluation of Real Improper Integrals-2  
Lecture 12 - Evaluation of Real Improper Integrals-3  
Lecture 13 - Evaluation of Real Improper Integrals-4  
Lecture 14 - Evaluation of Real Integrals - Revision  
Lecture 15 - Matrix Algebra Part - 1  
Lecture 16 - Matrix Algebra Part - 2  
Lecture 17 - Determinants Part - 1  
Lecture 18 - Determinants Part - 2  
Lecture 19 - Solution of System Equation  
Lecture 20 - Linear Algebra Part - 1  
Lecture 21 - Linear Algebra part - 2  
Lecture 22 - Linear Algebra Part - 3  
Lecture 23 - Linear Algebra Part - 4  
Lecture 24 - Inner Product  
Lecture 25 - Linear Transformation Part - 1  
Lecture 26 - Linear Transformation Part - 2  
Lecture 27 - Eigenvalues Eigenvectors Part - 1  
Lecture 28 - Eigenvalues Eigenvectors Part - 2  
Lecture 29 - Quadratic Forms

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diagonalization Part - 1
- Lecture 31 - Diagonalization Part - 2
- Lecture 32 - Solution of System of Linear Equation
- Lecture 33 - Functions of Complex Variables Part - 1
- Lecture 34 - Functions of Complex Variables Part - 2
- Lecture 35 - Taylor Series
- Lecture 36 - Laurent Series
- Lecture 37 - Rank of a Matrix
- Lecture 38 - Complex Numbers Their Geometrical Representation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Mathematics III

Subject Co-ordinator - Prof. P.N. Agrawal, Dr. Tanuja Srivastava

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Solution of ODE of First Order and First Degree
- Lecture 2 - Linear Differential Equations of the First Order
- Lecture 3 - Approximate Solution of An Initial Value
- Lecture 4 - Series Solution of Homogeneous Linear I
- Lecture 5 - Series Solution of Homogeneous Linear II
- Lecture 6 - Bessel Functions and Their Properties
- Lecture 7 - Bessel Functions And Their Properties (Continued..)
- Lecture 8 - Laplace Transformation
- Lecture 9 - Laplace Transformation (Continued..)
- Lecture 10 - Applications Of Laplace Transformation
- Lecture 11 - Applications Of Laplace Transformation (Continued..)
- Lecture 12 - One Dimensional Wave Equation
- Lecture 13 - One Dimensional Heat Equation
- Lecture 14 - Introduction to Differential Equation
- Lecture 15 - First Order Differential Equations and Their Geometric Interpretation
- Lecture 16 - Differential Equations of First Order Higher Degree
- Lecture 17 - Linear Differential Equation of Second Order-Part - 1
- Lecture 18 - Linear Differential equation of Second Order-Part - 2
- Lecture 19 - Euler-Cauchy Theorem
- Lecture 20 - Higher Order Linear Differential Equations
- Lecture 21 - Higher Order Non homogeneous Linear Equations
- Lecture 22 - Boundary Value Problems
- Lecture 23 - Sturm Liouville boundary Value Problem
- Lecture 24 - Fourier Series-Part - 1
- Lecture 25 - Fourier Series-Part - 2
- Lecture 26 - Convergence of the Fourier Series
- Lecture 27 - Fourier Integrals
- Lecture 28 - Fourier Transforms
- Lecture 29 - Partial Differential Equation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - First Order Partial Differential Equation
- Lecture 31 - Second Order Partial Differential Equations - I
- Lecture 32 - Second Order Partial Differential Equations - II
- Lecture 33 - Solution of One Dimensional Wave Equation
- Lecture 34 - Solution of HomogeneousNon Homogeneous Equations
- Lecture 35 - Fourier Integral Transform Method for Heat Equation
- Lecture 36 - Three Dimensional Laplace Equation
- Lecture 37 - Solution of Drichlet Problem
- Lecture 38 - Numerical Method for Laplace Poisson equation
- Lecture 39 - ADI Method for Laplace and Poisson Equation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Basic Courses (Semester 1 and 2) - Concept of Management and Evolution of Management Tho

Subject Co-ordinator - Prof. K.B. Akhilesh

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - Concept of Management
- Lecture 2 - Lecture 2
- Lecture 3 - Management By Objectives
- Lecture 4 - Organizing & Organization
- Lecture 5 - Organizing - II
- Lecture 6 - Coordinating
- Lecture 7 - Communication - I
- Lecture 8 - Communication - II
- Lecture 9 - Leadership
- Lecture 10 - Controlling
- Lecture 11 - Motivation and Organization Culture
- Lecture 12 - Japanese Management
- Lecture 13 - Comparison of Japanese and American Management
- Lecture 14 - Managerial Functions in International Business
- Lecture 15 - Marketing Functions
- Lecture 16 - Management and Society
- Lecture 17 - Social Responsibility and Ethics - II
- Lecture 18 - Functions of Personnel Management
- Lecture 19 - Manpower Planning
- Lecture 20 - Selection - I
- Lecture 21 - Selection - II
- Lecture 22 - Performance Appraisal - I
- Lecture 23 - Performance Appraisal - II
- Lecture 24 - Training and Development - I
- Lecture 25 - Training and Development - II
- Lecture 26 - Job Design and Payment Systems - I
- Lecture 27 - Job Design and Compensation Systems
- Lecture 28 - Organizational Development - I
- Lecture 29 - Organizational Development - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Organization Theory - I
- Lecture 31 - Organization Theory - II
- Lecture 32 - Group Dynamics - I
- Lecture 33 - Group Dynamics - II
- Lecture 34 - Group Dynamics - III
- Lecture 35 - Conflict Management - I
- Lecture 36 - Conflict Management - II
- Lecture 37 - Managing Creativity and Innovation
- Lecture 38 - Creativity and Managing Innovation Process - II
- Lecture 39 - Stress Management - I
- Lecture 40 - Stress Management - II



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Biomathematics

Subject Co-ordinator - Dr. Ranjith Padinhateeri

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Graphs and functions - I  
Lecture 3 - Graphs and functions - II  
Lecture 4 - Functions and derivatives  
Lecture 5 - Calculation of derivatives  
Lecture 6 - Differentiation and its application in Biology - I  
Lecture 7 - Differentiation and its application in Biology - II  
Lecture 8 - Differentiation and its application in Biology - III  
Lecture 9 - Differentiation and its application in Biology - IV  
Lecture 10 - Integration - I  
Lecture 11 - Integration - II  
Lecture 12 - Differential equations - I  
Lecture 13 - Differential equations - II  
Lecture 14 - Vectors - I  
Lecture 15 - Vectors - II  
Lecture 16 - Vectors - III  
Lecture 17 - Nernst equation  
Lecture 18 - Diffusion - I  
Lecture 19 - Diffusion - II  
Lecture 20 - Diffusion - III  
Lecture 21 - Statistics  
Lecture 22 - Statistics  
Lecture 23 - Understanding Normal distribution  
Lecture 24 - Fitting a function to experimental data  
Lecture 25 - Size of a flexible protein  
Lecture 26 - Uniform and Poisson distributions; Knudson's analysis  
Lecture 27 - Fourier Series - I  
Lecture 28 - Fourier Series - II  
Lecture 29 - Fourier transform

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Master equation
- Lecture 31 - Evolution
- Lecture 32 - Tutorial - I
- Lecture 33 - Tutorial - II
- Lecture 34 - Temperature, Energy and Entropy
- Lecture 35 - Partition function, Free energy
- Lecture 36 - Bending fluctuations of DNA and spring-like proteins
- Lecture 37 - Force-extension and looping of DNA
- Lecture 38 - Thermodynamics of protein organization along DNA
- Lecture 39 - Learning mathematics with the help of a computer

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Proteomics and Genomics

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Proteins and Gel-Based Proteomics

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 0 - Proteins and Gel-Based Proteomics; Course Introduction
- Lecture 1 - Introduction to amino acids
- Lecture 2 - Introduction to proteins
- Lecture 3 - Protein folding & misfolding
- Lecture 4 - Protein purification techniques
- Lecture 5 - Introduction to proteomics
- Lecture 6 - Systems biology and proteomics
- Lecture 7 - Sample preparation and pre-analytical factors
- Lecture 8 - Sample preparation
- Lecture 9 - Sample preparation
- Lecture 10 - One-dimensional electrophoresis
- Lecture 11 - 2-DE
- Lecture 12 - 2-DE
- Lecture 13 - 2-DE
- Lecture 14 - 2-DE
- Lecture 15 - 2-DE
- Lecture 16 - 2D-DIGE
- Lecture 17 - 2D-DIGE
- Lecture 18 - 2D-DIGE
- Lecture 19 - Protein identification using MALDI-TOF/TOF
- Lecture 20 - Proteomics experiment data analysis & challenges

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Mass spectrometry based proteomics

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 0 - Introductory lecture
- Lecture 1 - Introduction to proteomics
- Lecture 2 - Proteomics and sample preparation
- Lecture 3 - Bacterial protein extraction
- Lecture 4 - In-gel digestion
- Lecture 5 - Fundamentals of mass spectrometry
- Lecture 6 - Chromatography technologies
- Lecture 7 - Liquid chromatography
- Lecture 8 - Mass spectrometry
- Lecture 9 - Mass spectrometry
- Lecture 10 - MALDI sample preparation and analysis
- Lecture 11 - Introduction to quantitative proteomics
- Lecture 12 - Hybrid mass spectrometry configurations
- Lecture 13 - SILAC
- Lecture 14 - iTRAQ
- Lecture 15 - TMT
- Lecture 16 - Quantitative proteomics data analysis
- Lecture 17 - Proteomics and Systems biology I
- Lecture 18 - Proteomics & Systems biology II
- Lecture 19 - Proteomics applications
- Lecture 20 - Advances and challenges in proteomics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Interactomics: Protein Arrays and Label-free Biosensors

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Interactomics
- Lecture 2 - An overview of label-free technologies
- Lecture 3 - An overview of surface plasmon resonance (SPR)
- Lecture 4 - An overview of surface plasmon resonance imaging (SPRi)
- Lecture 5 - Basics of SPR
- Lecture 6 - Basics of SPR
- Lecture 7 - Protein immobilization for protein-protein interaction studies
- Lecture 8 - Protein-protein interaction study
- Lecture 9 - Protein-protein interaction study
- Lecture 10 - Protein-small molecule interaction study
- Lecture 11 - Protein-small molecule interaction study
- Lecture 12 - SPR
- Lecture 13 - SPR
- Lecture 14 - An overview of ellipsometry and interferometry techniques
- Lecture 15 - An introduction to BioLayer Interferometry (BLI) and its applications in protein research
- Lecture 16 - Kinetic analysis of protein-protein interaction using BLI
- Lecture 17 - Label-free quantification of proteins using BLI
- Lecture 18 - Diffraction-based biosensors - I
- Lecture 19 - Diffraction-based biosensors - II
- Lecture 20 - Nanotechniques in proteomics - I
- Lecture 21 - Nanotechniques in proteomics - II
- Lecture 22 - High throughput platforms of interactomics
- Lecture 23 - Conventional label based detection techniques for Protein microarrays
- Lecture 24 - Novel detection techniques for Protein microarrays
- Lecture 25 - Recombinational cloning and its application for Protein microarrays
- Lecture 26 - An introduction to Cell-free protein synthesis
- Lecture 27 - Cell-free synthesis based protein microarrays
- Lecture 28 - Cell-free synthesis based protein microarrays
- Lecture 29 - Digging deeper into NAPPA

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Digging deeper into NAPPA
- Lecture 31 - Application of cell free expression protein microarrays in biomarker discovery
- Lecture 32 - Application of cell free expression protein microarrays in immunological studies
- Lecture 33 - Basics of microarray image scanning
- Lecture 34 - Software for Image scanning and data processing
- Lecture 35 - Microarray Data Analysis - Part I
- Lecture 36 - Microarray Data Analysis - Part II
- Lecture 37 - Application of protein microarray in biomarker discovery - I
- Lecture 38 - Application of protein microarray in biomarker discovery - II
- Lecture 39 - Systems biology and networks
- Lecture 40 - Challenges in proteomics



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Introduction to Proteomics

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to amino acids

Lecture 2 - Introduction to proteins

Lecture 3 - Protein folding and misfolding

Lecture 4 - Introduction to proteomics

Lecture 5 - Lab session â Protein-protein interaction using label-free biosensors

Lecture 6 - Sample preparation and pre-analytical factors

Lecture 7 - Sample preparation

Lecture 8 - Sample preparation

Lecture 9 - One-dimensional electrophoresis

Lecture 10 - Introduction to 2-DE

Lecture 11 - 2-DE

Lecture 12 - 2-DE

Lecture 13 - 2-DE Applications

Lecture 14 - 2-DE Applications (Continued...) and Challenges

Lecture 15 - Lab session - Protein/peptide pre-fractionation using OFFGEL FRACTIONATOR and data analysis

Lecture 16 - 2D-DIGE

Lecture 17 - 2D-DIGE

Lecture 18 - 2D-DIGE

Lecture 19 - Systems biology and proteomics - I

Lecture 20 - Systems biology and proteomics - II

Lecture 21 - Fundamentals of mass spectrometry

Lecture 22 - Chromatography technologies

Lecture 23 - Liquid chromatography

Lecture 24 - Mass spectrometry

Lecture 25 - Mass spectrometry

Lecture 26 - MALDI sample preparation and analysis

Lecture 27 - Hybrid mass spectrometry configurations

Lecture 28 - Lab session - Demonstration of Q-TOF MS technology

Lecture 29 - In-gel and in-solution digestion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lab session - Sample preparation
- Lecture 31 - Introduction to quantitative proteomics
- Lecture 32 - SILAC
- Lecture 33 - iTRAQ
- Lecture 34 - TMT
- Lecture 35 - Quantitative proteomics data analysis
- Lecture 36 - Proteomics applications
- Lecture 37 - Challenges in proteomics
- Lecture 38 - OMICS and translational research
- Lecture 39 - Lab session â Targeted proteomics using triple quadrupole mass spectrometry
- Lecture 40 - Lab session â Targeted proteomics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Introduction to Biostatistics

Subject Co-ordinator - Prof. Shamik Sen

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Data representation and plotting
- Lecture 3 - Arithmetic mean
- Lecture 4 - Geometric mean
- Lecture 5 - Measure of Variability, Standard deviation
- Lecture 6 - SME, Z-Score, Box plot
- Lecture 7 - Moments, Skewness
- Lecture 8 - Kurtosis, R programming
- Lecture 9 - R programming
- Lecture 10 - Correlation
- Lecture 11 - Correlation and Regression - Part-I
- Lecture 12 - Correlation and Regression - Part-II
- Lecture 13 - Interpolation and extrapolation
- Lecture 14 - Nonlinear data fitting
- Lecture 15 - Concept of Probability
- Lecture 16 - Counting principle, Permutations, and Combinations
- Lecture 17 - Conditional probability
- Lecture 18 - Conditional probability and Random variables
- Lecture 19 - Random variables, Probability mass function, and Probability density function
- Lecture 20 - Expectation, Variance and Covariance - Part-I
- Lecture 21 - Expectation, Variance and Covariance - Part-II
- Lecture 22 - Binomial random variables and Moment generating function
- Lecture 23 - Probability distribution
- Lecture 24 - Uniform distribution Part-II and Normal distribution Part-I
- Lecture 25 - Normal distribution Part-II and Exponential distribution
- Lecture 26 - Sampling distributions and Central limit theorem - Part-I
- Lecture 27 - Sampling distributions and Central limit theorem - Part-II
- Lecture 28 - Central limit theorem - Part-III and Sampling distributions of sample mean
- Lecture 29 - Central limit theorem - Part-IV and Confidence intervals

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Confidence intervals Part- II
- Lecture 31 - Test of Hypothesis - 1
- Lecture 32 - Test of Hypothesis - 2 (1 tailed and 2 tailed Test of Hypothesis, p-value)
- Lecture 33 - Test of Hypothesis - 3 (1 tailed and 2 tailed Test of Hypothesis, p-value)
- Lecture 34 - Test of Hypothesis - 4 (Type -1 and Type -2 error)
- Lecture 35 - T-test
- Lecture 36 - 1 tailed and 2 tailed T-distribution, Chi-square test
- Lecture 37 - ANOVA - 1
- Lecture 38 - ANOVA - 2
- Lecture 39 - ANOVA - 3
- Lecture 40 - ANOVA for linear regression, Block Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Introduction to Mechanobiology

Subject Co-ordinator - Prof. Shamik Sen

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Need to Study Mechanobiology
- Lecture 2 - Cell as a Tent, Individual Components
- Lecture 3 - Cell-ECM Crosstalk
- Lecture 4 - ECM Proteins
- Lecture 5 - Measuring Properties of Collagen Networks
- Lecture 6 - Properties of Collagen Networks
- Lecture 7 - Rheology
- Lecture 8 - Rheology of Biopolymer Networks
- Lecture 9 - Atomic Force Microscopy (AFM)
- Lecture 10 - Design of Protein Constructs for AFM
- Lecture 11 - Protein Unfolding using AFM
- Lecture 12 - Protein Unfolding using AFM
- Lecture 13 - Focal Adhesions
- Lecture 14 - Focal Adhesion Organization
- Lecture 15 - Focal Adhesions
- Lecture 16 - Cytoskeleton
- Lecture 17 - Force-velocity Relationships of Actin Networks
- Lecture 18 - Mesenchymal Cell Migration
- Lecture 19 - Actin Dynamics during Mesenchymal Migration
- Lecture 20 - Actin Dynamics during Mesenchymal Migration
- Lecture 21 - Adhesion Independent Migration
- Lecture 22 - Adhesion Independent and Collective Cell Migration
- Lecture 23 - Collective Cell Migration
- Lecture 24 - Mechanobiology of Stem Cell Fate - I
- Lecture 25 - Mechanobiology of Stem Cell Fate - II
- Lecture 26 - Mechanobiology of Stem Cell Fate - III
- Lecture 27 - Mechanobiology of Diseases
- Lecture 28 - Mechanobiology of Diseases
- Lecture 29 - Mechanobiology of Diseases

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Mechanobiology of Diseases
- Lecture 31 - Mechanobiology of Diseases
- Lecture 32 - Nuclear Mechanotransduction
- Lecture 33 - Nuclear Mechanotransduction
- Lecture 34 - Nuclear Mechanotransduction
- Lecture 35 - Mechanical Forces and DNA damage
- Lecture 36 - Techniques in Mechanobiology
- Lecture 37 - Techniques in Mechanobiology
- Lecture 38 - Techniques in Mechanobiology
- Lecture 39 - Techniques in Mechanobiology
- Lecture 40 - Techniques in Mechanobiology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC: Introductory Mathematical Methods for Biologists

Subject Co-ordinator - Dr. Ranjith Padinhateeri

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Graphs and Functions  
Lecture 3 - Equations as Graphs  
Lecture 4 - Graphs  
Lecture 5 - Graphs  
Lecture 6 - Images as 2D/3D Functions  
Lecture 7 - Functions and its Derivatives  
Lecture 8 - Computing Derivatives of Curves  
Lecture 9 - Rules for Calculating Derivatives  
Lecture 10 - Understanding Derivatives  
Lecture 11 - Curvature and Second Derivative  
Lecture 12 - Plotting Curves  
Lecture 13 - Numerical Calculation of Derivatives  
Lecture 14 - Function, Derivatives and Series Expansion  
Lecture 15 - L'Hopital's Rule and Partial Derivatives  
Lecture 16 - Integration  
Lecture 17 - Integration  
Lecture 18 - Integration  
Lecture 19 - Integration  
Lecture 20 - Integration  
Lecture 21 - Exponential Growth and Decay  
Lecture 22 - Scalars and Vectors  
Lecture 23 - Vectors  
Lecture 24 - Cell Symmetry  
Lecture 25 - Gradient, Forces and Flows  
Lecture 26 - Gradient, Forces and Flows  
Lecture 27 - Understanding Diffusion  
Lecture 28 - Diffusion Constant and Einstein Relation 1905  
Lecture 29 - Diffusion Equation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diffusion vs. Active Transport
- Lecture 31 - Nernst Equation
- Lecture 32 - Fourier Series
- Lecture 33 - Fourier Series
- Lecture 34 - Fourier Transform
- Lecture 35 - Introduction to Statistics
- Lecture 36 - Mean, Standard deviation and Distribution
- Lecture 37 - Frequency Distribution and Probability Distribution
- Lecture 38 - Binomial Distribution
- Lecture 39 - Normal Distribution
- Lecture 40 - Hypothesis Testing and Mathematical Modeling



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Bioengineering: An Interface with Biology and Medicine

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Why biology for engineers - Part I
- Lecture 2 - Why biology for engineers - Part II
- Lecture 3 - Life processes and Cell
- Lecture 4 - Cell and its properties
- Lecture 5 - Clinician's Perspective - I
- Lecture 6 - Nucleic Acid and Central Dogma
- Lecture 7 - DNA Tools
- Lecture 8 - DNA Tools
- Lecture 9 - DNA Tools and Biotechnology - I
- Lecture 10 - DNA Tools and Biotechnology - II
- Lecture 11 - DNA Tools and Biotechnology - III
- Lecture 12 - DNA Tools and Biotechnology - IV
- Lecture 13 - DNA Tools and Biotechnology - V
- Lecture 14 - DNA Tools and Biotechnology - VI
- Lecture 15 - Clinician's Perspective - II
- Lecture 16 - Genetics - I
- Lecture 17 - Genetics - II
- Lecture 18 - Genetics - III
- Lecture 19 - Genetics - IV
- Lecture 20 - Clinician's Perspective - III
- Lecture 21 - Chromosomal basis of inheritance
- Lecture 22 - Linkage, chromosomal disorders
- Lecture 23 - Classical Genetics Experiments
- Lecture 24 - Bacteria and Viruses
- Lecture 25 - Clinician's Perspective - IV
- Lecture 26 - Cell cycle dysregulation and Cancer
- Lecture 27 - Developmental Biology
- Lecture 28 - Principles and application of Animal Cloning
- Lecture 29 - Evolution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Clinician's Perspective - V
- Lecture 31 - Amino acids and proteins
- Lecture 32 - Proteins and Proteomics
- Lecture 33 - Techniques to Study Protein and Proteome - I
- Lecture 34 - Techniques to Study Protein and Proteome - II
- Lecture 35 - Bioinformatics - I
- Lecture 36 - Techniques to Study Protein and Proteome - III
- Lecture 37 - Protein Interactions and Microarrays
- Lecture 38 - Protein interactions and Systems biology
- Lecture 39 - Bioinformatics - II
- Lecture 40 - Ethics in Research and Publications

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Applications of Interactomics using Genomics and Proteomics Technology

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Interactomics and Protein Arrays

Lecture 2 - NAPPA Technology and Protein Arrays - I

Lecture 3 - NAPPA Technology and Protein Arrays - II

Lecture 4 - Biomarkers

Lecture 5 - Biomarkers

Lecture 6 - Biomarkers

Lecture 7 - NAPPA and its applications in study of antibody immune response in disease and in drug Screening

Lecture 8 - NAPPA and its applications in study of antibody immune response in disease and in drug screening

Lecture 9 - NAPPA and its applications in study of antibody immune response in disease and in drug screening

Lecture 10 - Using functional proteomics to identify biomarkers and therapeutic targets - I

Lecture 11 - Using functional proteomics to identify biomarkers and therapeutic targets - II

Lecture 12 - Applications of protein microarrays in Malaria Research - I

Lecture 13 - Applications of protein microarrays in Malaria Research - II

Lecture 14 - Applications of protein microarrays in Cancer Research - I

Lecture 15 - Applications of protein microarrays in Cancer Research - II

Lecture 16 - Introduction to Bioprinting and Iris's Optical QC Benefits - I

Lecture 17 - Introduction to Bioprinting and Iris's Optical QC Benefits - II

Lecture 18 - Basics and Applications of Reverse Phase Protein Arrays - I

Lecture 19 - Basics and Applications of Reverse Phase Protein Arrays - II

Lecture 20 - Basics and Applications of Reverse Phase Protein Arrays - III

Lecture 21 - Antibody signatures defined by high-content peptide microarray analysis

Lecture 22 - An overview of label-free technologies - I

Lecture 23 - An overview of label-free technologies - II

Lecture 24 - Mass Spectrometry coupled Interactomics - I

Lecture 25 - Mass Spectrometry coupled Interactomics - II

Lecture 26 - Biomolecular interactions using Bio-Layer Interferometry (BLI) - I

Lecture 27 - Biomolecular interactions using Bio-Layer Interferometry (BLI) - II

Lecture 28 - Biomolecular interaction analytics using MicroScale Thermophoresis

Lecture 29 - Surface Plasmon Resonance- Principles and Assays - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Surface Plasmon Resonance- Principles and Assays - II
- Lecture 31 - Use of SPR in unravelling domain motif interactions of proteasomal assembly chaperones
- Lecture 32 - Next-Generation Sequencing Technology- Ion Torrent
- Lecture 33 - NGS Technology- Bioinformatics and data analysis - I
- Lecture 34 - NGS Technology- Bioinformatics and data analysis - II
- Lecture 35 - Next-Generation Sequencing Technology-MiSeq System
- Lecture 36 - NGS target enrichment workflow for exomes, targeted panels and beyond
- Lecture 37 - The Human Pathology Atlas
- Lecture 38 - The Human Pathology Atlas
- Lecture 39 - Conclusions and Overview - I (Statistical analysis - I)
- Lecture 40 - Conclusions and overview - II (Statistical analysis - II)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Introduction to Proteogenomics

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Proteogenomics overview - I  
Lecture 2 - Proteogenomics overview - II  
Lecture 3 - Introduction to Genomics - Part I  
Lecture 4 - Introduction to Genomics - Part II  
Lecture 5 - Introduction to Genomics - Part III  
Lecture 6 - Perspectives in Proteogenomics - I  
Lecture 7 - Advancement in Cancer Genomics  
Lecture 8 - Introduction to Genomics - Part IV  
Lecture 9 - Introduction to Genomics - cBioPortal  
Lecture 10 - Genotype, Gene expression and Phenotype - I  
Lecture 11 - Genotype, Gene expression and Phenotype - II  
Lecture 12 - An overview of NGS technology  
Lecture 13 - NGS - Sequencing by synthesis - I  
Lecture 14 - NGS - Sequencing by synthesis - II  
Lecture 15 - Introduction to Proteomics  
Lecture 16 - Proteomics  
Lecture 17 - Applications of Proteomics  
Lecture 18 - Introduction to MS-based Proteomics - I  
Lecture 19 - Introduction to MS-based Proteomics - II  
Lecture 20 - Applications of NGS - IonTorrent  
Lecture 21 - Genomic Analysis using Droplet PCR - I  
Lecture 22 - Introduction to MS-based Proteomics - I (Hands-on session)  
Lecture 23 - Introduction to MS-based Proteomics - II (Hands-on session)  
Lecture 24 - Data analysis  
Lecture 25 - Data analysis  
Lecture 26 - Data analysis  
Lecture 27 - Genomic Analysis using Droplet PCR - II  
Lecture 28 - Topics in Proteogenomics  
Lecture 29 - Machine learning and Clustering

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hypothesis testing
- Lecture 31 - ProTIGY - I
- Lecture 32 - ProTIGY - II
- Lecture 33 - Proteomics Data Analysis
- Lecture 34 - Proteomics Lab Demonstration - I
- Lecture 35 - Proteomics Lab Demonstration - II
- Lecture 36 - Workflow to Automated Data Processing
- Lecture 37 - Introduction to Fire Cloud
- Lecture 38 - FireCloud and Data Model
- Lecture 39 - Bioinformatics solutions for Big Data Analysis - I
- Lecture 40 - Bioinformatics solutions for Big Data Analysis - II
- Lecture 41 - Introduction to Targeted Proteomics
- Lecture 42 - Data analysis using Skyline
- Lecture 43 - Large-scale data Science - I
- Lecture 44 - Large-scale data Science - II
- Lecture 45 - Large-scale data Science - III
- Lecture 46 - DIA-SWATH Atlas - I
- Lecture 47 - DIA-SWATH Atlas - II
- Lecture 48 - Prediction Analysis
- Lecture 49 - Pathway Enrichment and Network Analysis
- Lecture 50 - Human Protein Atlas - I
- Lecture 51 - Human Protein Atlas - II
- Lecture 52 - Affinity based proteomics & HPA
- Lecture 53 - Clinical Considerations for OMICS - I
- Lecture 54 - Clinical Considerations for OMICS - II
- Lecture 55 - Topics in Proteogenomics
- Lecture 56 - Integrative Genomics Viewer (IGV)
- Lecture 57 - Introduction to Proteogenomics - I
- Lecture 58 - Introduction to Proteogenomics - II
- Lecture 59 - Sequence centric proteogenomics
- Lecture 60 - Variant Analysis
- Lecture 61 - Proteomics - Clinical Applications
- Lecture 62 - Perspectives in Proteogenomics - II
- Lecture 63 - Predictive Analysis - I
- Lecture 64 - Predictive Analysis - II
- Lecture 65 - Association/ Marker Selection
- Lecture 66 - WebGestalt - I
- Lecture 67 - WebGestalt - II
- Lecture 68 - Perspectives in Proteogenomics - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Network Analysis - I
- Lecture 70 - Network Analysis - II
- Lecture 71 - Mutations and Signaling - I
- Lecture 72 - Mutations and Signaling - II
- Lecture 73 - Pathway Enrichment - I
- Lecture 74 - Perspectives in Proteogenomics - IV
- Lecture 75 - Pathway Enrichment - II
- Lecture 76 - Sequence - GSEA
- Lecture 77 - Linked Omics - I
- Lecture 78 - Linked Omics - II
- Lecture 79 - Proteogenomics - Opportunities and Challenges
- Lecture 80 - Perspectives in Proteogenomics - V

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Interactomics: Basics and Applications

Subject Co-ordinator - Prof. Sanjeeva Srivastava

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Proteomics
- Lecture 2 - Introduction to Interactomics
- Lecture 3 - High throughput platforms of interactomics
- Lecture 4 - Cell-free expression based protein microarrays
- Lecture 5 - NAPPA
- Lecture 6 - NAPPA Technology and Protein Arrays - I
- Lecture 7 - NAPPA Technology and Protein Arrays - II
- Lecture 8 - Biomarkers
- Lecture 9 - Biomarkers
- Lecture 10 - Biomarkers
- Lecture 11 - NAPPA and its applications in study of antibody immune response in disease and in drug screening
- Lecture 12 - NAPPA and its applications in study of antibody immune response in disease and in drug screening
- Lecture 13 - NAPPA and its applications in study of antibody immune response in disease and in drug screening
- Lecture 14 - Using functional proteomics to identify biomarkers and therapeutic targets - I
- Lecture 15 - Using functional proteomics to identify biomarkers and therapeutic targets - II
- Lecture 16 - Applications of protein microarrays in Malaria Research - I
- Lecture 17 - Applications of protein microarrays in Malaria Research - II
- Lecture 18 - Introduction to Bioprinting and IrisOptical QC Benefits - I
- Lecture 19 - Introduction to Bioprinting and IrisOptical QC Benefits - II
- Lecture 20 - Screening of autoantibody signatures in cancer patients
- Lecture 21 - Basics of Image Scanning and data acquisition
- Lecture 22 - Applications of protein arrays in identification of autoantibody signatures - I
- Lecture 23 - Applications of protein arrays in identification of autoantibody signatures - II
- Lecture 24 - Applications of protein microarrays in deciphering PTMs and biological networks
- Lecture 25 - Basics and Applications of Reverse Phase Protein Arrays - I
- Lecture 26 - Basics and Applications of Reverse Phase Protein Arrays - II
- Lecture 27 - Basics and Applications of Reverse Phase Protein Arrays - III
- Lecture 28 - An overview of label-free technologies
- Lecture 29 - Surface Plasmon Resonance - Principles and Assays - I

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Surface Plasmon Resonance - Principles and Assays - II
- Lecture 31 - Basics of SPR
- Lecture 32 - Basics of SPR
- Lecture 33 - Protein immobilization for protein-protein interaction studies
- Lecture 34 - Protein-protein interaction study
- Lecture 35 - Protein-protein interaction study
- Lecture 36 - Use of SPR in unravelling domain motif interactions of proteasomal assembly chaperones
- Lecture 37 - Protein-small molecule interaction study
- Lecture 38 - Protein-small molecule interaction study
- Lecture 39 - An introduction to biolayer interferometry (BLI) and its applications in protein research
- Lecture 40 - Biomolecular interactions using Bio-Layer Interferometry (BLI) - I
- Lecture 41 - Biomolecular interactions using Bio-Layer Interferometry (BLI) - II
- Lecture 42 - Lab session- An introduction to BioLayer Interferometry (BLI) and its applications in protein re
- Lecture 43 - Applications of label-free technologies - II
- Lecture 44 - Biomolecular interaction analytics using MicroScale Thermophoresis
- Lecture 45 - Mass Spectrometry coupled Interactomics - I
- Lecture 46 - Mass Spectrometry coupled Interactomics - II
- Lecture 47 - Next-Generation Sequencing Technology - Ion Torrent
- Lecture 48 - NGS Technology - Bioinformatics and data analysis - I
- Lecture 49 - NGS Technology - Bioinformatics and data analysis - II
- Lecture 50 - Next-Generation Sequencing Technology- Illumina
- Lecture 51 - Agilent complete NGS target enrichment workflow for exomes, targeted panels and beyond
- Lecture 52 - The Human Pathology Atlas
- Lecture 53 - The Human Pathology Atlas
- Lecture 54 - Statistical Analysis - I
- Lecture 55 - Statistical Analysis - II
- Lecture 56 - Secondary Data Analysis
- Lecture 57 - Pathway Enrichment and Network Analysis
- Lecture 58 - Data Repositories and Databases
- Lecture 59 - Application of multi-omics approach for better understanding of cancers
- Lecture 60 - Integrated Omics and Systems Biology- Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Maternal Infant Young Child Nutrition

Subject Co-ordinator - Prof. Rupal Dalal

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
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Lecture 23  
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Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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Lecture 30  
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Lecture 41  
Lecture 42  
Lecture 43  
Lecture 44  
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Lecture 46  
Lecture 47  
Lecture 48  
Lecture 49  
Lecture 50  
Lecture 51  
Lecture 52  
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Lecture 55  
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Lecture 57  
Lecture 58  
Lecture 59  
Lecture 60  
Lecture 61



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - àà|à¥ àà, àà°àà¼ àà²à¥ àà à¥.àà àà° : àà, à¥.ààààà" àà à¥ àà°àà àà; àà¼àà" àà¼ àà àà° àà-àà à¥.àà àà
- Lecture 31 - àààà¥ àà, àà°àà¼ àà²à¥ àà à¥.àà àà° : àà àà"à¥.àà- àà°àà°àà¼àà°àà°à¥.ààà¥ àà-àà; àà àà|à¥.
- Lecture 32 - àà à¥ àà¥àà¼ àà²à¥ àà à¥.àà àà° : àà à¥.àà°à¥ àà, àà à¥.àà°à¥ àà; àà² àà, à¥.àà¥àà°; ààààà°; àà àà° àà
- Lecture 33 - àà°àà¼àà àà àààà¼ àà²à¥ àà à¥.àà àà° : àà à¥.àà°à¥ àà, àà à¥.àà°à¥ àà; àà² àà, à¥.àà¥àà°; ààààà°; àà°
- Lecture 34 - àà àà àà¼ àà²à¥ àà à¥.àà àà° : àà, à¥.àà¥àà°; ààààà°; àà àà° àà àà¹àà°à¥ àà à¥.àà; àà¼àà¼àààà àà à¥
- Lecture 35 - àà°àà¹àà²àà¼ àà²à¥ àà à¥.àà àà°-àà : àà, à¥.ààààà"àà°àà¼àà" àà à¥ àà²àà; àà. àà«à¥.àà àà-à¥ àà²
- Lecture 36 - àà|à¥ àà, àà°àà¼ àà²à¥ àà à¥.àà àà°-àà : àà.àà ààààà°àà« àà²à¥ àà àà àà° àà, à¥.ààààà"àà°àà¼àà
- Lecture 37 - àààà¥ àà, àà°àà¼ àà²à¥ àà à¥.àà àà°-àà : àà, à¥.ààààà"àà°àà¼àà" àà àà¼àà°àà à¥ àà àà àà° àà àà"àà
- Lecture 38 - àà à¥ àà¥àà¼ àà²à¥ àà à¥.àà àà° : àà à¥ ààààà°; àà; - 19 àà à¥ àà|à¥ àà°àà¼àà" àà, à¥.ààààà"àà°àà¼àà
- Lecture 39 - àà°àà¼àà àà àààà¼ àà²à¥ àà à¥.àà àà°-àà : àà¹àà¼àà¥ àà, à¥ àà, à¥.ààààà" àà àà¼ àà|à¥ àà§ àà"àà
- Lecture 40 - àà àà àà¼ àà²à¥ àà à¥.àà àà°-àà : àà, à¥.ààààà"àà°àà¼àà" àà àà°àà¼àààà¥ àà°àà¼àà àà àà à¥ àà
- Lecture 41 - àà°àà¹àà²àà¼ àà²à¥ àà à¥.àà àà°-àà : 6 àà, à¥ 24 àà°àà¹à¥ àà"à¥ àà à¥ ààààà°; ààà¥.àà àà àà àà àà
- Lecture 42 - àà|à¥ àà, àà°àà¼ àà²à¥ àà à¥.àà àà°-àà : ààààà°; ààà¥.àà àà àà¼ àà àà¼àà"àà¼ àà-àà"àà¼àà"à¥ àà àà°
- Lecture 43 - àààà¥ àà, àà°àà¼ àà²à¥ àà à¥.àà àà°-àà : 6 àà°àà¹à¥ àà"à¥ àà à¥ àà-àà à¥.àà à¥ àà àà à¥ àà²àà; àà
- Lecture 44 - àà à¥ àà¥àà¼ àà²à¥ àà à¥.àà àà°-àà : 7 àà°àà¹à¥ àà"à¥ àà à¥ àà-àà à¥.àà à¥ àà àà à¥ àà²àà; àà
- Lecture 45 - àà°àà¼àà àà àààà¼ àà²à¥ àà à¥.àà àà°-àà : 8 àà, à¥ 11 àà°àà¹à¥ àà"à¥ àà à¥ àà-àà à¥.àà à¥ àà
- Lecture 46 - àà°àà¹àà²àà¼ àà²à¥ àà à¥.àà àà° : àà°à¥ àà°àà àà àà¹àà¼àà° àà à¥ àà|à¥ àà°àà¼àà" àà¹à¥ àà"à¥
- Lecture 47 - àà|à¥ àà, àà°àà¼ àà²à¥ àà à¥.àà àà° : 12 àà, à¥ 18 àà°àà¹à¥ àà"à¥ àà à¥ àà-àà à¥.àà à¥ àà àà àà
- Lecture 48 - àààà¥ àà, àà°àà¼ àà²à¥ àà à¥.àà àà° : 19 àà, à¥ 24 àà°àà¹à¥ àà"à¥ àà à¥ àà-àà à¥.àà à¥ àà àà
- Lecture 49 - àà à¥ àà¥àà¼ àà²à¥ àà à¥.àà àà° : àà-àà à¥.àà à¥ àà àà à¥ àà°àà¼àà°à¥.àà àà; àà-à¥ àà àà à¥
- Lecture 50 - àà°àà¹àà²àà¼ àà²à¥ àà à¥.àà àà° : àà àà; àààà¥ àà°à¥ àà à¥ à¥ àà²àà; àà. àààà¼àà àà¼àà¹àà¼àà°à¥
- Lecture 51 - àà|à¥ àà, àà°àà¼ àà²à¥ àà à¥.àà àà° : àà àà°à¥.àà-àààààààà; àà-à¥ àà àà à¥ àà²àà; àà. àà°à¥ àà. à¥
- Lecture 52 - àààà¥ àà, àà°àà¼ àà²à¥ àà à¥.àà àà° : àà, à¥.ààààà"àà°àà¼àà" àà àà°àà¼àà"à¥ àààà¼àà²à¥ àà°àà¼àà
- Lecture 53 - àà°àà¹àà²àà¼ àà²à¥ àà à¥.àà àà° : àà; àà-à¥.àà²à¥.àà-à¥ àà.àà àà àà-àà¹à¥.àà à¥ àà àà|à¥.àà°à¥ àà
- Lecture 54 - àà|à¥ àà, àà°àà¼ àà²à¥ àà à¥.àà àà° : àà°àà¼àà"àà àà, àà¼àà°àà¼àà"à¥.àà- ààààà°; àà àà²àà" | àà; àà-àà
- Lecture 55 - àààà¥ àà, àà°àà¼ àà²à¥ àà à¥.àà àà° : àà; àà-à¥.àà²à¥.àà-à¥ àà.àà àà -àà àà°à¥.àà° àà à¥ àà¹àà; àà, àà
- Lecture 56 - àà à¥ àà¥àà¼ àà²à¥ àà à¥.àà àà° : àà.àà àà¥à¥.àà°à¥ àà°à¥ àà°à¥ àà à¥.àà°àà; àà àà°àà¼àà°
- Lecture 57 - àà°àà¹àà²àà¼ àà²à¥ àà à¥.àà àà° : àà, à¥.ààààà"àà°àà¼àà" àà à¥ àà²àà; àà. à¥°à¥« àà°àà°àà¼àà°àà°
- Lecture 58 - àà|à¥ àà, àà°àà¼ àà²à¥ àà à¥.àà àà° : àà, à¥.ààààà"àà°àà¼àà" àà à¥ àà²àà; àà. à¥°à¥« àà°àà°àà¼àà°àà°
- Lecture 59 - àààà¥ àà, àà°àà¼ àà²à¥ àà à¥.àà àà° : àà°à¥ àà.ààà¥ àà àà¼àà°à¥.àà
- Lecture 60 - àà à¥ àà¥àà¼ àà²à¥ àà à¥.àà àà° : àà²àà°à¥.àà"àà; àà àà àà.àà à¥.àààà" àà°à¥ àà à¥ àà à¥
- Lecture 61 - àà°àà¼àà àà àààà¼ àà²à¥ àà à¥.àà àà° : àà²àà°à¥.àà"àà; àà àà àà.àà à¥.àààà" àà°à¥.àà°à¥ àà à¥
- Lecture 62 - àà àà àà¼ àà²à¥ àà à¥.àà àà° : àà°àà¼àààà¥, ààààà°; ààà¥.àà àà° àà-àà¼àà² àà°à¥ àà.ààà¥ àà à¥ àà

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Enzyme Science and Engineering

Subject Co-ordinator - Prof. Subhash Chand

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Scope to Enzyme Science and Engineering
- Lecture 2 - Characteristic Features of Enzymes
- Lecture 3 - Enzymes as Biocatalysts
- Lecture 4 - Enzymatic Catalysis
- Lecture 5 - Specificity of Enzyme Action
- Lecture 6 - Kinetics of Enzyme Catalyzed Reactions
- Lecture 7 - Kinetics of Enzyme Catalyzed Reactions
- Lecture 8 - Deviation from Hyperbolic Enzyme Kinetics
- Lecture 9 - Role of Effector Molecules in Enzyme Kinetics
- Lecture 10 - Reversible Inhibition
- Lecture 11 - Effect of PH and Temperature on Enzyme
- Lecture 12 - Kinetics of Bi substrate Enzyme
- Lecture 13 - Kinetics of Bi substrate Enzyme
- Lecture 14 - Immobilized Enzymes - I
- Lecture 15 - Immobilized Enzymes - II
- Lecture 16 - Immobilized Enzymes - III
- Lecture 17 - Immobilization of Enzymes by Entrapment
- Lecture 18 - Effect of Immobilization
- Lecture 19 - Reactors for Enzyme Catalyzed Reactions
- Lecture 20 - Idealized Enzyme Reactor Performance
- Lecture 21 - Idealized Enzyme Reactor Performance
- Lecture 22 - Kinetic Parameters for IME Systems
- Lecture 23 - Steady State Analysis of Mass Transfer
- Lecture 24 - Steady State Analysis of Mass Transfer
- Lecture 25 - Non Ideal Flow in Continuous Immobilized Enzyme
- Lecture 26 - Applications of Immobilized Enzymes in Process
- Lecture 27 - Analytical Applications
- Lecture 28 - Enzyme Technology Challenges

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Introduction to Dynamical Models in Biology

Subject Co-ordinator - Prof. Biplab Bose

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Mathematical modeling in Biology
- Lecture 2 - How to Start Modeling
- Lecture 3 - Modeling the spread of infectious disease
- Lecture 4 - Modeling population growth
- Lecture 5 - Numerical solution of ODE-1
- Lecture 6 - Numerical solution of ODE-2
- Lecture 7 - Simulating ODE-based models
- Lecture 8 - Simulating ODE-based models
- Lecture 9 - Steady state and stability analysis
- Lecture 10 - Steady state and stability analysis
- Lecture 11 - Phase Plane Analysis - I
- Lecture 12 - Phase Plane Analysis - II
- Lecture 13 - Concepts of Bifurcation
- Lecture 14 - Concepts of Bifurcation
- Lecture 15 - Modeling Molecular Processes in Cell
- Lecture 16 - Modeling Molecular Processes in Cell
- Lecture 17 - Modeling Molecular Processes in Cell
- Lecture 18 - Modeling Molecular Processes in Cell
- Lecture 19 - Modeling Cell Signaling
- Lecture 20 - Modeling Cell Signaling
- Lecture 21 - Modeling Cell Signaling
- Lecture 22 - Modeling Transcriptional Circuits-1
- Lecture 23 - Modeling Transcriptional Circuits-2
- Lecture 24 - Online Resources for Mathematical Modeling in Biology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Genetic Engineering: Theory and Application

Subject Co-ordinator - Dr. Vishal Trivedi

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Cellular Structure - Part I
- Lecture 2 - Cellular Structure - Part II
- Lecture 3 - Cellular Structure - Part III
- Lecture 4 - Metabolic Reactions in Biological System
- Lecture 5 - Growth Media For Different Expression System
- Lecture 6 - Microbial Growth Kinetics
- Lecture 7 - Isolation of a Gene Fragment - Part I
- Lecture 8 - Isolation of a Gene Fragment - Part II
- Lecture 9 - Isolation of a Gene Fragment - Part III
- Lecture 10 - Polymerase Chain Reaction
- Lecture 11 - Molecular Tools for Cloning
- Lecture 12 - Cloning Vectors - I
- Lecture 13 - Cloning Vectors - II
- Lecture 14 - DNA Delivery In Host - Part I
- Lecture 15 - DNA Delivery In Host - Part II
- Lecture 16 - Screening of Recombinant Clones
- Lecture 17 - Protein Production in Host - Part 1
- Lecture 18 - Protein Production in Host - Part 2
- Lecture 19 - Protein Production in Host - Part 3
- Lecture 20 - Product Recovery from Host Cells
- Lecture 21 - Basics of Chromatography - Part 1
- Lecture 22 - Basics of Chromatography - Part 2
- Lecture 23 - Ion-exchange Chromatography
- Lecture 24 - Hydrophobic Interaction Chromatography
- Lecture 25 - Gel Filtration chromatography - Part 1
- Lecture 26 - Gel Filtration chromatography - Part 2
- Lecture 27 - Affinity Chromatography - Part 1
- Lecture 28 - Affinity Chromatography - Part 2
- Lecture 29 - Affinity Chromatography - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Affinity Chromatography - Part 4
- Lecture 31 - Electrophoresis - Part 1
- Lecture 32 - Electrophoresis - Part 2
- Lecture 33 - Electrophoresis - Part 3
- Lecture 34 - Protein Sequencing
- Lecture 35 - Spectroscopy - Part I
- Lecture 36 - Spectroscopy - Part II
- Lecture 37 - Biotechnology Applications - Part 1
- Lecture 38 - Biotechnology Applications - Part 2
- Lecture 39 - Biotechnology Applications - Part 3
- Lecture 40 - Summary and Conclusions - Part 1
- Lecture 41 - Summary and Conclusions - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Experimental Biotechnology

Subject Co-ordinator - Dr. Vishal Trivedi

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Good Lab Practices - Part 1  
Lecture 2 - Good Lab Practices - Part 2  
Lecture 3 - Operation of Laboratory Instruments - Part 1  
Lecture 4 - Operation of Laboratory Instruments - Part 2  
Lecture 5 - Operation of Laboratory Instruments - Part 3  
Lecture 6 - Solution and Buffer Preparation  
Lecture 7 - Basics of Electrophoresis - Part 1  
Lecture 8 - Basics of Electrophoresis - Part 2  
Lecture 9 - Horizontal Gel Electrophoresis  
Lecture 10 - Different Variants of Gel Electrophoresis  
Lecture 11 - Scientific Questions - Part 1  
Lecture 12 - Scientific Questions - Part 2  
Lecture 13 - Scientific Questions - Part 3  
Lecture 14 - Scientific Questions - Part 4  
Lecture 15 - Basics of Chromatography - Part 1  
Lecture 16 - Basics of Chromatography - Part 2  
Lecture 17 - Ion-Exchange Chromatography - Part 1  
Lecture 18 - Ion-Exchange Chromatography - Part 2  
Lecture 19 - Hydrophobic Interaction Chromatography  
Lecture 20 - Gel Filtration Chromatography - Part 1  
Lecture 21 - Gel Filtration Chromatography - Part 2  
Lecture 22 - Gel Filtration Chromatography - Part 3  
Lecture 23 - Affinity Chromatography - Part 1  
Lecture 24 - Affinity Chromatography - Part 2  
Lecture 25 - Affinity Chromatography - Part 3  
Lecture 26 - Affinity Chromatography - Part 4  
Lecture 27 - Antibody Generation  
Lecture 28 - Antibody-Antigen Interaction - Part 1  
Lecture 29 - Immunoassay

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Antibody-Antigen Interaction - Part 2
- Lecture 31 - Antibody-Antigen Interaction - Part 3
- Lecture 32 - Cell Culture Medium
- Lecture 33 - Cell Fractionation
- Lecture 34 - Microscopy - Part 1
- Lecture 35 - Microscopy - Part 2
- Lecture 36 - Cell Biology Experiments
- Lecture 37 - Flow Cytometry
- Lecture 38 - Polymerase Chain Reaction - Part 1
- Lecture 39 - Polymerase Chain Reaction - Part 2
- Lecture 40 - Polymerase Chain Reaction - Part 3
- Lecture 41 - Polymerase Chain Reaction - Part 4
- Lecture 42 - Sequencing Techniques
- Lecture 43 - Blotting Techniques - Part 1
- Lecture 44 - Blotting Techniques - Part 2
- Lecture 45 - Designing Experiments

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Biointerface Engineering

Subject Co-ordinator - Prof. Lalit M. Pandey

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Intermolecular Forces
- Lecture 2 - Classification of Intermolecular Forces
- Lecture 3 - Thermodynamics Aspects of Intermolecular Forces
- Lecture 4 - Surface Tension and Energy
- Lecture 5 - Wettability
- Lecture 6 - Adhesion and Cohesion
- Lecture 7 - Methods for Surface Tension Measurement
- Lecture 8 - Methods for Contact Angle Measurement
- Lecture 9 - Determination of Surface Tension of Solids
- Lecture 10 - Protein Adsorption
- Lecture 11 - Characterization of Protein Adsorption
- Lecture 12 - Kinetics of Protein Adsorption
- Lecture 13 - Aggregation of Proteins
- Lecture 14 - Kinetics of Protein Aggregation
- Lecture 15 - Effect of Surfaces on the Aggregation of Protein
- Lecture 16 - Host Responses to Biomaterials
- Lecture 17 - Cell Adhesion
- Lecture 18 - Biocompatibility of Biomaterials
- Lecture 19 - Surface Modification
- Lecture 20 - Surface Modification Techniques
- Lecture 21 - Coating of Calcium Phosphates on Ti-6Al-4V
- Lecture 22 - Surface Characterization
- Lecture 23 - Self-Assembled Monolayers
- Lecture 24 - Effect of SAMs on Biointerfacial Interactions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Basics of Biology

Subject Co-ordinator - Prof. Vishal Trivedi

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Living Organisms  
Lecture 2 - Classification of Living Organisms - Part 1  
Lecture 3 - Classification of Living Organisms - Part 2  
Lecture 4 - Classification of Living Organisms - Part 3  
Lecture 5 - Classification of Living Organisms - Part 4  
Lecture 6 - Origin of Life - Part 1  
Lecture 7 - Origin of Life - Part 2  
Lecture 8 - Evolution - Part 1  
Lecture 9 - Evolution - Part 2  
Lecture 10 - Evolution - Part 3  
Lecture 11 - Basics of Cells - Part 1  
Lecture 12 - Basics of Cells - Part 2  
Lecture 13 - Basics of Cells - Part 3  
Lecture 14 - Cell Division and regulation  
Lecture 15 - Nucleic acids  
Lecture 16 - Carbohydrates - Part 1  
Lecture 17 - Carbohydrates - Part 2  
Lecture 18 - Carbohydrates - Part 3  
Lecture 19 - Lipids  
Lecture 20 - Proteins - Part 1  
Lecture 21 - Proteins - Part 2  
Lecture 22 - Proteins - Part 3  
Lecture 23 - Proteins - Part 4  
Lecture 24 - Central Dogma of Life  
Lecture 25 - Replication  
Lecture 26 - Polymerase chain reaction  
Lecture 27 - Transcription - Part 1  
Lecture 28 - Transcription - Part 2  
Lecture 29 - Translation - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Translation - Part 2
- Lecture 31 - Immune system - Part 1
- Lecture 32 - Immune system - Part 2
- Lecture 33 - Phagocytosis
- Lecture 34 - Cell Death and Apoptosis
- Lecture 35 - Vesicular Transport
- Lecture 36 - Digestion - Part 1
- Lecture 37 - Digestion - Part 2
- Lecture 38 - Digestion - Part 3
- Lecture 39 - Circulatory System - Part 1
- Lecture 40 - Circulatory System - Part 2
- Lecture 41 - Muscular System - Part 1
- Lecture 42 - Muscular System - Part 2
- Lecture 43 - Nervous System - Part 1
- Lecture 44 - Nervous System - Part 2
- Lecture 45 - Nervous System - Part 3
- Lecture 46 - Homeostasis - Part 1
- Lecture 47 - Homeostasis - Part 2
- Lecture 48 - Homeostasis - Part 3
- Lecture 49 - Summary and Conclusions - Part 1
- Lecture 50 - Summary and Conclusions - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Data Analysis for Biologists

Subject Co-ordinator - Prof. Biplab Bose

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Rules of probability
- Lecture 2 - Discrete probability distribution
- Lecture 3 - Continuous probability distribution
- Lecture 4 - Moments: mean and variance
- Lecture 5 - Moments: variance and covariance
- Lecture 6 - Bayes theorem and likelihood
- Lecture 7 - Concept of statistical tests
- Lecture 8 - Vector and vector operations
- Lecture 9 - Matrix and matrix operations
- Lecture 10 - Determinant and Inverse of a matrix
- Lecture 11 - Eigenvalue and eigenvector
- Lecture 12 - Linear system of equations
- Lecture 13 - Singular value decomposition
- Lecture 14 - Getting ready with R
- Lecture 15 - Algebraic and logical operations in R
- Lecture 16 - Reading and writing data
- Lecture 17 - Statistics using R - descriptive statistics
- Lecture 18 - Statistics using R - t-test and ANOVA
- Lecture 19 - Linear algebra using R
- Lecture 20 - Scatter plot, Line plot and Bar plot
- Lecture 21 - Histogram and Box plot
- Lecture 22 - Heatmap and Volcano plot
- Lecture 23 - Network visualization
- Lecture 24 - Data visualization using ggplot2 - I
- Lecture 25 - Data visualization using ggplot2 - II
- Lecture 26 - Correlations
- Lecture 27 - Linear regression - I
- Lecture 28 - Linear regression - II
- Lecture 29 - Linear regression using R

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multiple linear regression
- Lecture 31 - Multiple linear regression using R
- Lecture 32 - Nonlinear regression
- Lecture 33 - Nonlinear regression using R
- Lecture 34 - Clustering and classification
- Lecture 35 - Logistic regression
- Lecture 36 - Logistic regression using R
- Lecture 37 - Distance measures for clustering
- Lecture 38 - k-means clustering
- Lecture 39 - k-means clustering using R
- Lecture 40 - Hierarchical clustering
- Lecture 41 - Hierarchical clustering using R
- Lecture 42 - Decision tree classifier
- Lecture 43 - Support vector machines
- Lecture 44 - Higher-dimensional data in biology
- Lecture 45 - Principle component analysis
- Lecture 46 - Principle component analysis using R
- Lecture 47 - t-SNE
- Lecture 48 - t-SNE using R
- Lecture 49 - Diffusion maps



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Genome Editing and Engineering

Subject Co-ordinator - Prof. Utpal Bora

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction: Genes and Genome Organization
- Lecture 2 - History and Basics of Genetic Engineering
- Lecture 3 - Advantages and Limitations of Genetic Engineering
- Lecture 4 - Breakage of Genomic DNA
- Lecture 5 - Repair of Genomic DNA
- Lecture 6 - Homologous and non homologous recombination
- Lecture 7 - Site specific recombination
- Lecture 8 - Targeted genetic modification - I
- Lecture 9 - Targeted genetic modification - II
- Lecture 10 - Basics of Zinc Finger Nucleases
- Lecture 11 - Design of Zinc Finger Nucleases for genome editing
- Lecture 12 - Applications of Zinc Finger Nucleases - Part A
- Lecture 13 - Applications of Zinc Finger Nucleases - Part B
- Lecture 14 - Basics of TALEN - Part A
- Lecture 15 - Basics of TALEN - Part B
- Lecture 16 - Design of TALEN for genome editing - Part A
- Lecture 17 - Design of TALEN for genome editing - Part B
- Lecture 18 - Application of TALEN - Part A
- Lecture 19 - Application of TALEN - Part B
- Lecture 20 - CRISPR system in bacteria - Part A
- Lecture 21 - CRISPR system in bacteria - Part B
- Lecture 22 - CRISPR/Cas9 in Genome Editing - Part A
- Lecture 23 - CRISPR/Cas9 in Genome Editing - Part B
- Lecture 24 - Applications of CRISPR/Cas9 - Part A
- Lecture 25 - Applications of CRISPR/Cas9 - Part B
- Lecture 26 - Computational Resources for CRISPR / Cas - Part A
- Lecture 27 - Computational Resources for CRISPR / Cas - Part B
- Lecture 28 - Human cell engineering in diseases : Thalassemia - Part A
- Lecture 29 - Human cell engineering in diseases : Thalassemia - Part B

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Human cell engineering in diseases : Severe combined immunodeficiency (SCID) - Part A
- Lecture 31 - Human cell engineering in diseases : Severe combined immunodeficiency (SCID) - Part B
- Lecture 32 - Human cell engineering in diseases : Hemophilia - Part A
- Lecture 33 - Human cell engineering in diseases : Hemophilia - Part B
- Lecture 34 - Animal models - Part A
- Lecture 35 - Animal models - Part B
- Lecture 36 - iPSc models - Part A
- Lecture 37 - iPSc models - Part B
- Lecture 38 - Cancer disease models - Part A
- Lecture 39 - Cancer disease models - Part B
- Lecture 40 - Engineered immune cells for Cancer therapy (I) - Part A
- Lecture 41 - Engineered immune cells for Cancer therapy (I) - Part B
- Lecture 42 - Engineered immune cells for Cancer therapy (II) - Part A
- Lecture 43 - Engineered immune cells for Cancer therapy (II) - Part B
- Lecture 44 - History and Basics - Part A
- Lecture 45 - History and Basics - Part B
- Lecture 46 - Genome editing and personalized therapy
- Lecture 47 - Bioethics and Biosafety - Part A
- Lecture 48 - Bioethics and Biosafety - Part B
- Lecture 49 - Regulatory issues in Genome Editing

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Enzyme Sciences and Technology

Subject Co-ordinator - Prof. Vishal Trivedi

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Enzymes
- Lecture 2 - Basics of Enzyme
- Lecture 3 - Enzyme Classification - Part I
- Lecture 4 - Enzyme Classification - Part II
- Lecture 5 - Enzyme Nomenclature
- Lecture 6 - Primary Structure of Enzyme
- Lecture 7 - Determination of Primary Structure
- Lecture 8 - Secondary Structure of Protein
- Lecture 9 - Tertiary Structure of Enzyme - Part I
- Lecture 10 - Tertiary Structure of Enzyme - Part II
- Lecture 11 - Molecular Modelling of Enzyme Structure - Part II
- Lecture 12 - Identification of Enzyme Gene - Part II
- Lecture 13 - Identification of Enzyme Gene - Part II
- Lecture 14 - Polymerase Chain Reaction
- Lecture 15 - Enzymes in Molecular Cloning
- Lecture 16 - Cloning of Enzyme Coding Gene
- Lecture 17 - DNA Delivery in host - Part I
- Lecture 18 - DNA Delivery in host - Part II
- Lecture 19 - Screening of Recombinant Clones
- Lecture 20 - Over-expression of Enzyme in host - Part I
- Lecture 21 - Over-expression of Enzyme in host - Part II
- Lecture 22 - Over-expression of Enzyme in host - Part III
- Lecture 23 - Host Cell Disruption Methods
- Lecture 24 - Basics of Chromatography
- Lecture 25 - Chromatography - Part I
- Lecture 26 - Chromatography - Part II
- Lecture 27 - Chromatography - Part III
- Lecture 28 - Carbohydrate Metabolism
- Lecture 29 - Lipid Metabolism

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Amino acid Metabolism and Detoxification
- Lecture 31 - Enzyme-Substrate Interactions - Part I - Chromatographic Methods
- Lecture 32 - Enzyme-Substrate Interactions - Part II - Spectroscopic Methods
- Lecture 33 - Enzyme-Substrate Interactions - Part III - ITC
- Lecture 34 - Enzyme-Substrate Interactions - Part IV - SPR
- Lecture 35 - Enzyme Assay System - Part I
- Lecture 36 - Enzyme Assay System - Part II
- Lecture 37 - Enzyme Assay System - Part III
- Lecture 38 - Enzyme Kinetics
- Lecture 39 - Inhibitor Designing - Part I - Traditional Approach
- Lecture 40 - Inhibitor Designing - Part II - Modern Approach
- Lecture 41 - Inhibitor Designing - Part III - Computational Approach
- Lecture 42 - Enzyme Inhibition - Part I
- Lecture 43 - Enzyme Inhibition - Part II
- Lecture 44 - Application of Enzyme - Part I - Food Industry
- Lecture 45 - Application of Enzyme - Part II - Medical Field
- Lecture 46 - Enzyme in Drug Discovery
- Lecture 47 - Enzymes in Environmental Field

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Molecular Biology

Subject Co-ordinator - Prof. Vishal Trivedi

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Cellular Structure (Prokaryotic cells)  
Lecture 2 - Cellular Structure (Eukaryotic cells)  
Lecture 3 - Cellular Structure (Eukaryotic cells)  
Lecture 4 - Cell Fractionation - Part 1  
Lecture 5 - Cell Fractionation - Part 2  
Lecture 6 - Cellular Metabolism - Part 1  
Lecture 7 - Cellular Metabolism - Part 2  
Lecture 8 - Cell Cycle and Control - Part 1  
Lecture 9 - Cell Cycle and Control - Part 2  
Lecture 10 - Program Cell Death  
Lecture 11 - Biomolecules - Part 1 : DNA  
Lecture 12 - Biomolecules - Part 2 : DNA Sequencing  
Lecture 13 - Biomolecules - Part 2 : RNA  
Lecture 14 - Amino acids  
Lecture 15 - Protein  
Lecture 16 - Enzymes  
Lecture 17 - Genetic Material - Part 1  
Lecture 18 - Genetic Material - Part 2  
Lecture 19 - Genetic Material - Part 3  
Lecture 20 - Central Dogma of Molecular Biology  
Lecture 21 - Replication - Part 1 : Prokaryotic System  
Lecture 22 - Replication - Part 2 : Prokaryotic System  
Lecture 23 - Replication - Part 2 : Eukaryotic System  
Lecture 24 - Mutagenesis and repair Mechanism  
Lecture 25 - Transcription in Prokaryotic system  
Lecture 26 - Transcription in Eukaryotic System  
Lecture 27 - Post Transcriptional modifications  
Lecture 28 - Gene Control Mechanism - Part 1  
Lecture 29 - Gene Control Mechanism - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Translation in Prokaryotic system
- Lecture 31 - Translation in Eukaryotic System
- Lecture 32 - Post Translational modifications
- Lecture 33 - Southern Blotting
- Lecture 34 - Northern Blotting
- Lecture 35 - Western Blotting - Part 1
- Lecture 36 - Western Blotting - Part 2
- Lecture 37 - Polymerase Chain Reaction - Part 1
- Lecture 38 - Polymerase Chain Reaction - Part 2
- Lecture 39 - Real-Time PCR
- Lecture 40 - Cloning - Part 1
- Lecture 41 - Cloning - Part 2
- Lecture 42 - Cloning Vectors
- Lecture 43 - DNA Delivery - Part 1
- Lecture 44 - DNA Delivery - Part 2
- Lecture 45 - Screening of Recombinant Clones
- Lecture 46 - Protein Over-expression
- Lecture 47 - Genome Editing - Part 1
- Lecture 48 - Genome Editing - Part 2
- Lecture 49 - Applications of Molecular Biology - Part 1
- Lecture 50 - Applications of Molecular Biology - Part 2
- Lecture 51 - Applications of Molecular Biology - Part 3
- Lecture 52 - Applications of Molecular Biology - Part 4

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Animal Physiology

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Animal Physiology  
Lecture 2 - Animal Physiology  
Lecture 3 - Animal Physiology  
Lecture 4 - Animal Physiology  
Lecture 5 - Animal Physiology  
Lecture 6 - Animal Physiology  
Lecture 7 - Animal Physiology  
Lecture 8 - Animal Physiology  
Lecture 9 - Animal Physiology  
Lecture 10 - Animal Physiology  
Lecture 11 - Animal Physiology  
Lecture 12 - Animal Physiology  
Lecture 13 - Animal Physiology  
Lecture 14 - Animal Physiology  
Lecture 15 - Animal Physiology  
Lecture 16 - Animal Physiology  
Lecture 17 - Animal Physiology  
Lecture 18 - Animal Physiology  
Lecture 19 - Animal Physiology  
Lecture 20 - Animal Physiology  
Lecture 21 - Animal Physiology  
Lecture 22 - Animal Physiology  
Lecture 23 - Animal Physiology  
Lecture 24 - Animal Physiology  
Lecture 25 - Animal Physiology  
Lecture 26 - Animal Physiology  
Lecture 27 - Animal Physiology  
Lecture 28 - Animal Physiology  
Lecture 29 - Animal Physiology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Animal Physiology  
Lecture 31 - Animal Physiology  
Lecture 32 - Animal Physiology  
Lecture 33 - Animal Physiology  
Lecture 34 - Animal Physiology  
Lecture 35 - Animal Physiology  
Lecture 36 - Animal Physiology  
Lecture 37 - Animal Physiology  
Lecture 38 - Animal Physiology  
Lecture 39 - Animal Physiology  
Lecture 40 - Animal Physiology



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Bio electricity

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Bio electricity  
Lecture 2 - Bio electricity  
Lecture 3 - Bio electricity  
Lecture 4 - Bio electricity  
Lecture 5 - Bio electricity  
Lecture 6 - Bio electricity  
Lecture 7 - Bio electricity  
Lecture 8 - Bio electricity  
Lecture 9 - Bio electricity  
Lecture 10 - Bio electricity  
Lecture 11 - Bio electricity  
Lecture 12 - Bio electricity  
Lecture 13 - Bio electricity  
Lecture 14 - Bio electricity  
Lecture 15 - Bio electricity  
Lecture 16 - Bio electricity  
Lecture 17 - Bio electricity  
Lecture 18 - Bio electricity  
Lecture 19 - Bio electricity  
Lecture 20 - Bio electricity  
Lecture 21 - Bio electricity  
Lecture 22 - Bio electricity  
Lecture 23 - Bio electricity  
Lecture 24 - Bio electricity  
Lecture 25 - Bio electricity  
Lecture 26 - Bio electricity  
Lecture 27 - Bio electricity  
Lecture 28 - Bio electricity  
Lecture 29 - Bio electricity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Bio electricity  
Lecture 31 - Bio electricity  
Lecture 32 - Bio electricity  
Lecture 33 - Bio electricity  
Lecture 34 - Bio electricity  
Lecture 35 - Bio electricity  
Lecture 36 - Bio electricity  
Lecture 37 - Bio electricity  
Lecture 38 - Bio electricity  
Lecture 39 - Bio electricity  
Lecture 40 - Bio electricity

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Human Molecular Genetics

Subject Co-ordinator - Mr.S. Ganesh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of central dogma, Part 1
- Lecture 2 - Fundamentals of central dogma, Part 2
- Lecture 3 - Fundamentals of central dogma, Part 3
- Lecture 4 - Chromosome Structure and Function
- Lecture 5 - Pedigree Analysis
- Lecture 6 - Complications in Mendelian Pedigree Patterns
- Lecture 7 - DNA Cloning and Hybridization Techniques - Part 1
- Lecture 8 - DNA Cloning and Hybridization Techniques - Part 2
- Lecture 9 - Practice Session 1
- Lecture 10 - Practice Session 2
- Lecture 11 - Mutations and instability of human DNA (Part 1)
- Lecture 12 - Mutations and instability of human DNA (Part 2)
- Lecture 13 - Animal Models for Human Diseases
- Lecture 14 - Positional cloning of genes for monogenic disorders
- Lecture 15 - Human Genome Project and HapMap project

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Functional Genomics

Subject Co-ordinator - S. Ganesh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Functional Genomics

Lecture 2 - The Genomics Era

Lecture 3 - Epigenetics

Lecture 4 - Forward Genetics vs Reverse Genetics

Lecture 5 - Genome Editing Approaches - Part 1

Lecture 6 - Genome Editing Approaches - Part 2

Lecture 7 - Transcriptomics - Part 1

Lecture 8 - Transcriptomics - Part 2

Lecture 9 - Genome Sequence Databases

Lecture 10 - DNA Sequencing Methods - Part 1

Lecture 11 - DNA Sequencing Methods - Part 2

Lecture 12 - Applications of Next-Generation Sequencing (NGS)

Lecture 13 - Tutorial - Session 1

Lecture 14 - Tutorial - Session 2

Lecture 15 - Genomic Insight into Evolution

Lecture 16 - Genome sequence

Lecture 17 - Outcome of Comparative Genomics

Lecture 18 - Laboratory - Session 1

Lecture 19 - Laboratory - Session 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Bioenergy

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Oil Economy of the World

Lecture 3 - Unit of Energy and Introduction of Bioenergy

Lecture 4 - How Biomass Formed on the Earth

Lecture 5 - Road Map of Bioenergy

Lecture 6 - Basic Biomass Technology (Resources and Production)

Lecture 7 - Basics of Mechanism of Light Reaction

Lecture 8 - Exploration of Photosynthesis Process

Lecture 9 - In Photosynthesis Oxygen Comes from Water Molecule

Lecture 10 - Hill Reaction

Lecture 11 - Electron Transport Process in Light Reaction

Lecture 12 - How Carbon dioxide converted in Carbohydrate

Lecture 13 - From Carbon dioxide to two Molecules of 3 - Phospho Glycerate by RUBISCO

Lecture 14 - RUBISCO enzyme

Lecture 15 - Photo respiration and Calvin Cycle

Lecture 16 - Efficiency Calculation of Photosynthesis Process

Lecture 17 - C3 and C4 Plant Structure and Photosynthesis Process

Lecture 18 - Biomass production System and their Categorization

Lecture 19 - Important Parameters for Selecting Biomass Crops

Lecture 20 - Factors Determining the Conversion Process - I

Lecture 21 - Factors Determining the Conversion Process - II

Lecture 22 - Factors Determining the Conversion Process - III

Lecture 23 - Conversion Technology

Lecture 24 - Conversion Process- (Combustion Process)

Lecture 25 - Pyrolysis Process

Lecture 26 - Classification of Pyrolysis

Lecture 27 - Bio Oil - (Solution for Thermal Instability and Corrosivity)

Lecture 28 - Spark Ignition Engine

Lecture 29 - Compression Ignition Engine

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Carbonization - Graphene like material
- Lecture 31 - Introduction of Gasification
- Lecture 32 - Thermo Chemical Process of Gasification
- Lecture 33 - Feed Stock Treatment of Gasification
- Lecture 34 - Feed Stock Property
- Lecture 35 - Gasification Types - Up Drift Gasifier
- Lecture 36 - Down drift and Cross Flow Gasifier
- Lecture 37 - Operation and Performance of Fixed Bed Gasifier
- Lecture 38 - Fluidized Bed Gasification
- Lecture 39 - Operation and Performance of Fluidized Bed Gasifier
- Lecture 40 - Biological Root of Gasification and Summary of Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Animal Physiology

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Introduction to Anatomy and Physiology
- Lecture 2 - Organization of living system
- Lecture 3 - Homeostasis and system integration
- Lecture 4 - Positive feedback loop in homeostasis
- Lecture 5 - Chemical basis of organization of the body
- Lecture 6 - Integumentary System - I
- Lecture 7 - Integumentary system - II
- Lecture 8 - Integumentary System - III
- Lecture 9 - Bone and Cartilage - I
- Lecture 10 - Bone and Cartilage - II
- Lecture 11 - Introduction of muscle
- Lecture 12 - Skeletal muscle formation
- Lecture 13 - Anatomy of skeletal muscle
- Lecture 14 - Contraction in muscle
- Lecture 15 - Function of actin and myosin
- Lecture 16 - Length tension relationship of skeletal muscle
- Lecture 17 - Excitation contraction coupling with nervous system
- Lecture 18 - Stretch reflex phenomena
- Lecture 19 - Nervous system anatomy and signaling
- Lecture 20 - Structure and circuit of neurons
- Lecture 21 - Origin of biological cell
- Lecture 22 - Excitability in cell
- Lecture 23 - Ion transportation in the cell
- Lecture 24 - Signal propagation in neurons
- Lecture 25 - Neurotransmitter and action potential
- Lecture 26 - Spatial temporal summation of signal in mesh neurons
- Lecture 27 - Anatomy of Hippo-campus
- Lecture 28 - Epilepsy and memory
- Lecture 29 - Long term potentiation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Long term depression
- Lecture 31 - Alzheimers disease
- Lecture 32 - Parkinsons disease
- Lecture 33 - Amyotrophic lateral sclerosis
- Lecture 34 - Spinal cord injury
- Lecture 35 - Glial cells
- Lecture 36 - Stretch reflex arc circuit - I
- Lecture 37 - Stretch reflex arc circuit - II
- Lecture 38 - Neuro muscular junction
- Lecture 39 - Hearing system
- Lecture 40 - Olfaction system
- Lecture 41 - Anatomy of eye
- Lecture 42 - Eye lens and cataract
- Lecture 43 - Structure of Retina
- Lecture 44 - Image formation and processing in eyes
- Lecture 45 - Mechanism of photo processing by rods
- Lecture 46 - Structure and Function of Heart - I
- Lecture 47 - Structure and Function of Heart - II
- Lecture 48 - Conduction circuit of heart
- Lecture 49 - Contractile system and Conducting system
- Lecture 50 - EKG and Comparison of action potential between pace make cell and work cell
- Lecture 51 - Respiratory Physiology
- Lecture 52 - Anatomy and physiology of Blood vessels - I
- Lecture 53 - Anatomy and Physiology of Blood vessels - II
- Lecture 54 - Anatomy and physiology of blood vessels - III
- Lecture 55 - Anatomy and physiology of blood vessels - IV
- Lecture 56 - Endocrine system - I
- Lecture 57 - Digestive system and Endocrine system - II
- Lecture 58 - Blood
- Lecture 59 - Kidney and immune system
- Lecture 60 - Reproductive system



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Cell Culture Technologies

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of Cell Culture Technology
- Lecture 2 - Philosophy and complexity in cell culture
- Lecture 3 - To grow the cell outside the body
- Lecture 4 - Cell cycle concept
- Lecture 5 - Dividing cells
- Lecture 6 - Biology of cell culture
- Lecture 7 - Layout(s) and design(s) of cell culture facility
- Lecture 8 - Precautions during designing the lab layout - I
- Lecture 9 - Precautions during designing the lab layout - II
- Lecture 10 - Precautions during designing the lab layout - III
- Lecture 11 - State of the art facility in cell culture lab - I
- Lecture 12 - State of the art facility in cell culture lab - II
- Lecture 13 - Specialized facility in cell culture lab
- Lecture 14 - Interaction of cell and glass/polycarbonate surface - I
- Lecture 15 - Interaction of cell and glass/polycarbonate surface - II
- Lecture 16 - Poly D lysine deposition
- Lecture 17 - Surface chemical analysis
- Lecture 18 - Cell growth process
- Lecture 19 - Cell surface interface
- Lecture 20 - Cell culture substrate patterning
- Lecture 21 - Introduction of define system
- Lecture 22 - Mechanical dissociation of hippocampal tissue
- Lecture 23 - Rules for mechanical dissociation of tissue
- Lecture 24 - Drum molecule testing
- Lecture 25 - Adult hippocampal neuron dissociation
- Lecture 26 - Cell separation and In vitro myelination cell culture mode - I
- Lecture 27 - Cell separation and In vitro myelination cell culture mode - II
- Lecture 28 - Cell separation and In vitro myelination cell culture mode - III
- Lecture 29 - Cell Separation and In vitro myelination cell culture mode - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cell separation and in vitro myelination cell culture mode - V
- Lecture 31 - Fluorescent assisted cell sorting
- Lecture 32 - Condition for regenerated cells
- Lecture 33 - Introduction of skeletal muscle cell culture
- Lecture 34 - Skeletal muscle cell culture
- Lecture 35 - Cardiac muscle cell culture
- Lecture 36 - Advance cell culture modules - I
- Lecture 37 - Advance cell culture modules - II
- Lecture 38 - Advance cell culture modules - III
- Lecture 39 - Advance cell culture modules - IV
- Lecture 40 - Advance cell culture modules - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Forest Biometry

Subject Co-ordinator - Prof. Mainak Das, Dr. Ankur Awadhiya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Recap of formulae
- Lecture 3 - Recap of trigonometry
- Lecture 4 - Measurement of central tendency and dispersion
- Lecture 5 - Graphical presentation of data
- Lecture 6 - Shape of a tree
- Lecture 7 - Metzgers theory
- Lecture 8 - Form factor and form quotients
- Lecture 9 - Taper equations
- Lecture 10 - Making the cuts
- Lecture 11 - Cross-section of a tree
- Lecture 12 - Where to measure the diameter
- Lecture 13 - Callipers - Usages and Issues
- Lecture 14 - Tape
- Lecture 15 - Measurement of bark and growth rings
- Lecture 16 - Tree height
- Lecture 17 - Method of similar triangles
- Lecture 18 - Distance measurements
- Lecture 19 - Angular measurement
- Lecture 20 - LIDAR
- Lecture 21 - Canopy attributes - Part I
- Lecture 22 - Canopy attributes - Part II
- Lecture 23 - Canopy attributes - Part III
- Lecture 24 - Canopy cover and closure
- Lecture 25 - Photogrammetry
- Lecture 26 - Basal area of a tree and stand
- Lecture 27 - Stand basal area, crop diameter and crop age
- Lecture 28 - Point sampling - I
- Lecture 29 - Point sampling - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Number density and sample calculations
- Lecture 31 - Volume
- Lecture 32 - The Quarter - girth formula
- Lecture 33 - Volume computations in the field
- Lecture 34 - Volume Table
- Lecture 35 - Forest Sampling
- Lecture 36 - Density and mass measurement
- Lecture 37 - Normalized difference vegetation Index (NDVI)
- Lecture 38 - Site quality
- Lecture 39 - Recap - I
- Lecture 40 - Recap - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Introduction to Professional and Scientific Communication

Subject Co-ordinator - Mr. S. Ganesh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the topic

Lecture 2 - Where do research ideas come from?

Lecture 3 - Inductive vs Deductive Reasoning

Lecture 4 - Scientific Hypothesis

Lecture 5 - Scientific Hypothesis (Continued...)

Lecture 6 - Testing the Hypothesis

Lecture 7 - Introduction to Scientific Writing

Lecture 8 - Writing an Abstract

Lecture 9 - Title for a Research Paper

Lecture 10 - Title and Keywords

Lecture 11 - Mileposts for the Article Writing

Lecture 12 - Writing the Methods Section

Lecture 13 - Writing the Results Section

Lecture 14 - Writing Results Section (Continued...)

Lecture 15 - How to Prepare Figures

Lecture 16 - How to Prepare Schematics

Lecture 17 - How to write Introduction and Discussion Sections

Lecture 18 - Finalizing the Manuscript and Ethics in Research

Lecture 19 - Writing a Research Proposal and Preparing for a Presentation

Lecture 20 - Tutorial Session

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Bioelectrochemistry

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Concepts - I

Lecture 2 - Basic Concepts - II

Lecture 3 - Key Terms

Lecture 4 - Galvanic Cells - I

Lecture 5 - Galvanic Cells - II

Lecture 6 - Salt Bridge

Lecture 7 - Standard Potentials - I

Lecture 8 - Standard Potentials - II

Lecture 9 - Standard Potentials - III

Lecture 10 - Nernst Equation

Lecture 11 - Relationship between Standard electrode potential ( $E^\circ$ ) and Equilibrium constant (K)

Lecture 12 - Cell as chemical probe and Biochemist's formal potential

Lecture 13 - Concept of Concentration Cell - I

Lecture 14 - Concept of Concentration Cell - II

Lecture 15 - Bio-electrochemistry of excitable cells (nerve cells)

Lecture 16 - Types of electrodes

Lecture 17 - Critical care profile and metal electrode

Lecture 18 - pH measurement

Lecture 19 - Redox indicators amperometry

Lecture 20 - Redox proteins, Metalloproteins and Cyclic Voltammetry

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Bioenergetics of Life Processes

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Bioenergetics of Life Processes
- Lecture 2 - Bioenergetics
- Lecture 3 - Iron-Sulfur world
- Lecture 4 - Evolution of complex cellular membranes
- Lecture 5 - Charge transfer across membrane
- Lecture 6 - Biological order and energy - I
- Lecture 7 - Biological order and energy - II
- Lecture 8 - Biological order and energy - III
- Lecture 9 - Summary of thermodynamical parameters - I
- Lecture 10 - Summary of thermodynamical parameters - II
- Lecture 11 - Photosynthesis - I
- Lecture 12 - Photosynthesis - II
- Lecture 13 - Photosynthesis - III
- Lecture 14 - Photosynthesis - IV
- Lecture 15 - Photosynthesis - V
- Lecture 16 - Photosynthesis - VI
- Lecture 17 - Photosynthesis - VII
- Lecture 18 - Photosynthesis - VIII
- Lecture 19 - ATP Synthesis
- Lecture 20 - Mitochondria and Chemiosmotic hypothesis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:WildLife Conservation

Subject Co-ordinator - Dr. Ankur Awadhiya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Preliminaries
- Lecture 2 - A closer look at Biodiversity
- Lecture 3 - Economics Valuation of Biodiversity
- Lecture 4 - Threats to Biodiversity
- Lecture 5 - Preliminaries
- Lecture 6 - Basics of Sampling
- Lecture 7 - Distance Sampling - I
- Lecture 8 - Distance Sampling - II
- Lecture 9 - Radio-telemetry
- Lecture 10 - Behavioural monitoring
- Lecture 11 - What is a habitat
- Lecture 12 - Habitat degradation, loss, fragmentation and displacement
- Lecture 13 - Reserve selection and design
- Lecture 14 - Habitat management and improvement
- Lecture 15 - Some terminologies
- Lecture 16 - Some common wildlife diseases
- Lecture 17 - Principles of disease management
- Lecture 18 - Preliminaries
- Lecture 19 - Mechanical capture
- Lecture 20 - Chemical capture
- Lecture 21 - Capture myopathy
- Lecture 22 - Care of immobilised animal
- Lecture 23 - Legal aspects of capture and restraint
- Lecture 24 - Other topics in capture and restraint
- Lecture 25 - Preliminaries and introduction to genetics
- Lecture 26 - Population genetics
- Lecture 27 - Chromosomal and genetic disorders, inbreeding
- Lecture 28 - Population viability analysis
- Lecture 29 - Reintroductions and outbreeding

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- Lecture 30 - Fundamentals
- Lecture 31 - Zoos and their management
- Lecture 32 - Botanical gardens
- Lecture 33 - Other aspects
- Lecture 34 - Impacts of climate change
- Lecture 35 - Plastics and biodiversity
- Lecture 36 - Oil spills
- Lecture 37 - Crisis and learnings
- Lecture 38 - Revision - I
- Lecture 39 - Revision - II
- Lecture 40 - Revision - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Nanotechnology in Agriculture

Subject Co-ordinator - Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - What is Nanotechnology
- Lecture 3 - An outline
- Lecture 4 - Agriculture
- Lecture 5 - Modern Agriculture
- Lecture 6 - A Restart
- Lecture 7 - Classifying nanomaterials Based on Shape and Geometry
- Lecture 8 - Classifying Nanomaterials Based on Chemical Nature
- Lecture 9 - Physical Approaches to Nanomaterial Synthesis
- Lecture 10 - Biological and Chemical Approaches to Nanomaterial Synthesis
- Lecture 11 - Detailed Physical Techniques - I
- Lecture 12 - Detailed Physical Techniques - II
- Lecture 13 - Detailed Chemical Techniques
- Lecture 14 - Detailed Biological Techniques
- Lecture 15 - Basic Characterisation Techniques of Nanomaterials
- Lecture 16 - Characterisation techniques for physical and chemical surface properties of a material
- Lecture 17 - Nanomaterials in Agriculture
- Lecture 18 - Iron pyrite and seed pre-treatment
- Lecture 19 - nano-Pyrite and its lab trial with chickpea
- Lecture 20 - nano-Pyrite field trial with spinach and its mechanistic details
- Lecture 21 - Mechanistic details of the action of Pyrite nano-particle
- Lecture 22 - Application of Pyrite nano-particle in different crops
- Lecture 23 - Application of different nano-particles in Agriculture - I
- Lecture 24 - Benefits of nanoparticles in Agriculture
- Lecture 25 - Nanotechnology in animal production
- Lecture 26 - Antioxidant nanomaterial in animal production - I
- Lecture 27 - Antioxidant nanomaterial in animal production - II
- Lecture 28 - Antioxidant nanomaterial in animal production - III
- Lecture 29 - Antioxidant nanomaterial in skeletal muscle development - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Antioxidant nanomaterial in skeletal muscle development - II
- Lecture 31 - Skeletal muscle development and nanomaterial intervention
- Lecture 32 - Fabrication of nano-micro devices to study force generation in muscles
- Lecture 33 - Summarising role of nanomaterials in animal production
- Lecture 34 - Nanomaterials in food processing and preservation - I
- Lecture 35 - Nanomaterials in food processing and preservation - II
- Lecture 36 - Multifunctionality of nanomaterial
- Lecture 37 - Futuristic multifunctional, sustainable and green nanomaterial
- Lecture 38 - Case study of Titanium dioxide - I
- Lecture 39 - Case study of Titanium dioxide - II
- Lecture 40 - The future

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Wild Life Ecology

Subject Co-ordinator - Dr. Ankur Awadhiya, Prof. Mainak Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - A historical overview of Ecology
- Lecture 3 - Ecology and Evolution
- Lecture 4 - The levels of organisation
- Lecture 5 - Species abundance and composition
- Lecture 6 - Biodiversity - II
- Lecture 7 - Positive Interactions
- Lecture 8 - Negative Interactions
- Lecture 9 - Study of Behaviour and Behavioral Ecology
- Lecture 10 - Food chains, Food webs and trophic levels
- Lecture 11 - Primary Production
- Lecture 12 - Nutrient Cycles
- Lecture 13 - Population parameters and demographic techniques
- Lecture 14 - Population growth and regulation
- Lecture 15 - Population studies and applications
- Lecture 16 - Community nature and parameters
- Lecture 17 - Community changes and ecological succession
- Lecture 18 - Community organisation
- Lecture 19 - Biogeography
- Lecture 20 - Why are things where they are?
- Lecture 21 - Some push and pull factors in greater detail
- Lecture 22 - Threats to species
- Lecture 23 - In-situ conservation
- Lecture 24 - Ex-situ conservation
- Lecture 25 - Introduction and impacts
- Lecture 26 - Human population growth and food requirements
- Lecture 27 - Sustainable development
- Lecture 28 - Oil spills
- Lecture 29 - Plastic and biodiversity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Impacts of climate change
- Lecture 31 - Optimum yield problem
- Lecture 32 - Biological control
- Lecture 33 - Ecotoxicology and pollution management, Restoration ecology
- Lecture 34 - Revision
- Lecture 35 - Revision
- Lecture 36 - Revision

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Forests and their Management

Subject Co-ordinator - Dr. Ankur Awadhiya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is a forest ?
- Lecture 2 - Classification of forests
- Lecture 3 - Value of forests
- Lecture 4 - What is Silviculture ?
- Lecture 5 - Plant Growth Factors
- Lecture 6 - Ecological Succession
- Lecture 7 - Soil and Soil Profile
- Lecture 8 - Major Soil Types
- Lecture 9 - Nutrient Cycles
- Lecture 10 - Tree Form
- Lecture 11 - Measurement of Tree attributes - I
- Lecture 12 - Measurement of Tree attributes - II
- Lecture 13 - Classical Tools
- Lecture 14 - Photogrammetry
- Lecture 15 - LiDAR
- Lecture 16 - Kinds of Threats
- Lecture 17 - Forest Fire
- Lecture 18 - Forest Law
- Lecture 19 - Regeneration
- Lecture 20 - Silvicultural Systems
- Lecture 21 - Clear Felling System
- Lecture 22 - Shelterwood System - I
- Lecture 23 - Shelterwood System - II
- Lecture 24 - Selection System and Irregular Shelterwood System
- Lecture 25 - Logging and Processing
- Lecture 26 - Growing Stock and Increment
- Lecture 27 - Yield and Sustained Yield
- Lecture 28 - Seed Collection and Treatment
- Lecture 29 - Nursery Techniques

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- Lecture 30 - Planting and Tending
- Lecture 31 - NTFP
- Lecture 32 - Social Forestry and Tribal Welfare
- Lecture 33 - Conservation of Wild Animals
- Lecture 34 - Revision - Part 1
- Lecture 35 - Revision - Part 2
- Lecture 36 - Revision - Part 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Conservation Economics

Subject Co-ordinator - Dr. Ankur Awadhiya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course, Making Decisions - I
- Lecture 2 - Making Decisions - II and Interactions - I
- Lecture 3 - Intecractions-II and Working of the Economy
- Lecture 4 - Conservation in the Anthropocene
- Lecture 5 - Human population growth and food requirements
- Lecture 6 - Unsustainable development
- Lecture 7 - Climate change
- Lecture 8 - Plastics
- Lecture 9 - Oil spills and mining
- Lecture 10 - Push and pull factors: Localisation of species
- Lecture 11 - Threats to species
- Lecture 12 - Developmental Hazards and Ecotoxicology
- Lecture 13 - Need to understand controls
- Lecture 14 - Thinking as an Economist
- Lecture 15 - Interdependence and gains from trade
- Lecture 16 - Demand and supply
- Lecture 17 - Elasticity
- Lecture 18 - Government policy
- Lecture 19 - Surplus and market efficiency
- Lecture 20 - Market Efficiency and Cost of Taxation
- Lecture 21 - International Trade
- Lecture 22 - Externalities
- Lecture 23 - Public goods and common resources
- Lecture 24 - The design of the tax system
- Lecture 25 - The Costs of Production
- Lecture 26 - Competition
- Lecture 27 - Monopoly
- Lecture 28 - Markets for factors of production
- Lecture 29 - Earnings and discrimination

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- Lecture 30 - Income inequality and poverty
- Lecture 31 - Consumer choice
- Lecture 32 - Asymmetric information, Politics and Behavioural Economics
- Lecture 33 - Valuation of natural resources
- Lecture 34 - Economics of Protected Areas
- Lecture 35 - Economics of Environmental Disasters - 1
- Lecture 36 - Economics of Environmental Disasters - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Conservation Geography

Subject Co-ordinator - Dr. Ankur Awadhiya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The need for conservation
- Lecture 2 - Geography and conservation
- Lecture 3 - Biogeography
- Lecture 4 - Origin and evolution of the earth
- Lecture 5 - Structure of the earth
- Lecture 6 - Features of the earth
- Lecture 7 - Rocks and minerals
- Lecture 8 - Geomorphology and processes
- Lecture 9 - Evolution of landforms
- Lecture 10 - Structure and composition
- Lecture 11 - Atmospheric circulation and weather
- Lecture 12 - Climate and climate change
- Lecture 13 - Structure and composition
- Lecture 14 - Oceans and water movement
- Lecture 15 - Hydrological cycle
- Lecture 16 - Structure and physiography of India
- Lecture 17 - Climate and habitats of India
- Lecture 18 - Drainage systems
- Lecture 19 - Soil
- Lecture 20 - Life on Earth
- Lecture 21 - Biodiversity
- Lecture 22 - Threats to species
- Lecture 23 - Ex-situ and in-situ conservation
- Lecture 24 - Benefits from conservation
- Lecture 25 - Population and population growth - I
- Lecture 26 - Population and population growth - II
- Lecture 27 - Human development and sustainable development
- Lecture 28 - Resources and Conservation
- Lecture 29 - Water Resources

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Mineral and Energy Resources
- Lecture 31 - Economic Geography and Conservation
- Lecture 32 - Trade
- Lecture 33 - Settlements
- Lecture 34 - Special Topics in Geography and Conservation
- Lecture 35 - Disasters
- Lecture 36 - Valuation of Natural Resources

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Neurobiology

Subject Co-ordinator - Prof. Nitin Gupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - L1 Module 1  
Lecture 2 - L1 Module 2  
Lecture 3 - L1 Module 3  
Lecture 4 - L1 Module 4  
Lecture 5 - L1 Module 5  
Lecture 6 - L1 Module 6  
Lecture 7 - L1 Module 7  
Lecture 8 - L1 Module 8  
Lecture 9 - L1 Module 9  
Lecture 10 - L2 Module 1  
Lecture 11 - L2 Module 2  
Lecture 12 - L2 Module 3  
Lecture 13 - L2 Module 4  
Lecture 14 - L2 Module 5  
Lecture 15 - L2 Module 6  
Lecture 16 - L2 Module 7  
Lecture 17 - L2 Module 8  
Lecture 18 - L2 Module 9  
Lecture 19 - L3 Module 1  
Lecture 20 - L3 Module 2  
Lecture 21 - L3 Module 3  
Lecture 22 - L3 Module 4  
Lecture 23 - L3 Module 5  
Lecture 24 - L4 Module 1  
Lecture 25 - L4 Module 2  
Lecture 26 - L4 Module 3  
Lecture 27 - L4 Module 4  
Lecture 28 - L4 Module 5  
Lecture 29 - L5 Module 1

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Lecture 30 - L5 Module 2  
Lecture 31 - L5 Module 3  
Lecture 32 - L5 Module 4  
Lecture 33 - L5 Module 5  
Lecture 34 - L5 Module 6

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - BioChemistry I

Subject Co-ordinator - Prof. S. Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Amino Acids - I
- Lecture 2 - Amino Acids - II
- Lecture 3 - Protein Structure - I
- Lecture 4 - Protein structure - II
- Lecture 5 - Protein Structure - III
- Lecture 6 - Protein Structure - IV
- Lecture 7 - Enzymes - I
- Lecture 8 - Enzymes - II
- Lecture 9 - Enzymes - III
- Lecture 10 - Enzymes Mechanisms - I
- Lecture 11 - Enzymes Mechanisms - II
- Lecture 12 - Myoglobin and Hemoglobin
- Lecture 13 - Lipids and Membranes - I
- Lecture 14 - Lipids and Membranes - II
- Lecture 15 - Membrane Transport
- Lecture 16 - Carbohydrates - I
- Lecture 17 - Carbohydrates - II
- Lecture 18 - Vitamins and Coenzymes - I
- Lecture 19 - Vitamins and Coenzymes - II
- Lecture 20 - Nucleic Acids - I
- Lecture 21 - Nucleic Acids - II
- Lecture 22 - Nucleic Acids - III
- Lecture 23 - Bioenergetics - I
- Lecture 24 - Bioenergetics - II
- Lecture 25 - Metabolism - I
- Lecture 26 - Metabolism - II
- Lecture 27 - Metabolism - III
- Lecture 28 - Overview of the Course

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Industrial Biotechnology

Subject Co-ordinator - Prof. Debabrata Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Industrial Biotechnology

Lecture 2 - Development of industrial strain

Lecture 3 - Medium characteristics and biochemical pathways

Lecture 4 - Chemical reaction kinetics

Lecture 5 - Chemical reaction analysis (Continued...)

Lecture 6 - Different types of reactors

Lecture 7 - Reactor analysis

Lecture 8 - Reactor analysis (Continued...)

Lecture 9 - Stoichiometry of bioprocesses

Lecture 10 - Stoichiometry of bioprocesses (Continued...)

Lecture 11 - Enzymatic reaction Kinetics

Lecture 12 - Enzymatic reaction Kinetics (Continued...)

Lecture 13 - Immobilization techniques

Lecture 14 - Immobilization techniques (Continued...)

Lecture 15 - Life cycle of the microbial cell, Microbial growth kinetics, product formation and substrate degradation

Lecture 16 - Microbial growth kinetics, product formation and substrate degradation (Continued...)

Lecture 17 - Microbial growth kinetics, product formation and substrate degradation (Continued...)

Lecture 18 - Overview of the fermenter

Lecture 19 - Flow diagrams and pumps and valves used in fermentation industries

Lecture 20 - Flow diagrams and pumps and valves used in fermentation industries (Continued...)

Lecture 21 - Upstream processing

Lecture 22 - Upstream processing

Lecture 23 - Upstream processing

Lecture 24 - Downstream processing

Lecture 25 - Downstream processing

Lecture 26 - Downstream processing

Lecture 27 - Ethanol fermentation

Lecture 28 - Ethanol fermentation (Continued...)

Lecture 29 - Brewing industry

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Brewing industry (Continued...)
- Lecture 31 - Wine industry
- Lecture 32 - Vinegar production
- Lecture 33 - Citric acid production
- Lecture 34 - Citric acid production (Continued...)
- Lecture 35 - Citric acid production (Continued...)
- Lecture 36 - Lactic acid production
- Lecture 37 - Lactic acid production (Continued...)
- Lecture 38 - Glutamic acid production
- Lecture 39 - Penicillin production
- Lecture 40 - Penicillin production (Continued...)
- Lecture 41 - Cephalosporin production
- Lecture 42 - Streptomycin production
- Lecture 43 - Baker's yeast fermentation
- Lecture 44 - Baker's yeast fermentation (Continued...)
- Lecture 45 - Fodder yeast production
- Lecture 46 - Spirulina production
- Lecture 47 - Alpha amylase production
- Lecture 48 - High fructose corn syrup production
- Lecture 49 - Metal leaching
- Lecture 50 - Cheese production
- Lecture 51 - Cheese production (Continued...)
- Lecture 52 - Biodiesel production
- Lecture 53 - Butanol production
- Lecture 54 - Biofertilizer
- Lecture 55 - Aerobic effluent treatment process
- Lecture 56 - Aerobic effluent treatment process (Continued...)
- Lecture 57 - Anaerobic effluent treatment process
- Lecture 58 - Anaerobic effluent treatment process
- Lecture 59 - 10 m<sup>3</sup> Pilot Plant operation for Biohydrogen production
- Lecture 60 - Summary and conclusion



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Aspects Of Biochemical Engineering

Subject Co-ordinator - Prof. Debabrata Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Microbiology - I  
Lecture 3 - Microbiology - II  
Lecture 4 - Fundamentals of Biochemistry  
Lecture 5 - Bioproducts and their market values  
Lecture 6 - Stoichiometry of Biochemical Processes - I  
Lecture 7 - Stoichiometry of Biochemical Processes - II  
Lecture 8 - Stoichiometry of Biochemical Processes - III  
Lecture 9 - Reaction Thermodynamics - I  
Lecture 10 - Reaction Thermodynamics - II  
Lecture 11 - Kinetics of homogeneous chemical reactions - I  
Lecture 12 - Kinetics of homogeneous chemical reactions - II  
Lecture 13 - Kinetics of homogeneous chemical reactions - III  
Lecture 14 - Kinetics of homogeneous chemical reactions - IV  
Lecture 15 - Kinetics of homogeneous chemical reactions - V  
Lecture 16 - Different types of reactors  
Lecture 17 - Reactor analysis - I  
Lecture 18 - Reactor analysis - II  
Lecture 19 - Reactor analysis - III  
Lecture 20 - Reactor analysis - IV  
Lecture 21 - Kinetics of enzyme catalyzed reactions using free enzymes - I  
Lecture 22 - Kinetics of enzyme catalyzed reactions using free enzymes - II  
Lecture 23 - Kinetics of enzyme catalyzed reactions using free enzymes - III  
Lecture 24 - Kinetics of enzyme catalyzed reactions using free enzymes - IV  
Lecture 25 - Kinetics of enzyme catalyzed reactions using free enzymes - V  
Lecture 26 - Kinetics of enzyme catalyzed reactions using free enzymes - VI  
Lecture 27 - Immobilization of Enzymes - I  
Lecture 28 - Immobilization of Enzymes - II  
Lecture 29 - Kinetics of enzyme catalyzed reactions using immobilized enzymes - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Kinetics of enzyme catalyzed reactions using immobilized enzymes - II
- Lecture 31 - Kinetics of substrate utilization, product formation and biomass production of microbial cells -
- Lecture 32 - Kinetics of substrate utilization, product formation and biomass production of microbial cells -
- Lecture 33 - Kinetics of substrate utilization, product formation and biomass production of microbial cells -
- Lecture 34 - Kinetics of substrate utilization, product formation and biomass production of microbial cells -
- Lecture 35 - Kinetics of substrate utilization, product formation and biomass production of microbial cells -
- Lecture 36 - Kinetics of substrate utilization, product formation and biomass production of microbial cells -
- Lecture 37 - Kinetics of substrate utilization, product formation and biomass production of microbial cells -
- Lecture 38 - Kinetics of substrate utilization, product formation and biomass production of microbial cells -
- Lecture 39 - Kinetics of substrate utilization, product formation and biomass production of microbial cells -
- Lecture 40 - Kinetics of substrate utilization, product formation and biomass production of microbial cells -
- Lecture 41 - Kinetics of substrate utilization, product formation and biomass production of microbial cells -
- Lecture 42 - Design and analysis of activated sludge process - I
- Lecture 43 - Design and analysis of activated sludge process - II
- Lecture 44 - Design and analysis of anaerobic digestion process
- Lecture 45 - Scale up of Bioreactor - I
- Lecture 46 - Scale up of Bioreactor - II
- Lecture 47 - Transport Phenomenon in Bioprocess - I
- Lecture 48 - Transport Phenomenon in Bioprocess - II
- Lecture 49 - Transport Phenomenon in Bioprocess - III
- Lecture 50 - Transport Phenomenon in Bioprocess - IV
- Lecture 51 - Air sterilization - I
- Lecture 52 - Air sterilization - II
- Lecture 53 - Medium sterilization - I
- Lecture 54 - Medium sterilization - II
- Lecture 55 - Operation of industrial fermenter and material analysis
- Lecture 56 - Process control of the biochemical processes
- Lecture 57 - Downstream processing - I
- Lecture 58 - Downstream processing - II
- Lecture 59 - Economic analysis of the biochemical processes
- Lecture 60 - Summary and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Biomicrofluidics

Subject Co-ordinator - Prof. Tapas Kumar Maiti, Prof. Suman Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Biomicrofluidics
- Lecture 2 - Introduction to Biomicrofluidics (Continued...)
- Lecture 3 - Engineers' guide to the cell
- Lecture 4 - Fluidics in living systems and mechanobiology
- Lecture 5 - Pressure Driven Flows
- Lecture 6 - Surface tension driven flows
- Lecture 7 - Modulating surface tension
- Lecture 8 - Lab on a CD
- Lecture 9 - Introduction to Electrokinetics - Part I
- Lecture 10 - Introduction to Electrokinetics - Part II
- Lecture 11 - Microfluidic cell culture - Part I
- Lecture 12 - Microfluidic cell culture - Part II
- Lecture 13 - On-chip cellular assay techniques - Part I
- Lecture 14 - On-chip cellular assay techniques - Part II
- Lecture 15 - Microfluidics for understanding biology
- Lecture 16 - Organ-on-a-chip
- Lecture 17 - Lab-on-a-chip for genetic analysis
- Lecture 18 - Microfluidic technology for monoclonal antibody production
- Lecture 19 - Microfluidics for Healthcare
- Lecture 20 - Microfluidics for Healthcare

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Immunology

Subject Co-ordinator - Prof. Agneyo Ganguly, Prof. S. K Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Concepts in Immunology
- Lecture 2 - Basic Concepts in Immunology (Continued...)
- Lecture 3 - Basic Concepts in Immunology (Continued...)
- Lecture 4 - Basic Concepts in Immunology (Continued...)
- Lecture 5 - Basic Concepts in Immunology (Continued...)
- Lecture 6 - Innate Immunity
- Lecture 7 - Inflammatory Response
- Lecture 8 - Adaptive Immunity
- Lecture 9 - Adaptive Immunity (Humoral)
- Lecture 10 - Effector Mechanisms
- Lecture 11 - Structure of antibody
- Lecture 12 - Structure of antibody and T-Cell Receptors
- Lecture 13 - Generation of diversity (GOD) of lymphocyte antigen receptors (Continued...)
- Lecture 14 - Generation of diversity (GOD) of lymphocyte antigen receptors (Continued...)
- Lecture 15 - Generation of diversity (GOD) of lymphocyte antigen receptors (Continued...)
- Lecture 16 - Generation of diversity (GOD) of lymphocyte antigen receptors (Continued...)
- Lecture 17 - Structural variation in immunoglobulin constant regions and isotype switching
- Lecture 18 - Structural variation in immunoglobulin constant regions and isotype switching (Continued...)
- Lecture 19 - Antigen recognition by T cell
- Lecture 20 - Antigen recognition by T cell
- Lecture 21 - Antigen Recognition by T cell
- Lecture 22 - Antigen Recognition by T cell
- Lecture 23 - The Generation of  $\hat{I}^{\pm}$
- Lecture 24 - The Generation of  $\hat{I}^{\pm}$
- Lecture 25 - Summary of Immune system
- Lecture 26 - Tools and Techniques
- Lecture 27 - Tools and Techniques (Continued...)
- Lecture 28 - Tools and Techniques (Continued...)
- Lecture 29 - Tools and Techniques (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Flow Cytometry
- Lecture 31 - Development of T Lymphocytes
- Lecture 32 - Development of T Lymphocytes (Continued...)
- Lecture 33 - Development of T Lymphocytes (Continued...)
- Lecture 34 - T Cell Mediated Immunity
- Lecture 35 - T Cell Mediated Immunity (Continued...)
- Lecture 36 - B-Cell Maturation - I
- Lecture 37 - B-Cell Maturation - II
- Lecture 38 - B-Cell Activation
- Lecture 39 - B-Cell Activation and Differentiation
- Lecture 40 - Effector T - Cells
- Lecture 41 - Complement System Overview
- Lecture 42 - Complement System Overview (Continued...)
- Lecture 43 - Complement Biological Consequences
- Lecture 44 - Complement Biological Consequences (Continued...)
- Lecture 45 - Cytokines
- Lecture 46 - Cytokines
- Lecture 47 - Cytokines in Innate and Adaptive Immunity
- Lecture 48 - Interferons
- Lecture 49 - Hypersensitivity
- Lecture 50 - Hypersensitivity (Continued...)
- Lecture 51 - Autoimmunity
- Lecture 52 - Autoimmunity (Continued...)
- Lecture 53 - Autoimmunity (Continued...)
- Lecture 54 - Transplantation or Graft vs. Host Reaction
- Lecture 55 - Transplantation or Graft vs. Host Reaction (Continued...)
- Lecture 56 - Active and Passive Immunity and Vaccination
- Lecture 57 - Active and Passive Immunity and Vaccination (Continued...)
- Lecture 58 - Active and Passive Immunity and Vaccination (Continued...)
- Lecture 59 - Monoclonal Antibody
- Lecture 60 - Monoclonal Antibody (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Metabolic Engineering

Subject Co-ordinator - Prof. Amit Ghosh, Prof. Pinaki Sar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Metabolic Engineering
- Lecture 2 - Essence of Metabolic Engineering - Part A
- Lecture 3 - Essence of Metabolic Engineering - Part B
- Lecture 4 - Essence of Metabolic Engineering - Part C
- Lecture 5 - Essence of Metabolic Engineering - Part D
- Lecture 6 - Review of Cellular Metabolism - Part A
- Lecture 7 - Review of Cellular Metabolism - Part B
- Lecture 8 - Review of Cellular Metabolism - Part C
- Lecture 9 - Review of Cellular Metabolism - Part D
- Lecture 10 - Review of Cellular Metabolism - Part E
- Lecture 11 - Review of Cellular Metabolism - Part F
- Lecture 12 - Introduction to Metabolic Networks
- Lecture 13 - Introduction to Systems Biology
- Lecture 14 - Regulatory Networks
- Lecture 15 - Reconstruction of Metabolic Networks
- Lecture 16 - The Stoichiometric Matrix: Representing Reconstructed Network Mathematically
- Lecture 17 - Flux Balance Analysis (FBA)
- Lecture 18 - Flux Variability Analysis (FVA) and Flux Coupling (FC)
- Lecture 19 - Dynamic Flux Balance Analysis (DFBA) and Gene Deletion Algorithms
- Lecture 20 - Optimization in MATLAB
- Lecture 21 - Robustness Analysis and Phenotypic Phase Planes
- Lecture 22 - Flux Sampling, Optknock and Optstrain
- Lecture 23 - Extreme Pathways and Elementary modes
- Lecture 24 -  $^{13}\text{C}$  Metabolic Flux Analysis ( $^{13}\text{C}$  MFA)
- Lecture 25 -  $^{13}\text{C}$  Metabolic Flux Analysis ( $^{13}\text{C}$  MFA)
- Lecture 26 - Advancement in  $^{13}\text{C}$  Metabolic Flux Analysis
- Lecture 27 - E.coli core metabolic Network Optimization in MATLAB
- Lecture 28 - Application of Metabolic Flux Analysis
- Lecture 29 - CRISPR-Cas system and its application in metabolic engineering - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - CRISPR-Cas system and its application in metabolic engineering - Part II
- Lecture 31 - CRISPR-Cas system and its application in metabolic engineering - Part III
- Lecture 32 - CRISPR-Cas system and its application in metabolic engineering - Part IV
- Lecture 33 - Examples of pathway manipulations by metabolic engineering - Biofuels
- Lecture 34 - Metabolic engineering for biofuel production - Part A
- Lecture 35 - Metabolic engineering for biofuel production - Part B
- Lecture 36 - Metabolic engineering for biofuel production - Part C
- Lecture 37 - Applications of metabolic engineering in amino acids production

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Environmental Chemistry and Microbiology

Subject Co-ordinator - Prof. Sudha Goel, Prof. Anjali Pal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Acids, Bases and Salts - Part I  
Lecture 2 - Acids, Bases and Salts - Part II  
Lecture 3 - Acids, Bases and Salts - Part III  
Lecture 4 - Acids, Bases and Salts - Part IV  
Lecture 5 - Acids, Bases and Salts - Part V  
Lecture 6 - Chemical Equilibrium - I  
Lecture 7 - Chemical Equilibrium - II  
Lecture 8 - Chemical Equilibrium - III  
Lecture 9 - Chemical Equilibrium - IV  
Lecture 10 - Chemical Equilibrium - V  
Lecture 11 - Chemical Kinetics - I  
Lecture 12 - Chemical Kinetics - II  
Lecture 13 - Chemical Kinetics - III  
Lecture 14 - Chemical Kinetics - IV  
Lecture 15 - Chemical Kinetics - V  
Lecture 16 - Chemical Kinetics - Reaction Mechanism - Part A  
Lecture 17 - Chemical Kinetics - Reaction Mechanism - Part B  
Lecture 18 - Chemical Kinetics - Catalysis - Part A  
Lecture 19 - Chemical Kinetics - Catalysis - Part B  
Lecture 20 - Chemical Kinetics - Catalysis - Part C  
Lecture 21 - Nitrogen chemistry - Part A  
Lecture 22 - Nitrogen chemistry - Part B  
Lecture 23 - Chlorine chemistry and disinfection - Part A  
Lecture 24 - Chlorine chemistry and disinfection - Part B  
Lecture 25 - Chlorine chemistry and disinfection - Part C  
Lecture 26 - Radioactivity - Part A  
Lecture 27 - Radioactivity - Part B  
Lecture 28 - Radioactivity - Part C  
Lecture 29 - Radioactivity - Part D

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- Lecture 30 - Radioactivity - Part E
- Lecture 31 - Introduction - I
- Lecture 32 - Introduction - II
- Lecture 33 - Overview of microbial life - I
- Lecture 34 - Overview of microbial life - II
- Lecture 35 - Overview of microbial life - III
- Lecture 36 - Cell chemistry - I
- Lecture 37 - Cell chemistry - II
- Lecture 38 - Cell Biology - I
- Lecture 39 - Cell Biology - II
- Lecture 40 - Cell Biology - III
- Lecture 41 - Cell Biology - IV
- Lecture 42 - Microscopy - I
- Lecture 43 - Microscopy - II
- Lecture 44 - Microbial Metabolism - I
- Lecture 45 - Microbial Metabolism - II
- Lecture 46 - Microbial Metabolism - III
- Lecture 47 - Xenobiotics - I
- Lecture 48 - Xenobiotics - II
- Lecture 49 - Microbial Growth - I
- Lecture 50 - Microbial Growth - II
- Lecture 51 - Microbial Growth - III
- Lecture 52 - Microbial Growth and Control - I
- Lecture 53 - Microbial Growth and Control - II
- Lecture 54 - Pathogens and diseases - I
- Lecture 55 - Pathogens and diseases - II
- Lecture 56 - Metabolic Diversity - I
- Lecture 57 - Metabolic Diversity - II
- Lecture 58 - Metabolic Diversity - III
- Lecture 59 - Metabolic Diversity - IV
- Lecture 60 - Metabolic Diversity - V
- Lecture 61 - Metabolic Diversity - VI
- Lecture 62 - Biogeochemical cycles - I
- Lecture 63 - Biogeochemical cycles - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Environmental Biotechnology

Subject Co-ordinator - Prof. Pinaki Sar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of Environmental Biotechnology, Scope and applications of the subject
- Lecture 2 - Introduction of Environmental Biotechnology, Scope and applications of the subject
- Lecture 3 - Ecosystem : Basic concepts of structure and function
- Lecture 4 - Ecosystem : Basic concepts of structure and function (Continued...)
- Lecture 5 - Microbial Ecology
- Lecture 6 - Microbial Ecology (Continued...)
- Lecture 7 - Microbial Ecosystems and Biogeochemical Cycling
- Lecture 8 - Biogeochemical Cycles
- Lecture 9 - Microbial ecology and environmental biotechnology - Part A
- Lecture 10 - Microbial ecology and environmental biotechnology - Part B
- Lecture 11 - Microbial ecology and environmental biotechnology - Part B (Continued...)
- Lecture 12 - Microbial ecology and environmental biotechnology - Part B (Continued...)
- Lecture 13 - Microbial ecology and environmental biotechnology - Part C
- Lecture 14 - Microbial ecology and environmental biotechnology - Part C (Continued...)
- Lecture 15 - Microbial ecology and environmental biotechnology - Part C (Continued...)
- Lecture 16 - Microbial Ecology and Environmental Biotechnology - Part C (Continued...)
- Lecture 17 - Microbiology of Environmental Engineering System
- Lecture 18 - Microbiology of Environmental Engineering System
- Lecture 19 - Microbiology of Environmental Engineering System
- Lecture 20 - Microbiology of Environmental Engineering System (Continued...)
- Lecture 21 - Physiological Ecology and Resource Exploitation by Microorganisms
- Lecture 22 - Physiological ecology and Resource Exploitation by Microorganisms (Continued...)
- Lecture 23 - Physiological ecology and Resource Exploitation by Microorganisms (Continued...)
- Lecture 24 - Physiological ecology and Resource Exploitation by Microorganisms (Continued...)
- Lecture 25 - Methods in Microbial Ecology with Relevance to Environmental Biotechnology
- Lecture 26 - Methods in Microbial Ecology with Relevance to Environmental Biotechnology (Continued...)
- Lecture 27 - Methods in Microbial Ecology with Relevance to Environmental Biotechnology (Continued...)
- Lecture 28 - Methods in Microbial Ecology with Relevance to Environmental Biotechnology (Continued...)
- Lecture 29 - Methods in Microbial Ecology with Relevance to Environmental Biotechnology (Continued...)

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- Lecture 30 - Methods in Microbial Ecology with Relevance to Environmental Biotechnology (Continued...)
- Lecture 31 - Methods in Microbial Ecology with Relevance to Environmental Biotechnology (Continued...)
- Lecture 32 - Methods in Microbial Ecology with Relevance to Environmental Biotechnology (Continued...)
- Lecture 33 - Methods in Microbial Ecology with Relevance to Environmental Biotechnology (Continued...)
- Lecture 34 - Methods in Microbial Ecology with Relevance to Environmental Biotechnology (Continued...)
- Lecture 35 - Bioremediation
- Lecture 36 - Bioremediation (Continued...)
- Lecture 37 - Bioremediation (Continued...)
- Lecture 38 - Bioremediation (Continued...)
- Lecture 39 - Biodegradation
- Lecture 40 - Biodegradation
- Lecture 41 - Biodegradation (Continued...)
- Lecture 42 - Microbial Interactions with Heavy Metals and Metalloids
- Lecture 43 - Microbial Interactions with Heavy Metals and Metalloids - Bioremediation
- Lecture 44 - Biohydrometallurgy
- Lecture 45 - Enhanced biological phosphorus removal process (EBPR)
- Lecture 46 - Biological nitrogen removal
- Lecture 47 - Microbially Enhanced Oil Recovery (MEOR)
- Lecture 48 - Emerging Pollutants
- Lecture 49 - Carbon capture, Carbon Sequestration and Utilization
- Lecture 50 - Bioenergy and Environmental Biotechnology
- Lecture 51 - Bioremediation case studies
- Lecture 52 - Bioremediation case studies (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Fundamentals of Protein Chemistry

Subject Co-ordinator - Prof. Swagata Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Amino Acids - I  
Lecture 2 - Amino Acids - II  
Lecture 3 - Amino Acids - III  
Lecture 4 - The Peptide Bond  
Lecture 5 - Discussion Class  
Lecture 6 - Primary Structure  
Lecture 7 - Secondary Structure  
Lecture 8 - Tertiary and Quaternary Structure  
Lecture 9 - Protein Interactions  
Lecture 10 - Discussion Class  
Lecture 11 - Protein folding and structure  
Lecture 12 - Thermodynamics of Protein Folding  
Lecture 13 - Protein Structure Methods  
Lecture 14 - Protein Denaturation  
Lecture 15 - Discussion Class  
Lecture 16 - Protein Isolation Methods  
Lecture 17 - Protein Purification  
Lecture 18 - Biophysical Methods - I  
Lecture 19 - Biophysical Methods - II  
Lecture 20 - Biophysical Methods - III  
Lecture 21 - Types of Protein ligand interactions  
Lecture 22 - Kinetics and Thermodynamics of protein-ligand binding  
Lecture 23 - Experimental methods in protein ligand interactions  
Lecture 24 - Protein ligand docking  
Lecture 25 - Discussion class  
Lecture 26 - Enzymes I - Classification  
Lecture 27 - Enzymes - II  
Lecture 28 - Enzyme Mechanisms - I  
Lecture 29 - Enzyme Mechanisms - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Enzyme mechanisms - III
- Lecture 31 - Enzyme Kinetics - I
- Lecture 32 - Enzyme Kinetics - II
- Lecture 33 - Enzyme Inhibition - I
- Lecture 34 - Enzyme Inhibition - II
- Lecture 35 - Discussion class
- Lecture 36 - Motor Proteins - I
- Lecture 37 - Motor Proteins - II
- Lecture 38 - Metalloproteins - I
- Lecture 39 - Metalloproteins - II
- Lecture 40 - Myoglobin and Hemoglobin
- Lecture 41 - Membrane Proteins - I
- Lecture 42 - Membrane proteins - II
- Lecture 43 - Membrane Transport - I
- Lecture 44 - Membrane Transport - II
- Lecture 45 - Electron Transport Chain
- Lecture 46 - Protein Carbohydrate Interactions - I
- Lecture 47 - Protein Carbohydrate Interactions - II
- Lecture 48 - Protein Nucleic Acid Interactions - I
- Lecture 49 - Protein Nucleic Acid Interactions - II
- Lecture 50 - Protein Nucleic Acid Interactions - III
- Lecture 51 - Protein Protein Interactions - I
- Lecture 52 - Protein Protein Interactions - II
- Lecture 53 - Protein Peptide Interactions
- Lecture 54 - Chaperone proteins
- Lecture 55 - Protein Nanoparticle Interactions
- Lecture 56 - Oxidative stress in Proteins
- Lecture 57 - Enzyme action and Proteolytic cleavage
- Lecture 58 - Intrinsically disordered proteins
- Lecture 59 - Viral proteins
- Lecture 60 - Overview of Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Introduction to Biomedical Imaging Systems

Subject Co-ordinator - Dr. Arun K.Tangirala

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - 1  
Lecture 2 - Introduction - 2  
Lecture 3 - Signals and Systems Overview  
Lecture 4 - Important Signals  
Lecture 5 - System  
Lecture 6 - LSI Systems  
Lecture 7 - Image Quality  
Lecture 8 - Local Contrast  
Lecture 9 - Blurring and Noise  
Lecture 10 - Physics of Radiography  
Lecture 11 - Types of Ionizing Radiations  
Lecture 12 - EM Radiation  
Lecture 13 - Attenuation Models  
Lecture 14 - Radiation Dosimetry  
Lecture 15 - PR\_Instrument  
Lecture 16 - PR\_Instru\_CA  
Lecture 17 - PR\_Image\_formation  
Lecture 18 - Imaging Equation\_updated  
Lecture 19 - Film screen\_Optical Density  
Lecture 20 - PR\_Image Quality  
Lecture 21 - CT\_Intsru  
Lecture 22 - CT\_Instru\_finish  
Lecture 23 - CT Back projection  
Lecture 24 - CT\_BP\_finish  
Lecture 25 - Fan beam\_IQ  
Lecture 26 - CT\_IQ\_Artifact  
Lecture 27 - Nuclear Med\_Phys  
Lecture 28 - Nuclear\_Med\_Radiotracers  
Lecture 29 - Planar\_Scintigraphy\_Instru

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Planar\_Scintigraphy\_Im and IQ
- Lecture 31 - Spect\_Pet
- Lecture 32 - Ultrasound\_Intro\_Phys
- Lecture 33 - Ultrasound\_Phys\_Interactions
- Lecture 34 - US doppler and Instrumentation
- Lecture 35 - US\_Beampattern
- Lecture 36 - Approximations
- Lecture 37 - US\_Imaging Equation\_modes
- Lecture 38 - Parameters of interest
- Lecture 39 - Beam Steering : Phased Array
- Lecture 40 - MRI\_Intro\_S1-S9
- Lecture 41 - MRI\_Phys\_S10-S16
- Lecture 42 - MRI\_Phys\_S17-S20
- Lecture 43 - MRI\_Phys\_S21-S28
- Lecture 44 - MRI\_Phys\_S29-S39
- Lecture 45 - MRI\_Phys\_S40-S44
- Lecture 46 - MRI\_Phys\_S45\_S52
- Lecture 47 - MRI\_Instru\_S1\_S16
- Lecture 48 - MRI\_Instru\_s17\_s26
- Lecture 49 - MRI\_slice sel\_S27\_S41
- Lecture 50 - MRI\_Freq\_Encode\_S42\_S60
- Lecture 51 - MRI\_DAQ\_S61\_S69
- Lecture 52 - MRI\_RECON\_S70\_S82
- Lecture 53 - MRI\_IQ\_S83\_S96

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Next Generation Sequencing Technologies: Data Analysis and Application

Subject Co-ordinator - Prof. Riddhiman Dhar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Next Generation Sequencing Technologies - 454 Sequencing  
Lecture 3 - Illumina Sequencing By Synthesis (SBS)  
Lecture 4 - Single Molecule Real Time (SMRT) Sequencing  
Lecture 5 - Ion Torrent and Nanopore Sequencing  
Lecture 6 - Sequencing Coverage, Quality Score and Experiment Design  
Lecture 7 - Data Formats  
Lecture 8 - Data Formats (Continued...)  
Lecture 9 - Data Quality  
Lecture 10 - Data QC and Trimming  
Lecture 11 - Hands-on: Setting up the system  
Lecture 12 - Basic Shell Commands  
Lecture 13 - Data Download and Exploration  
Lecture 14 - Hands-on 1 - Data exploration and QC  
Lecture 15 - Hands-on 1 - Data QC and Trimming  
Lecture 16 - Read Mapping  
Lecture 17 - Mapping Algorithms  
Lecture 18 - Suffix tree-based mapping algorithm  
Lecture 19 - Burrows-Wheeler Transform (BWT)  
Lecture 20 - Read Mapping with BWT  
Lecture 21 - Bowtie2 tool  
Lecture 22 - Mapping reads with Bowtie2  
Lecture 23 - Bowtie2 output  
Lecture 24 - SAM and BAM format  
Lecture 25 - SAM format: Alignment section  
Lecture 26 - Variant Calling  
Lecture 27 - Calling SNP/SNVs and Indels  
Lecture 28 - Hands-on analysis : Variant Calling  
Lecture 29 - VCF Files

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- Lecture 30 - Variant Annotation
- Lecture 31 - Analysis of CNVs and SVs
- Lecture 32 - Introduction to RNA sequencing
- Lecture 33 - RNA-seq data processing pipeline
- Lecture 34 - Transcriptome Assembly and Quantification
- Lecture 35 - Transcript Abundance Quantification
- Lecture 36 - Biases in RNA-seq experiments
- Lecture 37 - Data Normalization Methods
- Lecture 38 - Data Normalization Methods (Continued...)
- Lecture 39 - Differential Gene Expression (DGE) Analysis
- Lecture 40 - DGE analysis results and visualizations
- Lecture 41 - Multiple hypothesis testing correction
- Lecture 42 - FDR correction and interpretation of DGE analysis results
- Lecture 43 - Functional Enrichment Analysis
- Lecture 44 - RNA-seq data analysis - Hands-on 2
- Lecture 45 - Hands-on 2: Setting up the system
- Lecture 46 - Hands-on 2: Preliminary Data Analysis
- Lecture 47 - Sample Specific Bias Correction
- Lecture 48 - Differential Gene Expression Analysis I
- Lecture 49 - DGE Analysis with spike-ins
- Lecture 50 - DGE Analysis Results and Functional Enrichment Analysis
- Lecture 51 - Genome Assembly
- Lecture 52 - Shortest Common Superstring (SCS) assembly
- Lecture 53 - Overlap-Layout-Consensus (OLC) approach
- Lecture 54 - de Bruijn Graph (DBG) based assembly
- Lecture 55 - Assembly and Quality Control
- Lecture 56 - Applications of NGS in Epigenomics
- Lecture 57 - Detecting DNA Methylations
- Lecture 58 - Genome-wide Transcription Factor(TF) Binding Sites
- Lecture 59 - Chromatin Accessibility
- Lecture 60 - Genome Organization in 3D

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Computational Neuroscience

Subject Co-ordinator - Prof. Sharba Bahdyopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Neuron Structure
- Lecture 2 - Networks of Neurons and Synapses
- Lecture 3 - Basic Structures in the Brain
- Lecture 4 - Systems of neural processing
- Lecture 5 - Methods of Recording Neural Activity
- Lecture 6 - Membrane Potential and All or None Spike
- Lecture 7 - Patch Clamp Measurements
- Lecture 8 - Ion channels
- Lecture 9 - Current injection: Synapses
- Lecture 10 - Single Neuron Acitivity
- Lecture 11 - Point and compartmental models of neurons
- Lecture 12 - Hodgkin Huxley Equations - I
- Lecture 13 - Hodgkin Huxley Equations - II
- Lecture 14 - Reducing the HHE and Moris-Lecar Equations (MLE)
- Lecture 15 - Properties of MLE
- Lecture 16 - Phase Plane Analysis - I
- Lecture 17 - Phase Plane Analysis - II
- Lecture 18 - Phase Plane Analysis - III
- Lecture 19 - Analysing HHE with Phase Plane Analysis - I
- Lecture 20 - Analysing HHE with Phase Plane Analysis - II
- Lecture 21 - Random variables and random process
- Lecture 22 - Spike train statistics and response measure
- Lecture 23 - Receptive fields and models of receptive fields
- Lecture 24 - Stimulus to Response mapping (Coding) - I
- Lecture 25 - Stimulus to Response mapping (Coding) - II
- Lecture 26 - Stimulus to Response Mapping (Coding) - III
- Lecture 27 - Response to Stimulus Mapping (Decoding)
- Lecture 28 - Basics of Information Theory - I
- Lecture 29 - Basics of Information Theory - II

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- Lecture 30 - Maximally Informative Dimensions
- Lecture 31 - Intro to Discrimination based methods
- Lecture 32 - Kullback Leibler Distance
- Lecture 33 - Measuring Spike Train Distances - I
- Lecture 34 - Measuring Spike Train Distances - II
- Lecture 35 - Signal and Noise Correlations
- Lecture 36 - Statistical Methods in Discrimination
- Lecture 37 - Single Cell Decoding - I: Two Alternative Forced Choice task in Monkeys
- Lecture 38 - Single Cell Decoding - II: Using ROC Curves for discrimination
- Lecture 39 - Single Cell Encoding - I: Operant Conditioning Task in Ferrets
- Lecture 40 - Single Cell Encoding - II: Learning in avoidance and approach methods in Ferrets
- Lecture 41 - Plasticity - Synaptic Transmission and Synaptic Strength
- Lecture 42 - Ways of modification of Synaptic Strength
- Lecture 43 - Type of Plasticity
- Lecture 44 - Short Term Plasticity - I
- Lecture 45 - Short Term Plasticity - II
- Lecture 46 - Long Term Plasticity
- Lecture 47 - Spike Time Dependent Plasticity
- Lecture 48 - Hebbian Plasticity
- Lecture 49 - BCM Rule
- Lecture 50 - Synaptic Normalization
- Lecture 51 - Adaptation
- Lecture 52 - Models of Short Term Plasticity
- Lecture 53 - Attention - I
- Lecture 54 - Attention - II
- Lecture 55 - Developmental Cicuits
- Lecture 56 - Optimal Coding in Visual System
- Lecture 57 - Optimal Coding in Auditory System
- Lecture 58 - Optimal Coding of Deviant Stimuli in Development
- Lecture 59 - Spike Timing Dependent Plasticity - a theoretical Perspective
- Lecture 60 - Important Problems in Neuroscience

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Electrophysiology of Heart

Subject Co-ordinator - Dr. Arijita Banerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Ionic basis of membrane potential

Lecture 2 - Physiology of voltage gated channels

Lecture 3 - Physiology of voltage gated channels

Lecture 4 - Cardiac muscle physiology

Lecture 5 - Action potential of cardiac muscle - 1

Lecture 6 - Action potential of cardiac muscle - 2

Lecture 7 - Conducting system of heart

Lecture 8 - ECG-Physiological basis

Lecture 9 - ECG-Normal, Technical aspects

Lecture 10 - ECG Interpretation

Lecture 11 - Abnormal ECG - 1

Lecture 12 - Abnormal ECG - 2

Lecture 13 - ECG and Myocardial Infarction

Lecture 14 - Heart rate and Blood pressure - Baroreflex pathway

Lecture 15 - ECG and Hypertension

Lecture 16 - Autonomic regulation of heart

Lecture 17 - Heart rate variability (HRV)

Lecture 18 - Heart rate variability-interpretation and clinical uses, Blood pressure variability

Lecture 19 - Autonomic Function Tests - 1

Lecture 20 - Autonomic Function Tests - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Pharmacognosy and Metabolic Engineering

Subject Co-ordinator - Prof. Adinpunya Mitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Pharmacognosy and Medicinal Plants
- Lecture 2 - Plant Specialized Metabolites: Waste Products or Ecochemicals?
- Lecture 3 - Evolution of Specialized Metabolism from Primary Metabolism
- Lecture 4 - Production of specialized metabolites through cell and organ culture
- Lecture 5 - Eliciting specialized metabolism in culture
- Lecture 6 - Analysis of Specialized Metabolites - Tools and Techniques
- Lecture 7 - Metabolic phytochemistry-based approaches for studying plant specialized metabolism
- Lecture 8 - Metabolic engineering strategies in plants
- Lecture 9 - Plant genetic transformation (through natural genetic engineer)
- Lecture 10 - Design of vectors for Agrobacterium-mediated gene transfer; Transformed and co-
- Lecture 11 - Introduction to alkaloids
- Lecture 12 - Biosynthesis of tropane alkaloids
- Lecture 13 - Engineering tropane alkaloid pathways in plants - I
- Lecture 14 - Engineering tropane alkaloid pathways in plants - II : Engineering tropane alkaloid pathway
- Lecture 15 - Isoquinoline alkaloids - Biosynthesis and tissue localization
- Lecture 16 - Isoquinoline alkaloids - Late steps of biosynthetic pathway and tissue localization
- Lecture 17 - Benzyloisoquinoline alkaloids - Induced top1 mutant and natural T mutantEngineering
- Lecture 18 - Benzyloisoquinoline alkaloids - Metabolic pathway engineering
- Lecture 19 - RNAi-mediated replacement of morphine with nornarcotic alkaloid reticuline in opium
- Lecture 20 - Isoquinoline alkaloids - biosynthesis and tissue localization
- Lecture 21 - Indole alkaloids - Early steps of biosynthesis
- Lecture 22 - Indole alkaloids - Metabolic engineering of early steps of indole alkaloid pathway
- Lecture 23 - Indole alkaloids - Environmental factors regulating indole alkaloid biosynthesis
- Lecture 24 - Indole alkaloids - Role of elicitors in modulating alkaloids accumulation
- Lecture 25 - Indole alkaloids - Late steps of indole alkaloid biosynthesis
- Lecture 26 - Indole alkaloids - Regulatory roles of transcription factors in light-induced
- Lecture 27 - Engineering indole alkaloid pathways in Catharanthus roseus hairy root cultures
- Lecture 28 - Missing enzymes of vindoline biosynthetic pathway
- Lecture 29 - Monoterpene indole alkaloid pathway cell and tissue localization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Model for biosynthesis and secretion of monoterpenoid indole alkaloids involving
- Lecture 31 - Metabolic reprogramming of periwinkle plant culture
- Lecture 32 - Engineered yeast brews precursors of anticancer drug vinblastine
- Lecture 33 - Recent discovery of strychnine biosynthetic pathway
- Lecture 34 - Indole alkaloid biosynthesis - a final overview
- Lecture 35 - Recent discovery of colchicine biosynthetic pathway
- Lecture 36 - Biosynthesis of terpenoids - an outline
- Lecture 37 - Diversity of monoterpenoids
- Lecture 38 - Biosynthesis of monoterpenoids
- Lecture 39 - Diversity of sesquiterpenes, diterpenes, triterpenes and polyterpenes
- Lecture 40 - Oleoresins and polyterpenes - an outline
- Lecture 41 - Monoterpenoids as components of floral scent volatiles: Metabolic engineering of
- Lecture 42 - Biosynthesis of carotenoids and carotenoid cleavage products
- Lecture 43 - Metabolic engineering of carotenoid pathway
- Lecture 44 - Metabolic engineering of carotenoid pathway: Golden Rice Story
- Lecture 45 - Menthol story: Biosynthesis and pathway manipulation - I
- Lecture 46 - Menthol story: Biosynthesis and pathway manipulation - II
- Lecture 47 - Artemisinin, hyperforin and taxol - three promising candidates for biotechnological
- Lecture 48 - Phenolics: Origin via shikimate pathway
- Lecture 49 - Phenolics: Phenylpropanoids, benzenoids, coumarins, tannins
- Lecture 50 - Phenolics: Monolignols, lignins and lignans
- Lecture 51 - Phenolics: Metabolic engineering of monolignol pathways
- Lecture 52 - Phenolics: Biosynthesis of lignans and podophyllotoxin; Caffeic acid esters
- Lecture 53 - Phenolics: Flavonoids, Flavones, Isoflavonoids, Proanthocyanidins
- Lecture 54 - Phenolics: Biosynthesis of anthocyanins; Metabolic pathway engineering for enhance
- Lecture 55 - Phenolics: Metabolic engineering of anthocyanin pathways in flowers
- Lecture 56 - Phenolics: Alcohol acetyl transferses and volatile phenolics
- Lecture 57 - Phenolics: Biosynthesis of volatile benzenoids
- Lecture 58 - Phenolics: Biosynthesis of vanillin in plants
- Lecture 59 - Phenolics: Metabolic engineering for vanillin
- Lecture 60 - Phenolics: Biosynthesis of shikonin
- Lecture 61 - Phenolics: Metabolic engineering of shikonin pathway
- Lecture 62 - Molecular Pharming: Transplastomic plants
- Lecture 63 - Molecular Pharming: production of human somatotropin in tobacco

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Downstream Processing

Subject Co-ordinator - Prof. Mukesh Doble

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Mass balance, Heat Balance, flow sheet
- Lecture 3 - Costing
- Lecture 4 - Costing (continued), Physical and chemical principles in Down stream
- Lecture 5 - Problems in Mass balance, flow sheet
- Lecture 6 - Cell Breakage
- Lecture 7 - Cell breakage (Continued...)
- Lecture 8 - Solid Liquid Separation
- Lecture 9 - Solid Liquid Separation (Continued...)
- Lecture 10 - Solid Liquid separation-problems
- Lecture 11 - Pre-treatment and Filters
- Lecture 12 - Adsorption
- Lecture 13 - Adsorption
- Lecture 14 - Adsorption
- Lecture 15 - Adsorption
- Lecture 16 - Liquid-Liquid Extraction
- Lecture 17 - Liquid-Liquid Extraction
- Lecture 18 - Liquid-Liquid Extraction
- Lecture 19 - Liquid liquid extraction
- Lecture 20 - Reversed micellar and aqueous two phase extraction
- Lecture 21 - Membranes
- Lecture 22 - Membranes
- Lecture 23 - Membranes
- Lecture 24 - Membranes
- Lecture 25 - Precipitation
- Lecture 26 - Chromatography
- Lecture 27 - Chromatography
- Lecture 28 - Chromatography
- Lecture 29 - Chromatography

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Chromatography
- Lecture 31 - Chromatography
- Lecture 32 - Chromatography
- Lecture 33 - Crystallisation
- Lecture 34 - Drying
- Lecture 35 - Drying and distillation
- Lecture 36 - Future trends



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Thermodynamics

Subject Co-ordinator - Prof. G.K. Suraishkumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Review

Lecture 2 - Need for Analysis Additional Thermodynamic Functions State and Path Variables

Lecture 3 - Equations for a Closed system Chemical Potential Concept Gibbs-Duhem Equation

Lecture 4 - Maxwell's relations

Lecture 5 - Inter-Relationships between Thermodynamic Variables

Lecture 6 - Some Useful Mathematical Manipulations

Lecture 7 - Thermodynamic Relations for a Closed System with 1 mole of a pure Substances

Lecture 8 - Maximum Work, Lost Work Review of Closed Systems

Lecture 9 - Open Systems

Lecture 10 - Equations of State - Virial Equations

Lecture 11 - Equations of State - Cubic Equations

Lecture 12 - Volume Estimation

Lecture 13 - Volume Estimation (Continued...) Generalized correlations

Lecture 14 - Generalized correlations (Continued...) Residual Properties

Lecture 15 - Residual Properties (Continued...)

Lecture 16 - Generalized Correlations and Residual Properties

Lecture 17 - Fugacity Coefficient Estimation

Lecture 18 - Review of Module 3

Lecture 19 - Learning Aspects Chemical Potential Formulations

Lecture 20 - Lewis and Randall rule partial Molar Properties

Lecture 21 - Partial Molar Property Estimation from Mixing Experiments

Lecture 22 - Partial Molar Property Estimation (Continued...) Excess Property

Lecture 23 - Activity Coefficient from Excess Property

Lecture 24 - Activity Coefficient from Excess Property (Continued...)

Lecture 25 - Activity Coefficient from Excess Property (Continued...) Models for Activity Coefficient in Binary

Lecture 26 - Models for Activity Coefficient in Binary Systems (Continued...)

Lecture 27 - Review of Module 4

Lecture 28 - Criteria for Phase Equilibrium Phase Rule for Non-reacting Biosystems

Lecture 29 - Clausius - Clayperon Equation

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- Lecture 30 - Clausius - Clayperon Equation (Continued...) vapour-Liquid Equilibrium
- Lecture 31 - Vapour-Liquid Equilibrium (Continued...) Estimation of Fugacity coefficient from Equilibrium P-V
- Lecture 32 - Liquid/Liquid and Solid/Liquid Equilibria
- Lecture 33 - Review of Module 5
- Lecture 34 - Criteria for Bio-reaction Equilibria
- Lecture 35 - Phase rule for Reacting Biosystems Equilibrium constants
- Lecture 36 - Effect of Temperature and Pressure on the Equilibrium constants
- Lecture 37 - Reaction in Liquid or Solid Phases
- Lecture 38 - Free energy Changes for some Bioreactions
- Lecture 39 - Electrolytes
- Lecture 40 - Course Review

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Principles of Downstream techniques in Bioprocess

Subject Co-ordinator - Prof. Mukesh Doble

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Mass balance, Heat Balance, Flow sheet
- Lecture 3 - Costing
- Lecture 4 - Cell Breakage
- Lecture 5 - Solid Liquid Separation
- Lecture 6 - Pre-treatment and Filters/centrifuge
- Lecture 7 - Liquid-Liquid Extraction
- Lecture 8 - Liquid-Liquid extraction (Continued...)
- Lecture 9 - Adsorption
- Lecture 10 - Reversed micellar and aqueous two phase extraction
- Lecture 11 - Membranes
- Lecture 12 - Membranes (Continued...)
- Lecture 13 - Product stabilization, Drying, Lyophilisation
- Lecture 14 - Precipitation and crystallization
- Lecture 15 - Electrophoresis / SDS PAGE
- Lecture 16 - Chromatography
- Lecture 17 - Chromatography (Continued...1)
- Lecture 18 - Chromatography (Continued...2)
- Lecture 19 - Chromatography (Continued...3)
- Lecture 20 - Future trends, Other downstream operations/Summary of the course

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Biostatistics and Design of Experiments

Subject Co-ordinator - Prof. Mukesh Doble

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Experimental Design Strategy

Lecture 3 - Data types

Lecture 4 - Poisson Distribution

Lecture 5 - Normal Distribution

Lecture 6 - Standardized Normal Distribution / t-distribution

Lecture 7 - t-distribution/confidence interval

Lecture 8 - Statistical tests

Lecture 9 - t-Test

Lecture 10 - t-Tests

Lecture 11 - t-test

Lecture 12 - F-tests

Lecture 13 - F-tests

Lecture 14 - ANOVA

Lecture 15 - ANOVA

Lecture 16 - Anova

Lecture 17 - Anova

Lecture 18 - Anova

Lecture 19 - Anova

Lecture 20 - Anova

Lecture 21 - Normality test / Odds ratio

Lecture 22 - Chi square distribution

Lecture 23 - Chi square distribution / test

Lecture 24 - Chi square test

Lecture 25 - Chi square test and Weibull Distribution

Lecture 26 - Weibull Distribution

Lecture 27 - Weibull distribution.

Lecture 28 - Non-parametric test

Lecture 29 - Non parametric test/homogeneity of variance / beta distribution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Exponential / hypergeometric distributions
- Lecture 31 - Hypergeometric / Log normal distribution
- Lecture 32 - Design of experiments (DOE) - Introduction
- Lecture 33 - Factorial Design
- Lecture 34 - Full factorial design
- Lecture 35 - Fractional factorial design
- Lecture 36 - Other designs
- Lecture 37 - Second order designs
- Lecture 38 - Second order design
- Lecture 39 - Regression analysis
- Lecture 40 - Control charts

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Bioreactors

Subject Co-ordinator - Prof. G.K. Suraishkumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Sterilization  
Lecture 3 - Solution to PP 1.1  
Lecture 4 - Some important concepts  
Lecture 5 - Enzyme bioreactors, enzyme kinetics  
Lecture 6 - Solution to PP 2.1  
Lecture 7 - Inhibited enzyme kinetics  
Lecture 8 - Solution to PP 2.2  
Lecture 9 - Measurement principles and methods  
Lecture 10 - Batch growth kinetics  
Lecture 11 - Solution to PP 3.1  
Lecture 12 - Bioreactor analysis  
Lecture 13 - Solution to PP 3.2  
Lecture 14 - Bioreactor environment parameters  
Lecture 15 - Bioreactor env. par. (DO)  
Lecture 16 - Solution to PP 4.1  
Lecture 17 - Shear stress, scale-up, scale-down  
Lecture 18 - Cell view  
Lecture 19 - Solution to PP 5.1  
Lecture 20 - Culture status, metabolic flux analysis  
Lecture 21 - Course summary

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Medical Biomaterials

Subject Co-ordinator - Prof. Mukesh Doble

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Biomaterials
- Lecture 2 - Background history
- Lecture 3 - History
- Lecture 4 - Properties - Mechanical and Physico-chemical
- Lecture 5 - Properties - Mechanical and Physico-chemical
- Lecture 6 - Mechanical properties
- Lecture 7 - Mechanical Properties (Continued...)
- Lecture 8 - Resorbability, biodegradation
- Lecture 9 - Resorbability, biodegradation (Continued...)
- Lecture 10 - Biofilm
- Lecture 11 - Biofilm (Continued...)
- Lecture 12 - Biofilm (Continued...)
- Lecture 13 - Biofilm (Continued...)
- Lecture 14 - Material characterization - Analytical instruments
- Lecture 15 - Analytical instruments
- Lecture 16 - Analytical instruments (Continued...)
- Lecture 17 - Analytical instruments (Continued...)
- Lecture 18 - Biological responses, compatibility, cytotoxicity
- Lecture 19 - Proteins, Tissue and blood Response
- Lecture 20 - Cell-biomaterial interaction
- Lecture 21 - Animal trials (in vivo)
- Lecture 22 - Animal trials
- Lecture 23 - Metals-types, classifications, applications
- Lecture 24 - Metals - properties
- Lecture 25 - Metals - properties (Continued...)
- Lecture 26 - Metals - properties (Continued...)
- Lecture 27 - Metals
- Lecture 28 - Polymers-types, classifications, applications
- Lecture 29 - Polymers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Polymers (Continued...)
- Lecture 31 - Polymer blends
- Lecture 32 - Natural biopolymers
- Lecture 33 - Natural biopolymers - (Continued...)
- Lecture 34 - Biopolymers- proteins / hydrogels
- Lecture 35 - Hydrogels
- Lecture 36 - Experiments
- Lecture 37 - surface modification-Demonstration
- Lecture 38 - Ceramics
- Lecture 39 - Cardiovascular and ocular biomaterials
- Lecture 40 - Sterilisation/Device failure



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:BioInformatics - Algorithms and Applications

Subject Co-ordinator - Prof. M. Michael Gromiha

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Concepts and importance of Bioinformatics  
Lecture 2 - Complexities in biological systems  
Lecture 3 - DNA sequence analysis  
Lecture 4 - Sequence based parameters  
Lecture 5 - Database  
Lecture 6 - Database categories  
Lecture 7 - Protein structure and function - I  
Lecture 8 - Protein structure and function - II  
Lecture 9 - Protein sequence databases - I  
Lecture 10 - Protein sequence databases - II  
Lecture 11 - Pairwise alignment - I  
Lecture 12 - Pairwise alignment - II  
Lecture 13 - Uniprot Demo  
Lecture 14 - Sequence alignment - I  
Lecture 15 - Sequence alignment - II  
Lecture 16 - Sequence alignment  
Lecture 17 - Sequence alignment  
Lecture 18 - Conservation score - I  
Lecture 19 - Conservation score - II  
Lecture 20 - Blast Demo  
Lecture 21 - Phylogenetic trees - I  
Lecture 22 - Phylogenetic trees - II  
Lecture 23 - Protein sequence analysis - I  
Lecture 24 - Protein sequence analysis - II  
Lecture 25 - Hydrophobicity profiles  
Lecture 26 - Patterns and PSSM profiles  
Lecture 27 - Construction of Non-redundant datasets - I  
Lecture 28 - Non-redundant datasets - II  
Lecture 29 - Protein secondary structure

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Secondary structure prediction - I
- Lecture 31 - Secondary structure prediction - II
- Lecture 32 - Secondary structure prediction - III
- Lecture 33 - Protein tertiary structure - I
- Lecture 34 - Protein tertiary structure - II
- Lecture 35 - Protein structure analysis - I
- Lecture 36 - Protein structure analysis - II
- Lecture 37 - Protein structure analysis - III
- Lecture 38 - Demo
- Lecture 39 - Protein structure analysis - IV
- Lecture 40 - Protein structure prediction - I
- Lecture 41 - Protein structure prediction - II
- Lecture 42 - Protein stability - I
- Lecture 43 - Protein stability - II
- Lecture 44 - Demo
- Lecture 45 - Stabilizing residues
- Lecture 46 - Thermodynamic database
- Lecture 47 - Stability of proteins upon mutations - I
- Lecture 48 - Stability of proteins upon mutations - II
- Lecture 49 - Demo
- Lecture 50 - Protein folding rate - I
- Lecture 51 - Protein folding rate - II
- Lecture 52 - Protein interactions - I
- Lecture 53 - Protein interactions - II
- Lecture 54 - Computer aided drug design - I
- Lecture 55 - Computer aided drug design - II
- Lecture 56 - Virtual screening - I
- Lecture 57 - Virtual screening - II
- Lecture 58 - QSAR - I
- Lecture 59 - QSAR - II
- Lecture 60 - Demo
- Lecture 61 - awk programming - I
- Lecture 62 - awk programming - II
- Lecture 63 - Development of algorithms - I
- Lecture 64 - Development of algorithms - II
- Lecture 65 - Applications of bioinformatics - I
- Lecture 66 - Applications of bioinformatics - II
- Lecture 67 - Overview - I
- Lecture 68 - Overview - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Demo

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Demystifying the Brain

Subject Co-ordinator - Dr. V Srinivasa Chakravarthy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - The Whole and Its Parts

Lecture 2 - Understanding Brain's Shape - Segment 1 - Brain size and intelligence

Lecture 3 - Understanding Brain's Shape - Segment 2 - Save Wire Principle

Lecture 4 - Understanding Brain's Shape - Segment 3 - Brain Evolution

Lecture 5 - Neurons and Neural Signaling

Lecture 6 - Neural Signalling

Lecture 7 - Networks that Learn - Segment 1

Lecture 8 - Multilayer Perceptrons Applications in Psychology and Neuroscience

Lecture 9 - Organization of the Central Nervous System-Segment 1 - Cortex

Lecture 10 - Organization of the Central Nervous System-Segment 2 - Subcortical Structures

Lecture 11 - Maps in the Brain - Segment 1

Lecture 12 - Maps in the Brain - Segment 2

Lecture 13 - Emotions in the Brain - Segment 1

Lecture 14 - Emotions in the Brain - Segment 2

Lecture 15 - Memories and Holograms - Segment 1

Lecture 16 - Memories and Holograms - Segment 2

Lecture 17 - Consciousness - Segment 1

Lecture 18 - Consciousness - Segment 2

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Computational Systems Biology

Subject Co-ordinator - Prof. Karthik Raman

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction to Modelling  
Lecture 3 - Introduction to Modelling  
Lecture 4 - Fundamentals of Mathematical Modelling  
Lecture 5 - Fundamentals of Mathematical Modelling  
Lecture 6 - Fundamentals of Mathematical Modelling  
Lecture 7 - Some Example Models  
Lecture 8 - Representation of Biological Networks  
Lecture 9 - Lab  
Lecture 10 - Lab  
Lecture 11 - Lab  
Lecture 12 - Lab  
Lecture 13 - Introduction to Networks  
Lecture 14 - Introduction to Networks  
Lecture 15 - Introduction to Network Biology  
Lecture 16 - Introduction to Network Biology  
Lecture 17 - Introduction to Network Biology  
Lecture 18 - Network Biology  
Lecture 19 - Network Models  
Lecture 20 - Network Models  
Lecture 21 - Biological Networks  
Lecture 22 - Network Perturbations  
Lecture 23 - Community Detection  
Lecture 24 - Network Motifs  
Lecture 25 - Lab  
Lecture 26 - Lab  
Lecture 27 - Lab  
Lecture 28 - Network Biology  
Lecture 29 - Lab

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- Lecture 30 - Lab
- Lecture 31 - Reconstruction of Gene Regulatory Networks
- Lecture 32 - Reconstruction of Protein Networks
- Lecture 33 - Reconstruction of Signalling Networks
- Lecture 34 - Reconstruction of Signalling Networks
- Lecture 35 - Introduction to Dynamic Modelling
- Lecture 36 - Introduction to Dynamic Modelling
- Lecture 37 - Introduction to Dynamic Modelling
- Lecture 38 - Lab
- Lecture 39 - Lab
- Lecture 40 - Parameter Estimation
- Lecture 41 - Parameter Estimation
- Lecture 42 - Parameter Estimation
- Lecture 43 - Methods for Parameter Estimation
- Lecture 44 - Direct Search Methods
- Lecture 45 - Genetic Algorithms
- Lecture 46 - Genetic Algorithms
- Lecture 47 - Other Evolutionary Algorithms
- Lecture 48 - PyGMO
- Lecture 49 - Dynamic Modelling Recap
- Lecture 50 - Lab
- Lecture 51 - Guest Lecture
- Lecture 52 - Guest Lecture
- Lecture 53 - Guest Lecture
- Lecture 54 - Guest Lecture
- Lecture 55 - Guest Lecture
- Lecture 56 - Constraint-based Modelling of Metabolic Networks
- Lecture 57 - Flux Balance Analysis
- Lecture 58 - Flux Balance Analysis
- Lecture 59 - Flux Balance Analysis
- Lecture 60 - Other Constraint-Based Approaches
- Lecture 61 - Other Constraint-Based Approaches
- Lecture 62 - Lab
- Lecture 63 - Perturbations to Metabolic Networks
- Lecture 64 - Lab
- Lecture 65 - Understanding FBA
- Lecture 66 - Understanding FBA
- Lecture 67 - Perturbations to Metabolic Networks
- Lecture 68 - Perturbations to Metabolic Networks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Perturbations to Metabolic Networks
- Lecture 70 - Constraint-based Modelling of Metabolic Networks
- Lecture 71 - Lab
- Lecture 72 - Integrating Regulatory Information into Constraint-Based Models
- Lecture 73 - Elementary Modes
- Lecture 74 - Elementary Modes
- Lecture 75 - Constraint-based Modelling of Metabolic Networks
- Lecture 76 - Constraint-based Modelling of Metabolic Networks
- Lecture 77 - Constraint-based Modelling of Metabolic Networks
- Lecture 78 - Lab
- Lecture 79 - Constraint-based Modelling of Metabolic Networks
- Lecture 80 - Constraint-based Modelling of Metabolic Networks
- Lecture 81 - Constraint-based Modelling of Metabolic Networks
- Lecture 82 -  $^{13}\text{C}$ -Metabolic Flux Analysis using Mass Spectrometry
- Lecture 83 -  $^{13}\text{C}$ -Metabolic Flux Analysis using Mass Spectrometry
- Lecture 84 -  $^{13}\text{C}$ -Metabolic Flux Analysis using Mass Spectrometry
- Lecture 85 - Lab
- Lecture 86 - Modelling Gene Regulatory Networks
- Lecture 87 - Modelling Gene Regulatory Networks
- Lecture 88 - Modelling Gene Regulatory Networks
- Lecture 89 - Lab
- Lecture 90 - Lab
- Lecture 91 - Computational Modelling of Host-Pathogen Interactions
- Lecture 92 - Computational Modelling of Host-Pathogen Interactions
- Lecture 93 - Robustness in Biological Systems
- Lecture 94 - Robustness in Biological Systems
- Lecture 95 - Robustness in Biological Systems
- Lecture 96 - Robustness in Biological Systems
- Lecture 97 - Robustness and Evolvability
- Lecture 98 - Robustness and Evolvability
- Lecture 99 - Introduction to Synthetic Biology
- Lecture 100 - Advanced Topics
- Lecture 101 - Advanced Topics
- Lecture 102 - Advanced Topics
- Lecture 103 - Course Recap

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Material and Energy Balances

Subject Co-ordinator - Prof.Vignesh Muthuvijayan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Fundamentals of Engineering Calculations  
Lecture 2 - Process Parameters and Variables  
Lecture 3 - Fundamentals of Material Balances  
Lecture 4 - Material Balance Calculations for Single Units Without Reactions - Part 1  
Lecture 5 - Material Balance Calculations for Single Units Without Reactions - Part 2  
Lecture 6 - Material Balance Calculations for Single Units Without Reactions - Part 3  
Lecture 7 - Material Balance Calculations for Single Units Without Reactions - Part 4  
Lecture 8 - Material Balance Calculations for Multiple Units Without Reactions - Part 1  
Lecture 9 - Material Balance Calculations for Multiple Units Without Reactions - Part 2  
Lecture 10 - Fundamentals of Reactive Processes  
Lecture 11 - Material Balance Calculations For Single Units With A Single Reaction  
Lecture 12 - Material Balance Calculations for Single Units with A Single Reaction (Continued...)  
Lecture 13 - Material Balance Calculations for Single Units with Multiple Reactions - Part 1  
Lecture 14 - Material Balance Calculations for Single Units with Multiple Reactions - Part 2  
Lecture 15 - Material Balance Calculations for Single Units with Multiple Reactions - Part 3  
Lecture 16 - Material Balance Calculations for Multiple Units with Reactions - Part 1  
Lecture 17 - Material Balance Calculations for Multiple Units with Reactions - Part 2  
Lecture 18 - Material Balances on Reactive Processes - Tutorials  
Lecture 19 - Combustion Reactions  
Lecture 20 - Material Balances for Combustion Reactions  
Lecture 21 - Biochemical Reactions  
Lecture 22 - Biochemical Reactions  
Lecture 23 - Recycle Without Reactions  
Lecture 24 - Recycle with Reactions  
Lecture 25 - Recycle  
Lecture 26 - Bypass  
Lecture 27 - Purge  
Lecture 28 - Material Balance  
Lecture 29 - Material Balance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Material Balance
- Lecture 31 - The Unreasonable Effectiveness of Material Balance
- Lecture 32 - Constraint-based modelling
- Lecture 33 - Flux balance analysis - Part 1
- Lecture 34 - Flux balance analysis - Part 2
- Lecture 35 - Energy Balance Terminologies and Concepts
- Lecture 36 - Introduction to Energy Balances - Part 1
- Lecture 37 - Introduction to Energy Balances - Part 2
- Lecture 38 - Introduction to Energy Balances
- Lecture 39 - Mechanical Energy Balances
- Lecture 40 - Mechanical Energy Balances
- Lecture 41 - Energy Balance Objectives and Procedures
- Lecture 42 - Introduction to Nonreactive Processes Without Phase Change
- Lecture 43 - Energy Balances on Single-Phase Nonreactive Processes
- Lecture 44 - Energy Balances on Single-Phase Nonreactive Processes
- Lecture 45 - Fundamentals of Nonreactive Phase Change Processes
- Lecture 46 - Estimating Latent Heats
- Lecture 47 - Energy Balances on Nonreactive Processes With Phase Change
- Lecture 48 - Energy Balances on Nonreactive Processes With Phase Change
- Lecture 49 - Energy Balances on Nonreactive Processes With Phase Change
- Lecture 50 - Psychrometric Charts
- Lecture 51 - Energy Balances Using Psychrometric Charts
- Lecture 52 - Mixing and Solution
- Lecture 53 - Mixing and Solution
- Lecture 54 - Mixing and Solution
- Lecture 55 - Fundamentals for Energy Balances on Reactive Processes - Part 1
- Lecture 56 - Fundamentals for Energy Balances on Reactive Processes - Part 1 and Part 2
- Lecture 57 - Fundamentals for Energy Balances on Reactive Processes - Tutorials
- Lecture 58 - Energy Balances on Reactive Processes - Part 1
- Lecture 59 - Energy Balances on Reactive Processes - Part 2
- Lecture 60 - Energy Balances on Reactive Processes - Part 3
- Lecture 61 - Energy Balances on Reactive Processes - Part 4
- Lecture 62 - Energy Balances on Reactive Processes - Part 5
- Lecture 63 - Energy Balances on Reactive Processes - Part 6
- Lecture 64 - Energy Balances
- Lecture 65 - Energy Balances
- Lecture 66 - Energy Balances
- Lecture 67 - Energy Balances
- Lecture 68 - Unsteady State Material Balances

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Unsteady State Energy Balances

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Computer Aided Drug Design

Subject Co-ordinator - Prof. Mukesh Doble

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Drug Discovery - Issues  
Lecture 3 - Target and Lead Identification  
Lecture 4 - Drug And Data bases  
Lecture 5 - Drug Properties  
Lecture 6 - Drug - Properties / SMILES  
Lecture 7 - Drug Solubility  
Lecture 8 - Drug Solubility / permeability  
Lecture 9 - ADME  
Lecture 10 - Drug - ADME  
Lecture 11 - Drug - ADME  
Lecture 12 - Drug - BBB  
Lecture 13 - Pgp efflux/Drug Likeness  
Lecture 14 - Drug Likeness  
Lecture 15 - Molecular Modelling  
Lecture 16 - Molecular Mechanics / Force Field  
Lecture 17 - Molecular Mechanics / Force Field  
Lecture 18 - Molecular Mechanics / Force Field  
Lecture 19 - Molecular Mechanics / Force Field  
Lecture 20 - ODES and Numerical methods  
Lecture 21 - ODES and Numerical methods  
Lecture 22 - Conformational Search / MD  
Lecture 23 - Quantum Mechanics  
Lecture 24 - Quantum Mechanics  
Lecture 25 - Quantitative Structure Activity Relationship (QSAR)  
Lecture 26 - Quantitative Structure Activity Relationship (QSAR)  
Lecture 27 - Quantitative Structure Activity Relationship (QSAR)  
Lecture 28 - Quantitative Structure Activity Relationship (QSAR)  
Lecture 29 - Quantitative Structure Activity Relationship (QSAR)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quantitative Structure Activity Relationship (QSAR)
- Lecture 31 - 3D QSAR
- Lecture 32 - Pharmacophore modelling
- Lecture 33 - Target based drug design
- Lecture 34 - Target based drug design
- Lecture 35 - Target based drug design
- Lecture 36 - Target based drug design
- Lecture 37 - Docking
- Lecture 38 - Docking
- Lecture 39 - Pharmacokinetics / pharmacodynamics
- Lecture 40 - Pharmacokinetics / pharmacodynamics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Plant Cell Bioprocessing

Subject Co-ordinator - Prof. Smita Srivastava

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to plant cell technology
- Lecture 2 - History of plant cell and tissue culture
- Lecture 3 - Anatomy of plant cells
- Lecture 4 - Plant tissues and functions
- Lecture 5 - Photosynthesis and Photorespiration
- Lecture 6 - In-vitro culture initiation
- Lecture 7 - Nutritional requirements of plant cells
- Lecture 8 - Organogenesis and Regeneration
- Lecture 9 - Somaclonal variation and Micropropagation
- Lecture 10 - Somatic embryogenesis and Protoplast culture
- Lecture 11 - Synthetic seeds, Cryopreservation and Freezing methods
- Lecture 12 - Secondary metabolism in plant cells - Part 1
- Lecture 13 - Secondary metabolism in plant cells - Part 2
- Lecture 14 - Secondary metabolism in plant cells - Part 3
- Lecture 15 - Secondary metabolism in plant cells - Part 4
- Lecture 16 - Optimization strategies - Part 1
- Lecture 17 - Optimization strategies - Part 2
- Lecture 18 - Optimization strategies - Part 3
- Lecture 19 - Optimization strategies - Part 4
- Lecture 20 - Biotransformation in plant cultures
- Lecture 21 - Immobilization of plant cells
- Lecture 22 - Genetic transformations in plant cells - Part 1
- Lecture 23 - Genetic transformations in plant cells - Part 2
- Lecture 24 - Genetic transformations in plant cells - Part 3
- Lecture 25 - Plant Cell Bioreactors - Part 1
- Lecture 26 - Plant Cell Bioreactors - Part 2
- Lecture 27 - Bioreactors for Hairy Root cultures
- Lecture 28 - Case study - Part 1
- Lecture 29 - Case study - Part 2

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Tissue Engineering

Subject Co-ordinator - Prof.Vignesh Muthuvijayan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Tissue Engineering - Part 1  
Lecture 2 - Introduction to Tissue Engineering - Part 2  
Lecture 3 - Introduction to Tissue Engineering - Part 3  
Lecture 4 - Scaffolds  
Lecture 5 - Scaffolds  
Lecture 6 - Scaffolds  
Lecture 7 - Hydrogels - Part 1  
Lecture 8 - Hydrogels - Part 2  
Lecture 9 - Bioceramics  
Lecture 10 - Scaffold fabrication strategies  
Lecture 11 - Self Assembly  
Lecture 12 - 3D Bioprinting  
Lecture 13 - Material Characterization - Part 1  
Lecture 14 - Material Characterization - Part 2  
Lecture 15 - Material Characterization - Part 3  
Lecture 16 - Cell Source  
Lecture 17 - Cell Isolation - Part 1  
Lecture 18 - Cell Isolation - Part 2  
Lecture 19 - Tissue Dynamics  
Lecture 20 - Cell Differentiation  
Lecture 21 - Cell Adhesion  
Lecture 22 - Cell Migration  
Lecture 23 - Signaling and biomolecule delivery in Tissue Engineering  
Lecture 24 - Bioreactors in Tissue Engineering  
Lecture 25 - Challenges in Tissue Engineering  
Lecture 26 - Host integration and immune responses - Part 1  
Lecture 27 - Host integration and immune responses - Part 2  
Lecture 28 - Bioethics of Tissue Engineering - Part 1  
Lecture 29 - Bioethics of Tissue Engineering - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Skin Tissue Engineering - Part 1
- Lecture 31 - Skin Tissue Engineering - Part 2
- Lecture 32 - Bone Tissue Engineering - Part 1
- Lecture 33 - Bone Tissue Engineering - Part 2
- Lecture 34 - Bone Tissue Engineering - Part 3
- Lecture 35 - Vascular Tissue Engineering
- Lecture 36 - Corneal Tissue Engineering - Part 1
- Lecture 37 - Corneal Tissue Engineering - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Thermodynamics for Biological Systems: Classical and Statistical Aspects

Subject Co-ordinator - Prof. G.K. Suraishkumar, Prof. Sanjib Senapati

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and review

Lecture 2 - Review (Continued...)

Lecture 3 - Need for analysis

Lecture 4 - Additional Thermodynamic Functions

Lecture 5 - State and Path Variables

Lecture 6 - Equations for a Closed System

Lecture 7 - Chemical Potential

Lecture 8 - Gibbs Duhem equation

Lecture 9 - Maxwell's relations

Lecture 10 - Inter-relationships between thermodynamic variables (Continued...)

Lecture 11 - Some useful mathematical manipulations

Lecture 12 - Thermodynamic relations for a closed system with 1 mole of pure substance

Lecture 13 - Maximum work

Lecture 14 - Open systems

Lecture 15 - Equations of state - Virial equations

Lecture 16 - Equations of state - Cubic equations

Lecture 17 - Volume estimation

Lecture 18 - Volume estimation (Continued...)

Lecture 19 - Generalized correlations

Lecture 20 - Generalized correlations (Continued...)

Lecture 21 - Residual properties

Lecture 22 - Residual properties (Continued...)

Lecture 23 - Generalized correlations and residual properties

Lecture 24 - Fugacity coefficient estimation

Lecture 25 - Review of module 3

Lecture 26 - Learning aspects

Lecture 27 - Chemical potential formulations

Lecture 28 - Lewis and Randall rule

Lecture 29 - Partial molar properties

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Partial molar property estimation from mixing experiments
- Lecture 31 - Partial molar property estimation (Continued...)
- Lecture 32 - Activity coefficient from excess property
- Lecture 33 - Activity coefficient from excess property (Continued...)
- Lecture 34 - Models for activity coefficient in a binary system
- Lecture 35 - Models for activity coefficient for a binary system (Continued...)
- Lecture 36 - Review of module 4
- Lecture 37 - Criteria for phase equilibrium
- Lecture 38 - Phase rule for non-reacting systems
- Lecture 39 - Clausius Clayperon equation
- Lecture 40 - Clausius Clayperon equation (Continued...)
- Lecture 41 - Vapour liquid equilibrium
- Lecture 42 - Vapour liquid equilibrium (Continued...)
- Lecture 43 - Estimation of fugacity coefficient from P-V-T data at equilibrium
- Lecture 44 - Liquid-liquid and solid-liquid equilibria
- Lecture 45 - Review of module 5
- Lecture 46 - Criteria for bioreaction equilibria
- Lecture 47 - Phase rule for reacting biosystems
- Lecture 48 - Equilibrium constants
- Lecture 49 - Effect of temperature on the equilibrium constants
- Lecture 50 - Reaction in liquid or solid phases
- Lecture 51 - Free energy changes for some bioreactions
- Lecture 52 - Electrolytes
- Lecture 53 - Review of the classical thermodynamics part
- Lecture 54 - Introduction to Statistical thermodynamics
- Lecture 55 - Concepts of macro and microstates
- Lecture 56 - Thermodynamic probability
- Lecture 57 - Boltzmann distribution law
- Lecture 58 - Defining  $\hat{\Omega}^2$  in Boltzmann distribution law
- Lecture 59 - Relationship between partition function and thermodynamic quantities
- Lecture 60 - Partition function of mono atomic gases
- Lecture 61 - Entropy in terms of probability
- Lecture 62 - Gibbs paradox
- Lecture 63 - Thermodynamic probability for distinguishable particles
- Lecture 64 - Thermodynamic probability for indistinguishable particles
- Lecture 65 - Sackur - Tetrode equation
- Lecture 66 - Partition function and Helmholtz and Gibbs free energy
- Lecture 67 - Ensemble approach
- Lecture 68 - Ensemble average, time average, Ergodic hypothesis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Partition function for classical systems
- Lecture 70 - Pair potentials for atomic systems
- Lecture 71 - Potential for molecular systems
- Lecture 72 - Computer code for LJ potential
- Lecture 73 - Introduction to computer simulations
- Lecture 74 - Computer simulations of macromolecules
- Lecture 75 - MD simulation examples
- Lecture 76 - Link between theory and experiments
- Lecture 77 - MD protocol
- Lecture 78 - Computer simulation tricks
- Lecture 79 - Understanding force fields
- Lecture 80 - Idea of Z-matrix
- Lecture 81 - Basics of MD simulations
- Lecture 82 - Integration algorithms
- Lecture 83 - Calculation of Columbic force
- Lecture 84 - Calculation of LJ force
- Lecture 85 - Monte Carlo simulations
- Lecture 86 - Analysis of MD trajectory
- Lecture 87 - Case study (water)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Transport Phenomena in Biological Systems

Subject Co-ordinator - Prof. G.K. Suraishkumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Mass Conservation
- Lecture 3 - Mass Conservation for a Macroscopic System
- Lecture 4 - Mass Conservation for a Microscopic System
- Lecture 5 - Useful Derivatives
- Lecture 6 - Equation of Continuity
- Lecture 7 - Mass Flux
- Lecture 8 - Mass and Molar Fluxes
- Lecture 9 - Shell Balance Approach
- Lecture 10 - Continuity Equation Approach
- Lecture 11 - Steady-state Diffusion
- Lecture 12 - Steady-state Diffusion across Tubular Walls
- Lecture 13 - Steady-state Radial Diffusion
- Lecture 14 - Steady-state Diffusion with Reaction
- Lecture 15 - Unsteady-state Diffusion
- Lecture 16 - Unsteady-state Diffusion (Continued...)
- Lecture 17 - Pseudo Steady State Approximation (Continued...)
- Lecture 18 - Pseudo Steady State Approximation (Continued...)
- Lecture 19 - Review of Mass Flux
- Lecture 20 - Momentum Flux - Introduction
- Lecture 21 - Rheology
- Lecture 22 - Fluid Flow types
- Lecture 23 - Shell Momentum Balances
- Lecture 24 - Shell Momentum Balances (Continued...)
- Lecture 25 - Equation of Motion
- Lecture 26 - Equation of Motion (Continued...)
- Lecture 27 - Application of Equation of Motion to Flow Over an Inclined Plane
- Lecture 28 - Laminar Flow through a Pipe
- Lecture 29 - Laminar Flow through a Pipe (Continued...)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Capillary Flow
- Lecture 31 - Couette Flow
- Lecture 32 - Non-dimensional Analysis
- Lecture 33 - Unsteady State Flow
- Lecture 34 - Unsteady State Flow (Continued...)
- Lecture 35 - Pulsatile Flow
- Lecture 36 - Turbulent Flow
- Lecture 37 - Macroscopic Aspects
- Lecture 38 - Friction Factor for Flow through a Straight Horizontal Pipe
- Lecture 39 - Application of the Engineering Bernoulli Equation to a Piping Network
- Lecture 40 - Stenosis in an Artery
- Lecture 41 - Friction Factor for Relative Motion between a Solid and a Liquid
- Lecture 42 - Friction Factor for Packed Beds
- Lecture 43 - Review of Momentum Flux
- Lecture 44 - Review of Momentum Flux (Continued...)
- Lecture 45 - Thermal Energy Flux
- Lecture 46 - Equation of Energy
- Lecture 47 - Temperature Profile in a Tissue
- Lecture 48 - Unsteady-state Heat Conduction
- Lecture 49 - Review of Heat Flux
- Lecture 50 - Charge Flux
- Lecture 51 - Charge Flux - Some Fundamentals
- Lecture 52 - Charge Flux - Some More Fundamentals
- Lecture 53 - Getting Useful Relationships through Maxwell's Equations
- Lecture 54 - Charges/Ions in Solution
- Lecture 55 - Charge Flux
- Lecture 56 - Fluxes Under Simultaneous, Multiple Driving Forces
- Lecture 57 - Simultaneous Concentration Gradient and Electrical Potential Gradient
- Lecture 58 - Mobility of Ions Across a Membrane
- Lecture 59 - Electrical Circuit Representation of a Membrane
- Lecture 60 - Action Potential and Axial Current
- Lecture 61 - Electrophoresis
- Lecture 62 - Simultaneous Concentration Gradient and Velocity Gradient
- Lecture 63 - Simultaneous Concentration Gradient and Velocity Gradient - Bioreactor  $K_L a$
- Lecture 64 - Gas-Liquid Interphase Transport
- Lecture 65 - Gas-Liquid Interphase Transport (Continued...)
- Lecture 66 - Bioreactor  $K_L a$  Estimation
- Lecture 67 - Liquid Phase Oxygen-Supply Strategy
- Lecture 68 - LPOS and Its Mechanism

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - LPOS for Mold Cultivations
- Lecture 70 - LPOS Optimization and Costs
- Lecture 71 - Couette Flow Cultivations
- Lecture 72 - Pseudo-Steady State Approximation Applied to Bio-oil Production
- Lecture 73 - Pseudo-Steady State Approximation Applied to Cancer Treatment
- Lecture 74 - Kinetics of a Process with an Enzyme Immobilized on a Non-porous Slab
- Lecture 75 - Simultaneous Temperature Gradient and Velocity Gradient
- Lecture 76 - Design of Heat Exchangers
- Lecture 77 - Design of Heat Exchangers (Continued...)
- Lecture 78 - Course Review - Part 1
- Lecture 79 - Course Review - Part 2
- Lecture 80 - Course Review - Part 3
- Lecture 81 - Course Review - Part 4

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Introduction to Developmental Biology

Subject Co-ordinator - Prof. Subramaniam K

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Life cycles and evolution of developmental patterns
- Lecture 3 - Experimental embryology
- Lecture 4 - Differential gene expression - Part 1
- Lecture 5 - Differential gene expression - Part 2
- Lecture 6 - Differential gene expression - Part 3
- Lecture 7 - Differential gene expression - Part 4
- Lecture 8 - Genetic basis - Part 1
- Lecture 9 - Genetic basis - Part 2
- Lecture 10 - Genetic basis - Part 3
- Lecture 11 - Genetic basis - Part 4
- Lecture 12 - Genetic basis - Part 5
- Lecture 13 - Cell-cell communication - Part 1
- Lecture 14 - Cell-cell communication - Part 2
- Lecture 15 - Cell-cell communication - Part 3
- Lecture 16 - Cell-cell communication - Part 4
- Lecture 17 - Genetics of axis formation in Drosophila - Part 1
- Lecture 18 - Genetics of axis formation in Drosophila - Part 2
- Lecture 19 - Genetics of axis formation in Drosophila - Part 3
- Lecture 20 - Genetics of axis formation in Drosophila - Part 4
- Lecture 21 - Plant Development - Part 1
- Lecture 22 - Plant Development - Part 2
- Lecture 23 - Plant Development - Part 3
- Lecture 24 - Early Mammalian Development - Part 1
- Lecture 25 - Early Mammalian Development - Part 2
- Lecture 26 - Evolutionary Developmental Biology - Part 1
- Lecture 27 - Evolutionary Developmental Biology - Part 2
- Lecture 28 - Evolutionary Developmental Biology - Part 3

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Bioreactor Design and Analysis

Subject Co-ordinator - Prof. Smita Srivastava

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the course - Part 1  
Lecture 2 - Introduction to the course - Part 2  
Lecture 3 - Design of Batch Bioreactors - Part 1  
Lecture 4 - Design of Batch Bioreactors - Part 2  
Lecture 5 - Design of Batch Bioreactors - Part 3  
Lecture 6 - Design of Batch Bioreactors - Part 4  
Lecture 7 - Design of Batch Bioreactors - Practice problems  
Lecture 8 - Design of Fed Batch bioreactors - Part 1  
Lecture 9 - Design of Fed Batch bioreactors - Part 2  
Lecture 10 - Design of Fed Batch bioreactors - Practice problems - Part 1  
Lecture 11 - Design of Fed Batch bioreactors - Practice Problems - Part 2  
Lecture 12 - Design of Fed Batch bioreactors - Practice Problems - Part 3  
Lecture 13 - Design of Continuous Bioreactors - Part 1  
Lecture 14 - Design of Continuous Bioreactors - Part 2  
Lecture 15 - Design of Continuous Bioreactors - Part 3  
Lecture 16 - Design of Continuous bioreactors - Practice Problems - Part 1  
Lecture 17 - Design of Continuous bioreactors - Practice Problems - Part 1  
Lecture 18 - Design of Continuous bioreactors - Practice Problems - Part 2  
Lecture 19 - Mass Transfer in Bioreactors - Part 1  
Lecture 20 - Mass Transfer in Bioreactors - Part 2  
Lecture 21 - Mass Transfer in Bioreactors - Part 3  
Lecture 22 - Rheology of fluids  
Lecture 23 - Mass Transfer in Bioreactors - Practice Problems  
Lecture 24 - Heterogeneous reactions in Bioreactors - Part 1  
Lecture 25 - Heterogeneous reactions in Bioreactors - Part 2  
Lecture 26 - Heterogeneous reactions in Bioreactors - Part 3  
Lecture 27 - Heterogeneous reactions in Bioreactors - Practice Problems  
Lecture 28 - Heat Transfer Operations in Bioreactors - Part 1  
Lecture 29 - Heat Transfer Operations in Bioreactors - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heat Transfer Operations in Bioreactors - Part 3
- Lecture 31 - Heat Transfer Operations in Bioreactors - Part 4
- Lecture 32 - Heat Transfer Operations in Bioreactors - Practice Problems
- Lecture 33 - Scale up of Bioreactors - Part 1
- Lecture 34 - Scale up of Bioreactors - Part 2
- Lecture 35 - Scale up of Bioreactors - Part 3
- Lecture 36 - Scale up of Bioreactors - Part 4
- Lecture 37 - Scale up of Bioreactors - Practice Problems
- Lecture 38 - Non-ideal reactors: design and analysis - Part 1
- Lecture 39 - Non-ideal reactors: design and analysis - Part 2
- Lecture 40 - Non-ideal reactors: design and analysis - Practice Problems



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Biochemistry (IITM)

Subject Co-ordinator - Prof. Subramaniam K

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Biomolecules - Part 1
- Lecture 2 - Introduction to Biomolecules - Part 2
- Lecture 3 - Stereochemistry and Properties of Water - Part 1
- Lecture 4 - Properties of Water - Part 2 and Introduction to Proteins
- Lecture 5 - Characteristics of Proteins and Chromatography techniques
- Lecture 6 - Electrophoresis of Proteins and Protein Sequencing
- Lecture 7 - Synthesis of Polypeptides and Enzymes - Part 1
- Lecture 8 - Enzymes - Part 2
- Lecture 9 - Enzymes - Part 3
- Lecture 10 - Enzymes - Part 4
- Lecture 11 - Enzymes - Part 5 and Carbohydrates - Part 1
- Lecture 12 - Carbohydrates - Part 2 and Lipids - Part 1
- Lecture 13 - Lipids - Part 2
- Lecture 14 - Lipids - Part 3 and Introduction to Metabolism - Part 1
- Lecture 15 - Introduction to metabolism - Part 2
- Lecture 16 - Bioenergetics - Part 1
- Lecture 17 - Bioenergetics - Part 2
- Lecture 18 - Glycolysis - Part 1
- Lecture 19 - Glycolysis - Part 2
- Lecture 20 - Citric Acid Cycle - Part 1
- Lecture 21 - Citric Acid Cycle - Part 2
- Lecture 22 - Oxidative Phosphorylation - Part 1
- Lecture 23 - Oxidative Phosphorylation - Part 2
- Lecture 24 - Photosynthesis and Carbon assimilation - Part 1
- Lecture 25 - Photosynthesis and Carbon Assimilation - Part 2
- Lecture 26 - Photosynthesis and Carbon assimilation - Part 3
- Lecture 27 - Nitrogen Metabolism
- Lecture 28 - Catabolism of Amino acids
- Lecture 29 - Urea cycle and Fatty acid catabolism - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fatty acid catabolism - Part 2
- Lecture 31 - Fatty Acid Biosynthesis
- Lecture 32 - Cholesterol Biosynthesis and Lipid transport - Part 1
- Lecture 33 - Cholesterol Biosynthesis and Lipid transport - Part 2
- Lecture 34 - Hormonal Regulation and Integration of Mammalian Metabolism

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Cellular Biophysics: A Framework for Quantitative Biology

Subject Co-ordinator - Prof. R. Chaitanya A. Athale

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Part 1

Lecture 2 - Introduction - Part 2

Lecture 3 - Introduction - Part 3

Lecture 4 - Solids vs Fluids

Lecture 5 - Viscosity

Lecture 6 - Measuring Viscosity

Lecture 7 - Tutorial - Part 1

Lecture 8 - Tutorial - Part 2

Lecture 9 - Tutorial - Part 3

Lecture 10 - Macromolecular Nature and Hydrophobicity, Structure of Ice, Pauling-Bernal-Fowler Model of Water

Lecture 11 - Entropy and Probability of Water Conformations, Boltzmann Law of Entropy

Lecture 12 - Reynolds Number

Lecture 13 - Tutorial - Part 1

Lecture 14 - Tutorial - Part 2

Lecture 15 - Tutorial - Part 3

Lecture 16 - Hagen-Poiseuille Equation

Lecture 17 - Tutorial - Part 4

Lecture 18 - Sedimentation and Centrifugation - Part 1

Lecture 19 - Sedimentation and Centrifugation - Part 2

Lecture 20 - Blood Centrifugation

Lecture 21 - Review: Paperfuge for Hematology

Lecture 22 - Biology by Numbers

Lecture 23 - Biology by Numbers: Bomb Yield Solved

Lecture 24 - Order of Magnitude Estimates and Approximations

Lecture 25 - Physical Basis of Life

Lecture 26 - Approximating Cellular and Molecular Size Scales

Lecture 27 - Quantifying DNA and Chromatin

Lecture 28 - Protein Abundance and Spacing

Lecture 29 - Model Gene

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cell-Biology by Numbers
- Lecture 31 - Experimental Techniques to Quantify Cells
- Lecture 32 - Time-Scales in Cells
- Lecture 33 - Energy Scale
- Lecture 34 - Energy and Thermodynamics of Life - Part 1
- Lecture 35 - Energy and Thermodynamics of Life - Part 2
- Lecture 36 - Energy and Life- Osmotic Engine
- Lecture 37 - Energy and Life- Interconversion of Energy
- Lecture 38 - Random Walk Statistics, Stoke-Einstein - Part 1
- Lecture 39 - Random Walk Statistics, Stoke-Einstein - Part 2
- Lecture 40 - Demonstration of Diffusion of Micron Sized Particles
- Lecture 41 - Macromolecular Crowding - Part 1
- Lecture 42 - Macromolecular Crowding - Part 2
- Lecture 43 - Cytoskeleton
- Lecture 44 - Beam Theory Applied to Biopolymer
- Lecture 45 - Understanding Chromosomes as Statistical Polymers - Part 1
- Lecture 46 - Understanding Chromosomes as Statistical Polymers - Part 2
- Lecture 47 - Brownian Ratchets and Molecular Motors
- Lecture 48 - Polymerization Dynamics - Part 1
- Lecture 49 - Polymerization Dynamics - Part 2
- Lecture 50 - Polymerization Dynamics - Part 3
- Lecture 51 - Python Programming - Part 1
- Lecture 52 - Python Programming - Part 2
- Lecture 53 - Python Programming - Part 3
- Lecture 54 - Introduction to Membrane Mechanics
- Lecture 55 - Membrane Deformation
- Lecture 56 - Developmental Pattern Formation
- Lecture 57 - Turing Model
- Lecture 58 - Phyllotaxis - Part 1
- Lecture 59 - Phyllotaxis - Part 2
- Lecture 60 - Phyllotaxis - Part 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Medical Image Analysis

Subject Co-ordinator - Prof. Ganapathy Krishnamurthi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Medical Image Analysis - Introduction  
Lecture 2 - X-ray imaging  
Lecture 3 - MRI Physics  
Lecture 4 - Magnetic Resonance Image Acquisition  
Lecture 5 - Ultrasound Imaging  
Lecture 6 - Radionuclide Imaging  
Lecture 7 - Basic Image Processing Methods  
Lecture 8 - Contrast Enhancement  
Lecture 9 - Histogram Equalization  
Lecture 10 - Edge Enhancement - Laplacian  
Lecture 11 - Noise Reduction  
Lecture 12 - Diffusion Filtering  
Lecture 13 - Bayesian Image Restoration  
Lecture 14 - Registration Introduction  
Lecture 15 - Framework  
Lecture 16 - Image Coordinates  
Lecture 17 - Transforms  
Lecture 18 - Metrics  
Lecture 19 - NonRigid Registration  
Lecture 20 - Demons part - 1  
Lecture 21 - Demons part - 2  
Lecture 22 - FFDBSplines  
Lecture 23 - Endoscopy - Where are we with AI ?  
Lecture 24 - Computer vision and DL in the operating room  
Lecture 25 - ML in intraoperative tissue identification  
Lecture 26 - Basic Image Processing Techniques Using MATLAB  
Lecture 27 - Image Registration Using Matlab  
Lecture 28 - Basic Image Processing Techniques Using Python  
Lecture 29 - Calculus of variations

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- Lecture 30 - Snakes - Active Contour Models
- Lecture 31 - Level Sets, Geodesic Active Contours, Mumford-Shah Functional, Chan-Vese
- Lecture 32 - Mumford-Shah Functional, Chan-Vese
- Lecture 33 - Segmentation Models Demo [Snakes (Active Contours ) Chan-Vese segmentation, Geodesic active Cont
- Lecture 34 - Active Shape Models
- Lecture 35 - Snake tutorial
- Lecture 36 - Level Set Method
- Lecture 37 - Chan Vese Segmentation
- Lecture 38 - Neural Networks Introduction
- Lecture 39 - Linear Regression
- Lecture 40 - Gradient Descent Formulation
- Lecture 41 - Linear Regression Demo
- Lecture 42 - Feed forward neural Networks
- Lecture 43 - Example with XOR
- Lecture 44 - Introduction to CNNs
- Lecture 45 - Max Pooling
- Lecture 46 - Applications of Cnns
- Lecture 47 - CNN Training
- Lecture 48 - Semantic Segmentation
- Lecture 49 - Classification Demo in Pytorch
- Lecture 50 - Generative Models
- Lecture 51 - GAN Final Demo

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Organ Printing

Subject Co-ordinator - Prof. Falguni Pati

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Organ Printing course and Content Discussion
- Lecture 2 - Introduction to 3D Bioprinting
- Lecture 3 - Introduction to Inkjet 3D Bioprinting
- Lecture 4 - Introduction to Inkjet 3D Bioprinting (Continued...)
- Lecture 5 - Introduction to Extrusion Bioprinting
- Lecture 6 - Introduction to Extrusion 3D Bioprinting (Continued...)
- Lecture 7 - Introduction to Laser-assisted Bioprinting
- Lecture 8 - Comparison of Different Bioprinting Techniques - Part 1
- Lecture 9 - Comparison of Different Bioprinting Techniques - Part 2
- Lecture 10 - 3D Bioprinting in Support Bath
- Lecture 11 - Introduction to Bioinks
- Lecture 12 - Important material requirement for Bioink development
- Lecture 13 - Crosslinking of Hydrogels for Bioprinting
- Lecture 14 - Single-Material and Multimaterial Bioink Systems
- Lecture 15 - Printability for Extrusion Bioprinting
- Lecture 16 - What is required and how to print an organ?
- Lecture 17 - Level of complexity in Tissues/Organs for Bioprinting
- Lecture 18 - Design approaches in Bioprinting
- Lecture 19 - Bioprinting of Vasculature
- Lecture 20 - Direct printing of vasculature
- Lecture 21 - Indirect printing of vasculature
- Lecture 22 - Design of Cornea Tissue-Specific Bioink and 3D Bioprinting of Cornea
- Lecture 23 - Design of Cornea Tissue-Specific Bioink and 3D Bioprinting of Cornea (Continued...)
- Lecture 24 - Bioprinting of Heart
- Lecture 25 - Bioprinting of Liver
- Lecture 26 - Bioprinting of Kidney
- Lecture 27 - Bioprinting of Lung
- Lecture 28 - 4D Bioprinting - Part 1
- Lecture 29 - 4D Bioprinting - Part 2

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- Lecture 30 - 4D Bioprinting - Part 3
- Lecture 31 - In Situ Bioprinting
- Lecture 32 - In Situ Bioprinting (Continued...)
- Lecture 33 - Medical Modeling for Organ Printing
- Lecture 34 - Medical Modeling for Organ Printing (Continued...)
- Lecture 35 - Next Step in Bioprinting
- Lecture 36 - Next Step in Bioprinting (Continued...)
- Lecture 37 - Ethical Issues related to Organ Printing



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Introduction to Cell Biology

Subject Co-ordinator - Prof. Girish Ratnaparkhi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Overview of Central Dogma of Molecular Biology - Part 1
- Lecture 2 - An Overview of Central Dogma of Molecular Biology - Part 2
- Lecture 3 - Central Dogma : The DNA Structure - Part 1
- Lecture 4 - Central Dogma : The DNA Structure - Part 2
- Lecture 5 - Central Dogma : The DNA Structure - Part 3
- Lecture 6 - Central Dogma : Replication of DNA - Part 1
- Lecture 7 - Central Dogma : Replication of DNA - Part 2
- Lecture 8 - Central Dogma : Transcription - Part 1
- Lecture 9 - Central Dogma : Transcription - Part 2
- Lecture 10 - Central Dogma : Transcription - Part 3
- Lecture 11 - Central Dogma : Translation - Part 1
- Lecture 12 - Central Dogma : Translation - Part 2
- Lecture 13 - Central Dogma : Translation - Part 3
- Lecture 14 - Protein Structure, Folding and Function - Part 1
- Lecture 15 - Protein Structure, Folding and Function - Part 2
- Lecture 16 - Secondary Structure of Proteins: Ramachandran Plot - Part 1
- Lecture 17 - Secondary Structure of Proteins: Ramachandran Plot - Part 2
- Lecture 18 - Protein Structure, Folding and Function - Part 3
- Lecture 19 - Protein Structure, Folding and Function - Part 4
- Lecture 20 - Protein Structure, Folding and Function - Part 5
- Lecture 21 - Protein Structure, Folding and Function - Part 6
- Lecture 22 - Enzymes, Carbohydrates and Lipids
- Lecture 23 - Introduction to Genetics - Part 1
- Lecture 24 - Introduction to Genetics - Part 2
- Lecture 25 - Introduction to Genetics - Part 3
- Lecture 26 - Mendelian and Non-Mendelian Genetics - Part 1
- Lecture 27 - Mendelian and Non-Mendelian Genetics - Part 2
- Lecture 28 - Mendelian and Non-Mendelian Genetics - Part 3
- Lecture 29 - Introduction to Microscopy - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Microscopy - Part 2
- Lecture 31 - Introduction to Microscopy - Part 3
- Lecture 32 - Biology of Cells - Part 1
- Lecture 33 - Biology of Cells - Part 2
- Lecture 34 - Complexity and Compartmentalization in Cells - Part 1
- Lecture 35 - Complexity and Compartmentalization in Cells - Part 2
- Lecture 36 - Endosymbiont Theory
- Lecture 37 - Structure of the Cell: Cell Wall and Cell Membrane
- Lecture 38 - Structure of the Cell: Discussion Session
- Lecture 39 - Plasma Membrane: The Boundaries of Life
- Lecture 40 - Plasma Membrane: Discussion Session
- Lecture 41 - Introduction to Cytoskeleton - Part 1
- Lecture 42 - Cytoskeleton: Discussion Session 1
- Lecture 43 - Introduction to Cytoskeleton - Part 2
- Lecture 44 - Cytoskeleton: Discussion Session 2
- Lecture 45 - Motor Proteins in Cell
- Lecture 46 - Motor Proteins in Cell: Discussion Session
- Lecture 47 - Discussion on Directionality of Motor Protein
- Lecture 48 - Endomembrane System of Cells - Part 1
- Lecture 49 - Endomembrane System of Cells: Discussion Session 1
- Lecture 50 - Endomembrane System of Cells - Part 2
- Lecture 51 - Endomembrane System of Cells: Discussion Session 2
- Lecture 52 - Endomembrane System of Cells - Part 3
- Lecture 53 - Endomembrane System of Cells: Discussion Session 3
- Lecture 54 - Endomembrane System of Cells - Part 4
- Lecture 55 - Endomembrane System of Cells: Discussion Session 4
- Lecture 56 - Cell Division
- Lecture 57 - Cell Division: Discussion session
- Lecture 58 - Discussion Session on Organization and Function of a Cell

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:RNA Biology

Subject Co-ordinator - Prof. Rajesh Ramachandran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to RNA Biology and RNA World - The Beginning
- Lecture 2 - Introduction to RNA Biology and RNA World - Evidences
- Lecture 3 - Introduction to RNA Biology and RNA World - Origin of Monomers
- Lecture 4 - Introduction to RNA Biology and RNA World - Shift to DNA
- Lecture 5 - Introduction to RNA Biology and RNA World - RNA Self Replication
- Lecture 6 - Introduction to RNA Biology and RNA World - Origin of RNA Enzymes
- Lecture 7 - RNA as Enzymes: The Ribozymes
- Lecture 8 - RNA as Enzymes: Structure and Functions
- Lecture 9 - RNA as Enzymes: The Present and Future
- Lecture 10 - RNA Transcription: The Central Dogma
- Lecture 11 - RNA Transcription: Initial Steps
- Lecture 12 - RNA Transcription: Different Stages
- Lecture 13 - RNA Transcription: Termination and RNA Modification
- Lecture 14 - RNA Transcription: Different Polymerases
- Lecture 15 - RNA Processing and Life Cycle: RNA Maturation and RNPs
- Lecture 16 - RNA Processing and Life Cycle: RNA Splicing
- Lecture 17 - RNA Processing and Life Cycle: Post Transcriptional Processing
- Lecture 18 - Alternative RNA Processing and Editing: Alternative Splicing
- Lecture 19 - Alternative RNA Processing and Editing: Implications of Introns
- Lecture 20 - Alternative RNA Processing and Editing: Splicing and Pathology
- Lecture 21 - Alternative RNA Processing and Editing: RNA Editing in Detail
- Lecture 22 - Alternative RNA Processing and Editing: Relevance of RNA Editing
- Lecture 23 - Alternative RNA Processing and Editing: Relevance in Immunology
- Lecture 24 - RNA Splicing, Export and Stability: Relevance of Introns
- Lecture 25 - RNA Splicing, Export and Stability: Introns in RNA Splicing
- Lecture 26 - RNA Splicing, Export and Stability: Different Spliceosomes
- Lecture 27 - RNA Splicing, Export and Stability: SMN Complex
- Lecture 28 - snRNA, rRNA, miRNA, siRNA Processing, Export and Function: Introns and Link to Splicing
- Lecture 29 - snRNA, rRNA, miRNA, siRNA Processing, Export and Function: RNA Helicases

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- Lecture 30 - snRNA, rRNA, miRNA, siRNA Processing, Export and Function: Nucleo Cytoplasmic Transport
- Lecture 31 - snRNA, rRNA, miRNA, siRNA Processing, Export and Function: Nucleoporins and miRNAs
- Lecture 32 - snRNA, rRNA, miRNA, siRNA Processing, Export and Function: RNA Export Mechanisms
- Lecture 33 - snRNA, rRNA, miRNA, siRNA Processing, Export and Function: RNA Quality Control
- Lecture 34 - Mechanisms of RNA Decay and Non Coding RNAs: Decay Pathways
- Lecture 35 - Mechanisms of RNA Decay and Non Coding RNAs: The Exosomes
- Lecture 36 - Mechanisms of RNA Decay and Non Coding RNAs: mRNA Surveillance
- Lecture 37 - Mechanisms of RNA Decay and Non Coding RNAs: Mechanisms of RNA Decay
- Lecture 38 - Mechanisms of RNA Decay and Non Coding RNAs: Autoregulation of RNAs
- Lecture 39 - Mechanisms of RNA Decay and Non Coding RNAs: Introduction to Non-Coding RNAs
- Lecture 40 - Dosage Compensation and X-Inactivation: SRP and Different Modes of Compensation
- Lecture 41 - Dosage Compensation and X-Inactivation: Dosage Compensation of X
- Lecture 42 - Dosage Compensation and X-Inactivation: Omprinted vs Random X Inactivation
- Lecture 43 - Dosage Compensation and X-Inactivation: Molecular Basis of X-Inactivation
- Lecture 44 - Dosage Compensation and X-Inactivation: ES Cells and X-Inactivation
- Lecture 45 - Dosage Compensation, Xist and ncRNA in Imprinting: The Roles of YY1
- Lecture 46 - Dosage Compensation, Xist and ncRNA in Imprinting: shRNAs and Gene Expression
- Lecture 47 - Dosage Compensation, Xist and ncRNA in Imprinting: Mechanism of RNAi in Action
- Lecture 48 - Dosage Compensation, Xist and ncRNA in Imprinting: Genomic Imprinting in Action
- Lecture 49 - Dosage Compensation, Xist and ncRNA in Imprinting: Different ncRNAs and their Roles
- Lecture 50 - Dosage Compensation, Xist and ncRNA in Imprinting: lncRNA-Induced Cancer
- Lecture 51 - Dosage Compensation, Xist and ncRNA in Imprinting: Xist and Cancer
- Lecture 52 - Telomere, Telomerase and Impact on Genomes: The Importance of Telomeres
- Lecture 53 - Telomere, Telomerase and Impact on Genomes: Telomerase and Aging
- Lecture 54 - Telomere, Telomerase and Impact on Genomes: Telomere Length as Marker of Aging
- Lecture 55 - Telomere, Telomerase and Impact on Genomes: Telomeres and Cancer
- Lecture 56 - Telomere, Telomerase and Impact on Genomes: Cell Cycle Arrest
- Lecture 57 - Telomere, Telomerase and Impact on Genomes: Maintenance and Manipulation of Telomeres
- Lecture 58 - Epitranscriptome and Protein Synthesis: Important RNA Modifications
- Lecture 59 - Epitranscriptome and Protein Synthesis: Readers, Writes and Erasers
- Lecture 60 - Epitranscriptome and Protein Synthesis: Biological Implications of RNA Modifications
- Lecture 61 - Epitranscriptome and Protein Synthesis: Roles of RNAs in Translation
- Lecture 62 - Epitranscriptome and Protein Synthesis: Mechanism of Translation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Biomechanics

Subject Co-ordinator - Prof. Varadhan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to forces - Resolving forces, principle of transmissibility

Lecture 2 - Statics FBD and EOE

Lecture 3 - Example problems on FBD and EOE

Lecture 4 - Joints in human body

Lecture 5 - Machines and mechanical advantage

Lecture 6 - Levers and types of levers

Lecture 7 - Insertion point and torque

Lecture 8 - Practice problem - 1

Lecture 9 - Practice problem - 2

Lecture 10 - Key terminologies

Lecture 11 - Anatomical planes and axis

Lecture 12 - Sagittal plane movements

Lecture 13 - Coronal plane movements

Lecture 14 - Transverse plane movements

Lecture 15 - Muscles - Muscle fascicles

Lecture 16 - Muscle fibers- Pennation angle

Lecture 17 - More on pennation angle

Lecture 18 - Excitation contraction coupling

Lecture 19 - Sliding filament theory

Lecture 20 - Force length relationship

Lecture 21 - Shoulder joints and muscles

Lecture 22 - Shoulder problem - 1

Lecture 23 - Shoulder problem - 2

Lecture 24 - Elbow theory

Lecture 25 - Elbow problem - 1

Lecture 26 - Elbow problem - 2

Lecture 27 - Elbow problem - 3

Lecture 28 - Wrist theory

Lecture 29 - Finger theory

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Finger muscles
- Lecture 31 - Spine anatomy and movements
- Lecture 32 - Spine muscles
- Lecture 33 - Spine problem
- Lecture 34 - Hip anatomy and movements
- Lecture 35 - Hip muscles
- Lecture 36 - Hip problem
- Lecture 37 - Knee anatomy and movements
- Lecture 38 - Knee muscles
- Lecture 39 - Knee problem
- Lecture 40 - Ankle anatomy and movements
- Lecture 41 - Ankle muscles
- Lecture 42 - Ankle problem
- Lecture 43 - Grasping- reaching- chains
- Lecture 44 - D.O.F mobility, open/closed chain
- Lecture 45 - Forward kinematics and workspace
- Lecture 46 - 2R inverse kinematics
- Lecture 47 - 3R kinematics forward and inverse
- Lecture 48 - D-H parameters
- Lecture 49 - Velocity and jacobian
- Lecture 50 - 3R velocity
- Lecture 51 - Tissues and types of tissues
- Lecture 52 - Bone microstructure and cells
- Lecture 53 - Properties of bones
- Lecture 54 - Wolffs Law and Hookean behavior
- Lecture 55 - Elastic properties and stress strain relations
- Lecture 56 - Stress strain curve and mechanical properties of biological materials
- Lecture 57 - Bending of Bones
- Lecture 58 - Viscoelastic modelling
- Lecture 59 - Maxwell Model
- Lecture 60 - Voight Model
- Lecture 61 - Kelvin model
- Lecture 62 - Viscoelasticity in bones
- Lecture 63 - Tissues and its constituents
- Lecture 64 - Cartilages, ligaments and tendons
- Lecture 65 - Stress strain relations in tendons
- Lecture 66 - Tendon forces and factors affecting tendon property
- Lecture 67 - Gliding resistance, tendon wrapping and friction forces
- Lecture 68 - Enslaving - Intertendinous force transfer and motor units

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Introduction to enslavement
- Lecture 70 - Enslaving effects in finger force production - 1
- Lecture 71 - Enslaving effects in finger force production - 2
- Lecture 72 - Wrist posture and finger interdependence - 1
- Lecture 73 - Wrist posture and finger interdependence - 2
- Lecture 74 - Wrist posture and finger interdependence - 3
- Lecture 75 - Measurement of orientation in 3D space - Devices
- Lecture 76 - Rotation matrices in 2D and 3D2
- Lecture 77 - Animating using rotation matrices- Matlab Examples
- Lecture 78 - Composite rotation matrix and relative orientations
- Lecture 79 - Complex numbers and quaternions
- Lecture 80 - Singularity, Gimbal Lock, Advantages and disadvantages of parameterization methods
- Lecture 81 - Single finger kinematics measurement using IMU's
- Lecture 82 - IMU based Full hand kinematics measurement system (HKMS)
- Lecture 83 - Demonstration of the Hand Kinematics Measurement System (HKMS)
- Lecture 84 - Introduction to Gait and running

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Introduction to Synthetic Biology

Subject Co-ordinator - Prof. Karthik Raman

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Synthetic Biology - Day 1 Part 1  
Lecture 2 - Introduction to Synthetic Biology - Day 1 Part 2  
Lecture 3 - Introduction to Synthetic Biology - Day 1 Part 3  
Lecture 4 - Introduction to Synthetic Biology - Day 1 Part 4  
Lecture 5 - Introduction to Synthetic Biology - Day 2 Part 1  
Lecture 6 - Introduction to Synthetic Biology - Day 2 Part 2  
Lecture 7 - Introduction to Synthetic Biology - Day 2 Part 3  
Lecture 8 - Introduction to Synthetic Biology - Day 2 Part 4  
Lecture 9 - Introduction to Synthetic Biology - Day 3 Part 1  
Lecture 10 - Introduction to Synthetic Biology - Day 3 Part 2  
Lecture 11 - Introduction to Synthetic Biology - Day 3 Part 3  
Lecture 12 - Introduction to Synthetic Biology - Day 3 Part 4  
Lecture 13 - Introduction to Synthetic Biology - Day 4 Part 1  
Lecture 14 - Introduction to Synthetic Biology - Day 4 Part 2  
Lecture 15 - Introduction to Synthetic Biology - Day 4 Part 3  
Lecture 16 - Introduction to Synthetic Biology - Day 5 Part 1  
Lecture 17 - Introduction to Synthetic Biology - Day 5 Part 2  
Lecture 18 - Introduction to Synthetic Biology - Day 5 Part 3  
Lecture 19 - Introduction to Synthetic Biology - Day 5 Part 4  
Lecture 20 - Introduction to Synthetic Biology - Day 6 Part 1  
Lecture 21 - Introduction to Synthetic Biology - Day 6 Part 2  
Lecture 22 - Introduction to Synthetic Biology - Day 6 Part 3  
Lecture 23 - Introduction to Synthetic Biology - Day 7 Part 1  
Lecture 24 - Introduction to Synthetic Biology - Day 7 Part 2  
Lecture 25 - Introduction to Synthetic Biology - Day 7 Part 3  
Lecture 26 - Introduction to Synthetic Biology - Day 8 Part 1  
Lecture 27 - Introduction to Synthetic Biology - Day 8 Part 2  
Lecture 28 - Introduction to Synthetic Biology - Day 9 Part 1  
Lecture 29 - Introduction to Synthetic Biology - Day 9 Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Synthetic Biology - Day 9 Part 3
- Lecture 31 - Introduction to Synthetic Biology - Day 10 Part 1
- Lecture 32 - Introduction to Synthetic Biology - Day 10 Part 2
- Lecture 33 - Introduction to Synthetic Biology - Day 10 Part 3

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Computational Genomics

Subject Co-ordinator - Prof. Vineet Kumar Sharma

Co-ordinating Institute - IISER Bhopal

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Different OMICS Approaches and their Applications

Lecture 2 - Genetic Information in Prokaryotic

Lecture 3 - Databases and Web Resources to Store and Access the Biological Data

Lecture 4 - First and Second Generation Sequencing Technologies

Lecture 5 - Long Read Sequencing and Linked Read Sequencing - Part 1

Lecture 6 - Long Read Sequencing and Linked Read Sequencing - Part 2

Lecture 7 - Sequence Formats and Databases for Genomic Analysis

Lecture 8 - Introduction to Linux

Lecture 9 - File Handling and Remote Connectivity in Linux

Lecture 10 - Running Linux Commands and Installation of Genomic Packages

Lecture 11 - Introduction to R and Applications in Genomic Analysis

Lecture 12 - Publicly Available Tools and Need for Workstations for Genomic Analysis

Lecture 13 - Overview of Genomic and Transcriptomic Analysis

Lecture 14 - Genomic and Transcriptomic Analysis of an Organism with Case Studies

Lecture 15 - How to Collect and Confirm Sample of the Species to be Sequenced and Transcriptome Sequencing Approaches

Lecture 16 - Estimating the Amount of Sequencing Coverage for a Genome and Hybrid Sequencing Approaches

Lecture 17 - Types of Reads, Quality Filtering, Estimating the Genome Complexity and Heterozygosity

Lecture 18 - Genome Assembly and its Completion Status, Assembly Algorithms

Lecture 19 - Commonly Used Assembly Tools

Lecture 20 - Linked-Read Sequencing and Processing

Lecture 21 - Long Reads Analysis and Assembly Workflow

Lecture 22 - De novo Assembly Using Genomic and Transcriptomic Reads

Lecture 23 - Merging Assemblies to Create Hybrid Assembly and Determining the Quality of Assembly

Lecture 24 - Chromosomal Level Assembly and Case Studies

Lecture 25 - Identification and Annotation of Repeats in Genomes

Lecture 26 - De novo Transcriptome Assembly and Making the Coding Gene Set

Lecture 27 - Prediction of tRNA, rRNA and miRNA in a Genome

Lecture 28 - Functional Annotation and Identification of Metabolic Pathways in a Genome

Lecture 29 - Comprehensive Functional Annotation of Predicted Genes in a Genome

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Functional Annotation of Predicted Genes by Alternate Methods
- Lecture 31 - Methods and Steps to Perform the Evolutionary Analysis of a Genome
- Lecture 32 - Methods for Taxonomic Classification and Phylogeny Reconstruction and Analysis
- Lecture 33 - Epigenetics, ChIP-seq, Transcriptome and Microarrays for Regulation of Expression
- Lecture 34 - Single Cell Genomics, 10X Chromium Linked-reads and Illumina Sequencing, Single Cell Gene Expression
- Lecture 35 - Application of Multiomics Approaches in Human Health and Diseases Such as Cancer, Diabetes, etc.
- Lecture 36 - Prokaryotic Genome Sequencing and Assembly Approaches
- Lecture 37 - Gene Prediction Approaches and Common Methods for Bacterial Gene Prediction
- Lecture 38 - Common Methods for Annotation of a Bacterial Genome, t-RNA, rRNA, Operon Prediction and Annotation
- Lecture 39 - Phylogenetic Analysis of Bacterial Genomes
- Lecture 40 - Metabolic and Comparative Analysis
- Lecture 41 - Microbiome and Metagenome, Human, Organismal and Environmental Microbiomes
- Lecture 42 - Sequencing and Assembly of Metagenomes, Gene Prediction, Annotation, MAGs - Part 1
- Lecture 43 - Sequencing and Assembly of Metagenomes, Gene Prediction, Annotation, MAGs - Part 2
- Lecture 44 - Taxonomic Analysis Using Amplicon Sequence Variants, Statistical Analysis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Human Physiology

Subject Co-ordinator - Prof. Nishikant Subedar

Co-ordinating Institute - IISER Bhopal

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Homeostasis
- Lecture 2 - Mechanisms of Homeostasis - Part 1
- Lecture 3 - Mechanisms of Homeostasis - Part 2
- Lecture 4 - Physiology of muscle - Part 1
- Lecture 5 - Physiology of muscle - Part 2
- Lecture 6 - Molecular Mechanism of muscle contractility - Part 1
- Lecture 7 - Molecular Mechanism of muscle contractility - Part 2
- Lecture 8 - How does the heart muscle work? - Part 1
- Lecture 9 - How does the heart muscle work? - Part 2
- Lecture 10 - Cardiac system : From stimuli to rhythmic muscle contraction - Part 1
- Lecture 11 - Cardiac system : From stimuli to rhythmic muscle contraction - Part 2
- Lecture 12 - Cardiac system : From stimuli to rhythmic muscle contraction - Part 3
- Lecture 13 - Cardiac system : From stimuli to rhythmic muscle contraction - Part 4
- Lecture 14 - Rhythmicity of heart beat - Part 1
- Lecture 15 - Rhythmicity of heart beat - Part 2
- Lecture 16 - Hemodynamics
- Lecture 17 - Hemodynamics and Regulation - Part 1
- Lecture 18 - Hemodynamics and Regulation - Part 2
- Lecture 19 - Hemodynamics and Regulation - Part 3
- Lecture 20 - Hemodynamics and Regulation - Part 4
- Lecture 21 - Hemodynamics and Regulation - Part 5
- Lecture 22 - Hemodynamics and Regulation - Part 6
- Lecture 23 - Lymphatic system
- Lecture 24 - Excretory system : Kidney - Part 1
- Lecture 25 - Excretory system : Kidney - Part 2
- Lecture 26 - Excretory system : Kidney - Part 3
- Lecture 27 - Kidney and RBC production
- Lecture 28 - Excretory system : Nephron - Part 1
- Lecture 29 - Excretory system : Nephron - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Excretory system : Nephron - Part 2.1
- Lecture 31 - Excretory system : Nephron - Part 3
- Lecture 32 - Excretory system : Regulation of Osmolarity and counter-current mechanism - Part 1
- Lecture 33 - Excretory system : Regulation of Osmolarity and counter-current mechanism - Part 2
- Lecture 34 - Excretory system : Regulation of Osmolarity and counter-current mechanism - Part 3
- Lecture 35 - Physiology and Introduction of Respiration - Part 1
- Lecture 36 - Physiology and Introduction of Respiration - Part 2
- Lecture 37 - Respiration - Part 1
- Lecture 38 - Respiration - Part 2
- Lecture 39 - Respiration - Part 3
- Lecture 40 - Respiration - Part 4
- Lecture 41 - Physiology of smooth muscles and digestive system - Part 1
- Lecture 42 - Physiology of smooth muscles and digestive system - Part 2
- Lecture 43 - Physiology of smooth muscles and digestive system - Part 3
- Lecture 44 - Physiology of smooth muscles and digestive system - Part 4
- Lecture 45 - Secretory functions of alimentary tract - Part 1
- Lecture 46 - Secretory functions of alimentary tract - Part 2
- Lecture 47 - Secretory functions of alimentary tract and Pancreas - Part 1
- Lecture 48 - Secretory functions of alimentary tract and Pancreas - Part 2
- Lecture 49 - Secretory functions of Pancreas and liver
- Lecture 50 - Secretory functions of Liver and Gallbladder
- Lecture 51 - Introduction to Endocrine system
- Lecture 52 - Pituitary gland and growth hormone secretion - Part 1
- Lecture 53 - Pituitary gland and growth hormone secretion - Part 2
- Lecture 54 - Thyroid gland - Part 1
- Lecture 55 - Thyroid gland - Part 2
- Lecture 56 - Hormones of adrenal cortex - Part 1
- Lecture 57 - Hormones of adrenal cortex - Part 2
- Lecture 58 - Physiology of Glucocorticoids - Part 1
- Lecture 59 - Physiology of Glucocorticoids - Part 2
- Lecture 60 - Course Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:I Think Biology

Subject Co-ordinator - Prof. Kaustubh Rau, Prof. Sravanti Uppaluri, Prof. Divya Uma, Prof. Jayanti Ray Mukherjee

Co-ordinating Institute - Azim Premji University

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is Biology ?

Lecture 2 - Pillars of Biology

Lecture 3 - Biology and the City

Lecture 4 - The Process of Science

Lecture 5 - A Tale of Forgotten Scientists - Part I

Lecture 6 - A Tale of Forgotten Scientists - Part II

Lecture 7 - Numbers and Scales in Biology - Part I

Lecture 8 - Numbers and Scales in Biology - Part II

Lecture 9 - Experimentation vs Theory\_Discussion

Lecture 10 - How to Find Reliable Information ?

Lecture 11 - How to Read a Scientific Article ?

Lecture 12 - Biomolecules - Part I

Lecture 13 - Biomolecules - Part II

Lecture 14 - Central Dogma

Lecture 15 - Gene Regulation

Lecture 16 - Non-Coding RNA

Lecture 17 - Introduction to Cells

Lecture 18 - Our Favourite Cells - Part I

Lecture 19 - Our Favourite Cells - Part II

Lecture 20 - Cell Cycle

Lecture 21 - Cell Cycle Control

Lecture 22 - Cancer Biology (Guest Lectuer) - Dr. Ramray Bhat (IISc)

Lecture 23 - Discussion on Cancer Biology - Dr. Ramray Bhat (IISc) and Dr. Divya Uma (Azim Premji University)

Lecture 24 - Genetics - I

Lecture 25 - Genetics - II

Lecture 26 - Genetics - III

Lecture 27 - Gene Mutations and Genetic Disorders (Guest Lectuer) Dr. Antara Das, Azim Premji University

Lecture 28 - Studying Human Genetic Disorders using Transgenic Animals - Research talk (Guest Lectuer)

Lecture 29 - Bead Microscopy (Guest Lectuer) Dr. Procheta Mallik (ISPF and ThinkTac)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Molecular Biology Techniques
- Lecture 31 - Bacterial DNA Isolation and PCR - Hands-on (Guest Lectuer) Dr. Beena DB (Azim Premji University)
- Lecture 32 - BT Cotton - Part 1 (Case study)
- Lecture 33 - Molecular Biology Techniques - BT Cotton - Part 2 (Case study)
- Lecture 34 - Introduction to Evolution
- Lecture 35 - Evidences of Evolution
- Lecture 36 - Mechanism of Evolution
- Lecture 37 - Misconceptions about Evolution - Discussion
- Lecture 38 - Human Evolution
- Lecture 39 - Species, Speciation and Biodiversity - I
- Lecture 40 - Species, Speciation and Biodiversity - II
- Lecture 41 - Measuring Biodiversity (Tutorial)
- Lecture 42 - Speciation
- Lecture 43 - Speciation (Case studies)
- Lecture 44 - Introduction to Ecological Interactions - Part 1
- Lecture 45 - Ecological Interactions - Part 2
- Lecture 46 - Ecological Interactions - Part 3
- Lecture 47 - Mutualism - Figs (Case Study)
- Lecture 48 - Seed Dispersal (Case study)
- Lecture 49 - Introduction to Public Health (Guest Lectuer) Dr.Abha Rao (Public Health Foundation of India)
- Lecture 50 - Public Health in India (Guest Lectuer) Dr. Abha Rao (Public Health Foundation of India)
- Lecture 51 - Discussion on Public Health - Dr. Abha Rao (PHFI) and Mr. Pratush Brahma (University of Florida)
- Lecture 52 - Public Health - Rotavirus (Case study)
- Lecture 53 - Public Health - Malaria (Case study) - Part 1
- Lecture 54 - Public Health - Malaria (Case study) - Part 2
- Lecture 55 - Biology and Climate Change - Part 1
- Lecture 56 - Biology and Climate Change - Part 2
- Lecture 57 - Biology and Climate Change - Part 3
- Lecture 58 - Biodiversity Conservation (Guest Lectuer) Dr. Krishnapriya Tamma (Azim Premji University)
- Lecture 59 - Discussion on Biology and Society
- Lecture 60 - Discussion on Art and Science
- Lecture 61 - Biology and Society - Case study on Stray Dogs
- Lecture 62 - Nature Relatedness
- Lecture 63 - Course Wrap-Up

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Classics in Neuroscience

Subject Co-ordinator - Prof.Varadhan SKM

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - History of Neuroscience : Introduction - Part 1
- Lecture 2 - History of Neuroscience : Introduction - Part 2
- Lecture 3 - Factors that produce discoveries
- Lecture 4 - Importance of the 1950s in Neuroscience
- Lecture 5 - Advances in Molecular Biology (Genes to DNA)
- Lecture 6 - Discovery of the structure of the DNA
- Lecture 7 - How DNA works
- Lecture 8 - Molecular biology of the human brain
- Lecture 9 - Signaling molecule: The First growth Factor
- Lecture 10 - Nerve Growth Factor
- Lecture 11 - Organizing the Connections
- Lecture 12 - Axonal Transport
- Lecture 13 - Signaling molecules: The First Neurotransmitter in the brain
- Lecture 14 - The concept of Lock and Key
- Lecture 15 - The Soup vs Sparks Debate
- Lecture 16 - Intracellular Electrode, Neurotransmitter in the Brain, Dales Law
- Lecture 17 - Early evidence of Acetylcholine and Glutamate
- Lecture 18 - Early evidence of GABA and Serotonin
- Lecture 19 - Catecholamine and Hormones
- Lecture 20 - Second messengers and Hormones
- Lecture 21 - Pheromones
- Lecture 22 - Revolution in Cytology
- Lecture 23 - Synapse and the 'Neuronism vs Reticularism' debate
- Lecture 24 - Contributions by Rene Couteaux and George Koelle
- Lecture 25 - Chemical Synapse
- Lecture 26 - Synapse and the Neuromuscular Junction
- Lecture 27 - The Electrical Synapse and Myelin
- Lecture 28 - Physiology: The Action Potential - Part 1
- Lecture 29 - Recording nerve impulses and single action potentials

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- Lecture 30 - Recording from nerve and plant cells
- Lecture 31 - Recording Local circuits, Hodgkin and Huxely contributions - Part 1
- Lecture 32 - Hodgkin and Huxely model - Part 2 and Kenneth Cole Contributions
- Lecture 33 - GHK equation and HH action potentials
- Lecture 34 - First Electrophysiological Evidence for Synaptic Transmission
- Lecture 35 - Bernard Katz
- Lecture 36 - End-Plate Potential and Synaptic Quanta
- Lecture 37 - Eccles and Spinal motor neuron
- Lecture 38 - Invertebrate simple systems: Aplysia
- Lecture 39 - Other studies of sensory responses
- Lecture 40 - Legacy of Golgi and Ramo`n y Cajal
- Lecture 41 - Dynamic polarization of Neuron
- Lecture 42 - Modern Research
- Lecture 43 - Synaptic Integration and Action Potential Initiation
- Lecture 44 - Active properties of dendrites
- Lecture 45 - Dendritic dominance
- Lecture 46 - Dendritic spines
- Lecture 47 - Rethinking the concept of Neuron Doctrine
- Lecture 48 - Muscle spindles
- Lecture 49 - Spinal cord pathways
- Lecture 50 - Retinal Processing
- Lecture 51 - Keffler Hartline
- Lecture 52 - Stephen Kuffler and Horace Barlow
- Lecture 53 - Expansion of the Reflex concept
- Lecture 54 - Central Ptttern genrators
- Lecture 55 - The cortical column
- Lecture 56 - Vernon Mountcastle
- Lecture 57 - Central Visual Processing
- Lecture 58 - Central Visual Processing and Feature Detectors
- Lecture 59 - Intracellular recordings from the brain - Part 1
- Lecture 60 - Intracellular recordings from the brain - Part 2
- Lecture 61 - Two motor systems
- Lecture 62 - Auditory cortex and The pattern theory of olfaction
- Lecture 63 - Arousal and Reticular activating system
- Lecture 64 - Sleep and Rapid Eye Movements
- Lecture 65 - Operant Conditioning by brain stimulation
- Lecture 66 - Hypothalamus and Feeding Behavior
- Lecture 67 - Brain as a gland
- Lecture 68 - Hypothalamic-Neurohypophyseal System

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- Lecture 69 - Hypothalamic-Adenohypophyseal System
- Lecture 70 - Founding Modern Neuroanatomy
- Lecture 71 - Psychology and Ethology
- Lecture 72 - Karl Lashley
- Lecture 73 - Donald Hebb
- Lecture 74 - Limbic system- Limbic Lobe and Papez Circuit
- Lecture 75 - Limbic system-Kluver-Bucy Syndrome
- Lecture 76 - The Limbic system and Amygdala
- Lecture 77 - The Hippocampus and Patient H.M
- Lecture 78 - Brenda Milner
- Lecture 79 - Neurology: Foundations of Brain Imaging
- Lecture 80 - The Neurological unit of the Boston City Hospital
- Lecture 81 - Derek Denny-Brown, Raymond Adams and C. Miller Fisher
- Lecture 82 - Montreal Neurological Institute
- Lecture 83 - Cerebral Circulation
- Lecture 84 - Spreading depression of Leo and Migraine
- Lecture 85 - The Eradication of Polio
- Lecture 86 - Origin of Neurosurgery
- Lecture 87 - Harvey Cushing
- Lecture 88 - Pituitary Surgery
- Lecture 89 - Stereotaxy
- Lecture 90 - Epilepsy
- Lecture 91 - Psychosurgery
- Lecture 92 - Antipsychotic Drugs
- Lecture 93 - Reserpine
- Lecture 94 - Monoamine Oxidase Inhibitors
- Lecture 95 - Lithium
- Lecture 96 - Benzodiazepines
- Lecture 97 - Stress

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - Analytical Technologies in Biotechnology

Subject Co-ordinator - Dr. Ashwani K. Sharma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic concepts in microscopy - 1
- Lecture 2 - Basic concepts in microscopy - 2
- Lecture 3 - Dark-field and phase contrast microscopy
- Lecture 4 - Differential interference contrast and polarization
- Lecture 5 - Fluorescence and confocal microscopy
- Lecture 6 - Transmission electron microscopy
- Lecture 7 - Transmission electron microscopy cont. and scanning electron microscopy
- Lecture 8 - Basic concepts - 1
- Lecture 9 - Basic concepts - 2
- Lecture 10 - GM counting and Scintillation counting
- Lecture 11 - Scintillation counting continued
- Lecture 12 - Autoradiography and RIA
- Lecture 13 - Safety aspects and applications
- Lecture 14 - Introduction and Basic concepts in chromatography - 1
- Lecture 15 - Basic concepts in chromatography - 2
- Lecture 16 - Low-pressure liquid chromatography (LPLC) and high performance liquid chromatography (HPLC)
- Lecture 17 - Ion-exchange chromatography
- Lecture 18 - Gel-filtration chromatography
- Lecture 19 - Affinity chromatography
- Lecture 20 - Gas-liquid chromatography
- Lecture 21 - Basic concepts in electrophoresis
- Lecture 22 - Horizontal and vertical gel electrophoresis
- Lecture 23 - Native gel electrophoresis and SDS-PAGE
- Lecture 24 - Isoelectric focusing (IEF), 2-D gel electrophoresis and protein detection methods
- Lecture 25 - Electrophoresis of nucleic acids
- Lecture 26 - Immunoelectrophoresis and capillary electrophoresis
- Lecture 27 - Introduction and Basic Concepts - 1
- Lecture 28 - Basic concepts - 2
- Lecture 29 - Types of centrifuges and analytical ultracentrifugation method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Separation methods in preparative ultracentrifuges
- Lecture 31 - Types of rotors
- Lecture 32 - Types of rotors cont. and care of rotors
- Lecture 33 - Introduction and basic concepts
- Lecture 34 - UV-Visible spectroscopy
- Lecture 35 - Infrared and fluorescence spectroscopy
- Lecture 36 - Circular dichroism (CD) spectroscopy
- Lecture 37 - Nuclear magnetic resonance (NMR) spectroscopy and X-ray crystallography
- Lecture 38 - Atomic spectroscopy and mass spectrometry
- Lecture 39 - Polymerase chain reaction(PCR)
- Lecture 40 - DNA sequencing methods
- Lecture 41 - Enzyme linked immunosorbent assay (ELISA)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Biomedical Nanotechnology

Subject Co-ordinator - Prof. P.Gopinath

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Nano

Lecture 2 - Nano-Biomimicry

Lecture 3 - Synthesis of nanomaterials by Physical and Chemical Methods

Lecture 4 - Synthesis of nanomaterials by Biological Methods

Lecture 5 - Characterisation of Nanomaterials

Lecture 6 - DNA Nanotechnology

Lecture 7 - Protein and Glyco Nanotechnology

Lecture 8 - Lipid Nanotechnology

Lecture 9 - Bio-Nanomachines

Lecture 10 - Carbon nanotubes and Its Bio-Applications

Lecture 11 - Nanomaterials for Cancer Diagnosis

Lecture 12 - Nanomaterials for Cancer therapy

Lecture 13 - Nanotechnology in Tissue Engineering

Lecture 14 - Nano artificial cells

Lecture 15 - Nanotechnology in Organ Printing

Lecture 16 - Nanotechnology in Point-of-Care Diagnostics

Lecture 17 - Nano-Pharmacology and Drug Targeting

Lecture 18 - Cellular uptake mechanisms of nanomaterials

Lecture 19 - In vitro Methods to study antibacterial and anticancer properties of nanomaterials

Lecture 20 - Nanotoxicology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Plant Developmental Biology

Subject Co-ordinator - Prof. Shri Ram Yadav

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Life Cycle of an Angiosperm
- Lecture 2 - Characteristics of Plant Growth and Development - I
- Lecture 3 - Characteristics of Plant Growth and Development - II
- Lecture 4 - Molecular Genetics of Plant Development - I
- Lecture 5 - Molecular Genetics of Plant Development - II
- Lecture 6 - Molecular Genetics of Plant Development - III
- Lecture 7 - Molecular Genetics of Plant Development - IV
- Lecture 8 - Molecular Genetics of Plant Development (Continued...) - I
- Lecture 9 - Molecular Genetics of Plant Development (Continued...) - II
- Lecture 10 - Molecular Genetics of Plant Development (Continued...) - III
- Lecture 11 - Root Development
- Lecture 12 - Root Development (Continued...)
- Lecture 13 - Root Development (Vascular Development)
- Lecture 14 - Root Branching
- Lecture 15 - Shoot Development
- Lecture 16 - Shoot Development
- Lecture 17 - Shoot Development
- Lecture 18 - Shoot Development
- Lecture 19 - Cell-Cell Communication During Plant Development
- Lecture 20 - Techniques Used in Lab

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Structural Biology

Subject Co-ordinator - Prof. Saugata Hazra

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction: Why to Study Structural Biology

Lecture 2 - Introduction to Biological Macromolecules

Lecture 3 - Introduction: Decoding Biological Macromolecules

Lecture 4 - Introduction: Genome Sequencing

Lecture 5 - Introduction: Post Genomic Era

Lecture 6 - Amino acids and their properties

Lecture 7 - Protein: Protein Chemistry, Chirality, Peptide bond and Levels of protein structures

Lecture 8 - Protein: Dihedral angles, Peptide bond and Ramachandran Plot

Lecture 9 - Protein: Super Secondary Structures, Motif, Domains, Non-covalent interactions

Lecture 10 - Protein: Folding of Protein, Thermodynamics and Kinetics of protein folding, Characterization of

Lecture 11 - Introduction to Structural Biology Techniques - Part I

Lecture 12 - Introduction to Structural Biology Techniques - Part II

Lecture 13 - X-ray Crystallography: Crystallization - Part I

Lecture 14 - X-ray Crystallography: Crystallization - Part II

Lecture 15 - X-ray Crystallography: Crystal Mounting

Lecture 16 - X-ray Crystallography: Production of X-ray and its properties

Lecture 17 - X-ray Crystallography: Journey to 3D land

Lecture 18 - X-ray Crystallography: Crystal Symmetry

Lecture 19 - X-ray Crystallography: Instrumentation in X-ray Crystallography

Lecture 20 - X-ray Crystallography: Data collection and processing

Lecture 21 - X-ray Crystallography: Data Analysis - Part I

Lecture 22 - X-ray Crystallography: Data Analysis - Part II

Lecture 23 - X-ray Crystallography: Phase Problem - Part I

Lecture 24 - X-ray Crystallography: Phase Problem - Part II

Lecture 25 - X-ray Crystallography: Refinement and Structure deposition to PDB

Lecture 26 - Introduction to Spectroscopy and NMR

Lecture 27 - Basic Principles of NMR and Instrumentation

Lecture 28 - NMR Sample Preparation and Chemical Shift related concepts

Lecture 29 - Factors effecting NMR Spectra (1D and 2D)

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- Lecture 30 - 2D and 3D NMR Spectroscopy focusing on protein structure
- Lecture 31 - Introduction to Spectroscopy
- Lecture 32 - UV-Vis and CD spectroscopy
- Lecture 33 - Fluorescence Spectroscopy and Green Fluorescence Protein (GFP)
- Lecture 34 - Infrared and Raman Spectroscopy for protein
- Lecture 35 - Raman Spectroscopy, Raman Microscopy and Raman Crystallography for studying protein
- Lecture 36 - Introduction to Microscopy
- Lecture 37 - Functioning details of Cryo Electron Microscopy (Cryo EM)
- Lecture 38 - Cryo Electron Microscopy: Data Collection and Analysis
- Lecture 39 - A concise story of advancement Cryo-EM
- Lecture 40 - Protein Data Bank
- Lecture 41 - History of Molecular Visualizations of Biological Macromolecules
- Lecture 42 - Description of structure related files (.pdb, .mmCIF, .mtz, etc.)
- Lecture 43 - Demonstration of COOT
- Lecture 44 - 3D visualization using Pymol
- Lecture 45 - Demonstration of Pymol
- Lecture 46 - Why we need MD Simulation
- Lecture 47 - Molecular Dynamic Simulation Process - Part I
- Lecture 48 - Molecular Dynamic Simulation Process - Part II
- Lecture 49 - Molecular Dynamic Simulation Process - Part III
- Lecture 50 - Application of Molecular Dynamic Simulation
- Lecture 51 - What, How and Which of Protein Engineering
- Lecture 52 - How to make logical Protein Engineering: Process of Rational design
- Lecture 53 - Success story of Rational Protein designing: Focusing on De Novo Process
- Lecture 54 - Designing Protein by mimicking nature: Process of Directed Evolution
- Lecture 55 - Achievement, Challenges, and Future direction in the field of Protein Engineering
- Lecture 56 - Introduction to Structure Based Drug Discovery (SBDD)
- Lecture 57 - Rational Drug Discovery
- Lecture 58 - Docking Based Virtual Screening: Progress, Challenges and Future perspective
- Lecture 59 - What makes a small molecule an ideal drug: Developing in silico ADMETox Model
- Lecture 60 - Structure Based Drug Discovery: Case study and Conclusion



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Learning about Learning: A Course on Neurobiology of Learning and Me

Subject Co-ordinator - Prof. Balaji Jayaprakash

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Learning and Memory - I

Lecture 2 - Introduction to Learning and Memory - II

Lecture 3 - Associative Learning I

Lecture 4 - Associative learning II

Lecture 5 - Introduction to the Rescorla Wagner Model

Lecture 6 - Application of Rescorla Wagner Model - I

Lecture 7 - Application of Rescorla Wagner Model - II

Lecture 8 - Application of Rescorla Wagner Model - III

Lecture 9 - Application of Rescorla Wagner Model - IV

Lecture 10 - Limitations of Rescorla Wagner Model

Lecture 11 - Introduction of Reinforcement Learning - I

Lecture 12 - Introduction of Reinforcement Learning - II

Lecture 13 - Introduction of Reinforcement Learning - III

Lecture 14 - Sign Tracking vs Goal Oriented/Tracking; Linking complex behaviors to simple molecules

Lecture 15 - Sign Tracking vs Goal Oriented; Learning Linking complex behaviors to simple molecules - II

Lecture 16 - Memory in Molecular Terms - I

Lecture 17 - Memory in Molecular Terms - II

Lecture 18 - Memory in Molecular Terms - III

Lecture 19 - Memory in Molecular Terms - IV

Lecture 20 - Memory in Molecular Terms - V

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Drug Delivery: Principles and Engineering

Subject Co-ordinator - Rachit Agarwal

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Drug Delivery Introduction and Pharmacokinetics
- Lecture 2 - Pharmacokinetics (Continued...)
- Lecture 3 - Pro-drugs and Polymers Introduction
- Lecture 4 - Polymers - Synthesis
- Lecture 5 - Polymers - Properties
- Lecture 6 - Biomedical Polymers
- Lecture 7 - Biodegradable Polymers and Polymer Drug Conjugates - I
- Lecture 8 - Polymer Drug Conjugates - II
- Lecture 9 - Research Paper Discussion and Diffusion Controlled Systems
- Lecture 10 - Controlled Release
- Lecture 11 - Controlled Release
- Lecture 12 - Controlled Release
- Lecture 13 - Math Exercise
- Lecture 14 - Hydrogels - I
- Lecture 15 - Hydrogels - II
- Lecture 16 - Hydrogels - III
- Lecture 17 - Hydrogels - IV
- Lecture 18 - Nano and Micro-particles - I
- Lecture 19 - Nano and Micro-particles - II
- Lecture 20 - Nano and Micro-particles - III
- Lecture 21 - Nano and Micro-particles - IV
- Lecture 22 - Nano and Micro-particles - V
- Lecture 23 - Nano and Micro-particles - VI
- Lecture 24 - Nano and Micro-particles - VII
- Lecture 25 - Protein Adsorption - I
- Lecture 26 - Protein Adsorption - II
- Lecture 27 - Protein Adsorption - III
- Lecture 28 - Tissue Engineering - I
- Lecture 29 - Tissue Engineering - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tissue Engineering - III
- Lecture 31 - Drug Delivery in Tissue Engineering - I
- Lecture 32 - Drug Delivery in Tissue Engineering - II
- Lecture 33 - Implant Associated Infections - I
- Lecture 34 - Implant Associated Infections - II
- Lecture 35 - Route Specific Delivery
- Lecture 36 - Route Specific Delivery
- Lecture 37 - Route Specific Delivery
- Lecture 38 - Route Specific Delivery
- Lecture 39 - Route Specific Delivery
- Lecture 40 - Route Specific Delivery
- Lecture 41 - Route Specific Delivery
- Lecture 42 - Research Paper Discussion
- Lecture 43 - Route Specific Delivery
- Lecture 44 - Intravenous Administration
- Lecture 45 - Immune System - II
- Lecture 46 - Complement System and Blood Clotting
- Lecture 47 - Blood Clotting and Hemocompatibility of Materials; Adaptive Immune Response
- Lecture 48 - Adaptive Immune Response and Vaccine
- Lecture 49 - Vaccines
- Lecture 50 - Vaccines and Immuno-isolated Cell Therapy
- Lecture 51 - Immuno-isolated Cell Therapy
- Lecture 52 - Immuno-isolated Cell and Gene Therapy
- Lecture 53 - Gene Delivery
- Lecture 54 - Gene Delivery
- Lecture 55 - Genes as Vaccines
- Lecture 56 - Vaccines
- Lecture 57 - Cancer Vaccines
- Lecture 58 - Cancer Vaccine
- Lecture 59 - Responsive Delivery Systems - I
- Lecture 60 - Responsive Delivery Systems - II
- Lecture 61 - Targeted Drug Delivery System
- Lecture 62 - Targeted Drug Delivery System
- Lecture 63 - Nanotoxicology and Translation Pathways

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Fundamentals of Micro and Nanofabrication

Subject Co-ordinator - Prof. Shankar Selvaraja

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Substrate

Lecture 3 - Substrate (Continued...)

Lecture 4 - Introduction to cleanroom

Lecture 5 - Contamination and surface cleaning

Lecture 6 - Advanced cleaning techniques

Lecture 7 - Defects

Lecture 8 - Diffusion

Lecture 9 - Diffusion - Advanced Concepts

Lecture 10 - Ion Implantation

Lecture 11 - Ion Implantation (Continued...)

Lecture 12 - Native Films

Lecture 13 - Native Films

Lecture 14 - Native Films

Lecture 15 - Methods and Some Definitions

Lecture 16 - Chemical Vapor Deposition

Lecture 17 - Chemical Vapor Deposition

Lecture 18 - Chemical Vapor Deposition

Lecture 19 - Chemical Vapor Deposition

Lecture 20 - Chemical Vapor Deposition

Lecture 21 - Atomic Layer Deposition

Lecture 22 - Atomic Layer Deposition (Continued...)

Lecture 23 - Physical Vapor Deposition

Lecture 24 - Physical Vapor Deposition

Lecture 25 - Physical Vapor Deposition

Lecture 26 - Metallization

Lecture 27 - Metallization

Lecture 28 - Pattern Transfer Basics

Lecture 29 - Optical lithography basics

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- Lecture 30 - Optical lithography basics
- Lecture 31 - Optical Lithography
- Lecture 32 - Optical Lithography
- Lecture 33 - Projection Lithography
- Lecture 34 - Projection Lithography
- Lecture 35 - Optical lithography
- Lecture 36 - Optical Lithography
- Lecture 37 - Lithography process technology glossary
- Lecture 38 - Optical Lithography
- Lecture 39 - Electron beam lithography
- Lecture 40 - Electron beam lithography
- Lecture 41 - Emerging lithography techniques
- Lecture 42 - Etching Figures of Merit
- Lecture 43 - Wet etching Basics
- Lecture 44 - Wet Etching Recipes
- Lecture 45 - Wet Etching Recipes
- Lecture 46 - Dry etch
- Lecture 47 - Dry etch
- Lecture 48 - Dry etch
- Lecture 49 - Dry etch
- Lecture 50 - Dry etch
- Lecture 51 - Chemical Mechanical Polishing (CMP)
- Lecture 52 - Chemical Mechanical Polishing (CMP)
- Lecture 53 - Design for Manufacturability - 1
- Lecture 54 - Design for Manufacturability - 2
- Lecture 55 - Design for Manufacturability
- Lecture 56 - Process integration
- Lecture 57 - PV integration
- Lecture 58 - CMOS integration
- Lecture 59 - Lab demo
- Lecture 60 - Lab demo
- Lecture 61 - CMOS process for photonics application

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Optical Spectroscopy and Microscopy: Fundamentals of Optical Measure

Subject Co-ordinator - Prof. Balaji Jayaprakash

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Optical Focus and Localisation of Light
- Lecture 2 - Relating Photon's Momentum to Spot Size
- Lecture 3 - Shortest Pulse of Light
- Lecture 4 - Behaviour of light through polarizers
- Lecture 5 - Nature of Light
- Lecture 6 - Revisiting Polarisation Through Ket Vectors
- Lecture 7 - Light through Polarisers
- Lecture 8 - Light through Polarisers
- Lecture 9 - Time Dependent Perturbation Theory (TDPT)
- Lecture 10 - TDPT in Steps-1
- Lecture 11 - TDPT in Steps-2
- Lecture 12 - TDPT in Steps-3
- Lecture 13 - Fermi's Golden Rule
- Lecture 14 - Beer Lambert's Law from TDPT
- Lecture 15 - Einstein's Phenomenology
- Lecture 16 - Einstein's Coefficients, Fluorescence and Lifetime
- Lecture 17 - Fock States and Photonic Treatment of Light
- Lecture 18 - Operators in Fock State Space
- Lecture 19 - Light Matter Interaction and Rudimentary Feynman Diagrams
- Lecture 20 - Emergence of Spontaneous and Stimulated Emission Processes
- Lecture 21 - Lecture 21
- Lecture 22 - Lecture 22
- Lecture 23 - Lecture 23
- Lecture 24 - Lecture 24
- Lecture 25 - Lecture 25
- Lecture 26 - Introduction to LASER
- Lecture 27 - LASER population dynamics
- Lecture 28 - LASER population dynamics - Part- 2
- Lecture 29 - Real world LASER and characteristics of LASER emission

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Temporal and Spatial Coherence
- Lecture 31 - Transverse and Longitudinal modes of LASER
- Lecture 32 - Pulsed LASER
- Lecture 33 - Q-switching in detail
- Lecture 34 - Q-switching in detail - Part 2
- Lecture 35 - Basics of mode locking
- Lecture 36 - Basics of mode locking - Part 2
- Lecture 37 - Pulse compression
- Lecture 38 - Real world system (Mode lock Part-2)
- Lecture 39 - TEM mode
- Lecture 40 - Alignment basics
- Lecture 41 - Non-Linear Optics
- Lecture 42 - Confocal Detection
- Lecture 43 - Interference Filters
- Lecture 44 - Laser Scanning System - 1
- Lecture 45 - Laser Scanning System - 2
- Lecture 46 - Alignment of Moving Beams
- Lecture 47 - Decoding an Objective Lens - 1
- Lecture 48 - Decoding an Objective Lens - 2
- Lecture 49 - Designing Lens Systems
- Lecture 50 - Astigmatism and Field Curvature
- Lecture 51 - Intro to Lab Session
- Lecture 52 - Optics in LAB
- Lecture 53 - Optics in Lab
- Lecture 54 - Kinematic Mounts
- Lecture 55 - Alignment with out iris
- Lecture 56 - Fluorescence Spectrometer - 1
- Lecture 57 - Fluorescence Spectrometer - 2
- Lecture 58 - Ti

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Cell Biology: Cellular Organization, Division and Processes

Subject Co-ordinator - Prof. Shikha Laloraya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Cell Biology, Cell components, organization and processes - Part I
- Lecture 2 - Introduction to Cell Biology, Cell components, organization and processes - Part II
- Lecture 3 - DNA: The genetic material - Part I
- Lecture 4 - DNA: The genetic material - Part II
- Lecture 5 - Regulation of the cell cycle - Part I
- Lecture 6 - Regulation of the cell cycle - Part II
- Lecture 7 - Checkpoints: The DNA damage and DNA replication checkpoints
- Lecture 8 - The Ubiquitin Proteasome system
- Lecture 9 - S-phase: Regulation of entry into S-phase and DNA Replication
- Lecture 10 - DNA replication - Part I
- Lecture 11 - DNA Replication - Part II
- Lecture 12 - DNA Replication - Part III
- Lecture 13 - DNA Replication - Part IV
- Lecture 14 - Mitosis - Part I
- Lecture 15 - Cytokinesis
- Lecture 16 - Aging and Senescence
- Lecture 17 - Apoptosis - Part I
- Lecture 18 - Apoptosis - Part II
- Lecture 19 - Meiosis - Part I
- Lecture 20 - Meiosis - Part II
- Lecture 21 - Nuclear organization
- Lecture 22 - SMC proteins and chromosome organization - Real-Time imaging of DNA loop-extrusion by SMC complex
- Lecture 23 - The cohesin complex and its functions - The mysterious biological function of chromosome loops
- Lecture 24 - Chromatin organization
- Lecture 25 - SMC proteins and chromosome organization - Introduction
- Lecture 26 - Meiosis - Part III
- Lecture 27 - Mitosis - Part II
- Lecture 28 - Cell diversity and properties of specialized cells-Budding yeast as a model system
- Lecture 29 - The Plant Cell

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- Lecture 30 - Stem cells - Part I Intro-SL
- Lecture 31 - Stem cells - Part II
- Lecture 32 - Nerve cells
- Lecture 33 - The Cancer Cell

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Biotechnology - NOC:Microsensors, Implantable Devices and Rodent Surgeries for Biomedical

Subject Co-ordinator - Prof. Shabari Girishan K V, Prof. Hardik J. Pandya

Co-ordinating Institute - RUAS IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction - I
- Lecture 2 - Course Introduction - II
- Lecture 3 - Neuro anatomy for Neurosurgery
- Lecture 4 - Neural Implant Fabrication: PVD - I
- Lecture 5 - Neural Implant Fabrication: PVD - II
- Lecture 6 - Rodent Neuroanatomy
- Lecture 7 - Basics of BCI and Signal Processing
- Lecture 8 - Neural Implant Fabrication: Sputtering and CVD
- Lecture 9 - Principles of Stereotactic Rodent MicroNeurosurgery
- Lecture 10 - Neural Signal Processing: Demonstrations
- Lecture 11 - Neural Implant Fabrication: Photolithography - I
- Lecture 12 - Neural Implant Fabrication: Photolithography - II
- Lecture 13 - Craniotomy and Stereotactic Implantation Surgeries
- Lecture 14 - Lithography Numericals
- Lecture 15 - IDE Patterning
- Lecture 16 - Etching
- Lecture 17 - Introduction to Cleanroom and Gowning
- Lecture 18 - E-Beam Evaporation Demonstration
- Lecture 19 - Craniotomy and Cranial Window Surgeries
- Lecture 20 - Flexible MEA: Introduction and Process Flow
- Lecture 21 - Flexible MEA: EIB, Characterization and Analyses
- Lecture 22 - Stereotactic Implantation Surgeries
- Lecture 23 - Sputtering Demonstration
- Lecture 24 - 3D Printing - Part I
- Lecture 25 - Bioresorbable Microelectrode Array-based System
- Lecture 26 - Fundamentals of Spinal Neuroanatomy
- Lecture 27 - 3D Printing - Part II
- Lecture 28 - Neural Implant - Microneedle
- Lecture 29 - Spinal Cord Structure, and Circuits

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Surgical Steps in Spinal Surgeries
- Lecture 31 - 3D Printing - Part III
- Lecture 32 - 3D Printing - Demonstration
- Lecture 33 - Wet Etching Demonstration
- Lecture 34 - Neural Implants for Parkinson's Disease
- Lecture 35 - Spinal micro neuro Surgery
- Lecture 36 - Anesthesia in Rodents
- Lecture 37 - Physiological Monitoring in Rodents
- Lecture 38 - Lithography Demonstration
- Lecture 39 - Electronic System Development for Neural Engineering - I
- Lecture 40 - Anesthesia Administration Equipments and Vital Monitoring
- Lecture 41 - Standard Safety Practices
- Lecture 42 - Euthanasia
- Lecture 43 - Euthanasia in Rodents
- Lecture 44 - Electronic System Development for Neural Engineering - II
- Lecture 45 - Rodent Brain and Spinal Cord Harvest
- Lecture 46 - Rodent Behavioural Setups
- Lecture 47 - Study Plan for Behavioural Setups: Stroke Model
- Lecture 48 - PCB Design Demonstration for Neural Systems
- Lecture 49 - Electronic Systems for Brain Stimulation - I
- Lecture 50 - Behavioural Tasks in Rodent Models - I
- Lecture 51 - Behavioural Tasks in Rodent Models - II
- Lecture 52 - Behavioural Setup for Rodents: Parkinsonism Model - I
- Lecture 53 - Behavioural Setup for Rodents: Parkinsonism Model - II
- Lecture 54 - Electronic Systems for Brain Stimulation - II
- Lecture 55 - Course Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Advanced Chemical Reaction Engineering (PG)

Subject Co-ordinator - Prof. H.S. Shankar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview - I  
Lecture 2 - Course Overview - II  
Lecture 3 - Design Equations - I  
Lecture 4 - Design Equations - Illustrative Examples  
Lecture 5 - Design Equations - II  
Lecture 6 - Illustrative Examples  
Lecture 7 - Illustrative Examples  
Lecture 8 - Multiple Reactions - II  
Lecture 9 - Modelling Multiple Reactions in Soil Environment - III  
Lecture 10 - Semi Continuous Reactor Operation  
Lecture 11 - Catalyst Deactivation - I  
Lecture 12 - Catalyst Deactivation - II  
Lecture 13 - Illustrative Example  
Lecture 14 - Energy Balance - I  
Lecture 15 - Energy Balance - II  
Lecture 16 - Reacting Fluids as Energy Carrier  
Lecture 17 - Illustrative Example  
Lecture 18 - Energy Balance - III  
Lecture 19 - Energy Balance - IV  
Lecture 20 - Energy Balance - V  
Lecture 21 - Illustrative Example  
Lecture 22 - Energy Balance - VI  
Lecture 23 - Illustrative Example  
Lecture 24 - Illustrative Example  
Lecture 25 - Illustrative Example  
Lecture 26 - Residence Time Distribution Methods  
Lecture 27 - Residence Time Distribution Models  
Lecture 28 - Shrinking core Gas-Solid reactions Model  
Lecture 29 - Shrinking core Ash Diffusion Model & Combination of Resistances

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - 1) Gas Solid Reactions Temperature Effects on Rate & Equilibria 2) Introduction to Population Balance
- Lecture 31 - Illustrative Example
- Lecture 32 - Population Balance Modelling - II
- Lecture 33 - Population Balance Modelling - III
- Lecture 34 - Illustrative Examples
- Lecture 35 - Introduction to Environmental Reactions
- Lecture 36 - Reaction Engineering Examples in Biochemical & Environmental Engineering
- Lecture 37 - Illustrative Examples
- Lecture 38 - Illustrative Examples
- Lecture 39 - Oxygen Sag Analysis in Rivers
- Lecture 40 - Illustrative Examples
- Lecture 41 - Illustrative Example

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Advanced Process Control

Subject Co-ordinator - Prof. Sachin C. Patwardhan

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Motivation

Lecture 2 - Linearization of Mechanistic Models

Lecture 3 - Linearization of Mechanistic Models (Continued...)

Lecture 4 - Introduction to z-transforms and Development of Grey-box models

Lecture 5 - Introduction to Stability Analysis and Development of Output Error Models

Lecture 6 - Introduction to Stochastic Processes

Lecture 7 - Introduction to Stochastic Processes (Continued...)

Lecture 8 - Development of ARX models

Lecture 9 - Statistical Properties of ARX models and Development of ARMAX models

Lecture 10 - Development of ARMAX models (Continued...) and Issues in Model Development

Lecture 11 - Model Structure Selection and Issues in Model Development (Continued...)

Lecture 12 - Issues in Model Development (Continued...) and State Realizations of Transfer Function Models

Lecture 13 - Stability Analysis of Discrete Time Systems

Lecture 14 - Lyapunov Functions and Interaction Analysis and Multi-loop Control

Lecture 15 - Interaction Analysis and Multi-loop Control (Continued...)

Lecture 16 - Multivariable Decoupling Control and Soft Sensing and State Estimation

Lecture 17 - Development of Luenberger Observer

Lecture 18 - Development of Luenberger Observer (Continued...) and Introduction to Kalman Filtering

Lecture 19 - Kalman Filtering

Lecture 20 - Kalman Filtering (Continued...)

Lecture 21 - Kalman Filtering (Continued...)

Lecture 22 - Pole Placement State Feedback Control Design and Introduction to Linear Quadratic Gaussian (LQG)

Lecture 23 - Linear Quadratic Gaussian (LQG) Regulator Design

Lecture 24 - Linear Quadratic Gaussian (LQG) Controller Design

Lecture 25 - Model Predictive Control (MPC)

Lecture 26 - Model Predictive Control (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Chemical Reaction Engineering II

Subject Co-ordinator - Prof. A.K. Suresh, Prof. Ganesh A. Viswanathan, Prof. Sanjay M. Mahajani

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to catalysts and catalysis
- Lecture 2 - Steps in catalytic reaction
- Lecture 3 - Derivation of the rate equation
- Lecture 4 - Heterogenous data analysis for reactor design - I
- Lecture 5 - Heterogenous data analysis for reactor design - II
- Lecture 6 - Catalyst deactivation and accounting for it in design - I
- Lecture 7 - Catalyst deactivation and accounting for it in design - II
- Lecture 8 - Synthesize the rate equation
- Lecture 9 - Introduction to intraparticle diffusion
- Lecture 10 - Intraparticle diffusion
- Lecture 11 - Intraparticle diffusion
- Lecture 12 - Intraparticle diffusion
- Lecture 13 - Effectiveness factor and Introduction to external mass transfer
- Lecture 14 - External Mass Transfer
- Lecture 15 - Implications to rate data interpretation and design - I
- Lecture 16 - Implications to rate data interpretation and design - II
- Lecture 17 - Packed-bed reactor design
- Lecture 18 - Fluidized bed reactor design - I
- Lecture 19 - Fluidized bed reactor design - II
- Lecture 20 - Gas-liquid reactions-1
- Lecture 21 - GLR-2
- Lecture 22 - GLR-3
- Lecture 23 - GLR-4
- Lecture 24 - GLR-5
- Lecture 25 - GLR-6
- Lecture 26 - GLR-7
- Lecture 27 - Fluid-solid non-catalytic reactions - I
- Lecture 28 - Fluid-solid non-catalytic reactions - II
- Lecture 29 - Fluid-solid non-catalytic reactions - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Distribution of residence time
- Lecture 31 - Measurement of residence time distribution
- Lecture 32 - Residence time distribution function
- Lecture 33 - Reactor diagnostics and troubleshooting
- Lecture 34 - Modeling non-ideal reactors
- Lecture 35 - Residence time distribution
- Lecture 36 - Non-ideal Reactors
- Lecture 37 - Non-ideal Reactors
- Lecture 38 - Non-ideal Reactors
- Lecture 39 - Non-ideal Reactors



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Advanced Numerical Analysis

Subject Co-ordinator - Prof. Sachin C. Patwardhan

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Overview

Lecture 2 - Fundamentals of Vector Spaces

Lecture 3 - Basic Dimension and Sub-space of a Vector Space

Lecture 4 - Introduction to Normed Vector Spaces

Lecture 5 - Examples of Norms, Cauchy Sequence and Convergence, Introduction to Banach Spaces

Lecture 6 - Introduction to Inner Product Spaces

Lecture 7 - Cauchy Schwarz Inequality and Orthogonal Sets

Lecture 8 - Gram-Schmidt Process and Generation of Orthogonal Sets

Lecture 9 - Problem Discretization Using Appropriation Theory

Lecture 10 - Weierstrass Theorem and Polynomial Approximation

Lecture 11 - Taylor Series Approximation and Newton's Method

Lecture 12 - Solving ODE - BVPs Using Finite Difference Method

Lecture 13 - Solving ODE - BVPs and PDEs Using Finite Difference Method

Lecture 14 - Finite Difference Method (Continued...) and Polynomial Interpolations

Lecture 15 - Polynomial and Function Interpolations, Orthogonal Collocations Method for Solving ODE -BVPs

Lecture 16 - Orthogonal Collocations Method for Solving ODE - BVPs and PDEs

Lecture 17 - Least Square Approximations, Necessary and Sufficient Conditions for Unconstrained Optimization

Lecture 18 - Least Square Approximations -Necessary and Sufficient Conditions for Unconstrained Optimization

Lecture 19 - Linear Least Square Estimation and Geometric Interpretation of the Least Square Solution

Lecture 20 - Geometric Interpretation of the Least Square Solution (Continued...) and Projection Theorem in a

Lecture 21 - Projection Theorem in a Hilbert Spaces (Continued...) and Approximation Using Orthogonal Basis

Lecture 22 - Discretization of ODE-BVP using Least Square Approximation

Lecture 23 - Discretization of ODE-BVP using Least Square Approximation and Galerkin Method

Lecture 24 - Model Parameter Estimation using Gauss-Newton Method

Lecture 25 - Solving Linear Algebraic Equations and Methods of Sparse Linear Systems

Lecture 26 - Methods of Sparse Linear Systems (Continued...) and Iterative Methods for Solving Linear Algebraic

Lecture 27 - Iterative Methods for Solving Linear Algebraic Equations

Lecture 28 - Iterative Methods for Solving Linear Algebraic Equations

Lecture 29 - Iterative Methods for Solving Linear Algebraic Equations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Iterative Methods for Solving Linear Algebraic Equations
- Lecture 31 - Iterative Methods for Solving Linear Algebraic Equations
- Lecture 32 - Optimization Based Methods for Solving Linear Algebraic Equations
- Lecture 33 - Conjugate Gradient Method, Matrix Conditioning and Solutions of Linear Algebraic Equations
- Lecture 34 - Matrix Conditioning and Solutions and Linear Algebraic Equations (Continued...)
- Lecture 35 - Matrix Conditioning (Continued...) and Solving Nonlinear Algebraic Equations
- Lecture 36 - Solving Nonlinear Algebraic Equations
- Lecture 37 - Solving Nonlinear Algebraic Equations
- Lecture 38 - Solving Nonlinear Algebraic Equations
- Lecture 39 - Solving Nonlinear Algebraic Equations
- Lecture 40 - Solving Ordinary Differential Equations - Initial Value Problems (ODE-IVPs)
- Lecture 41 - Solving Ordinary Differential Equations - Initial Value Problems (ODE-IVPs)
- Lecture 42 - Solving ODE-IVPs
- Lecture 43 - Solving ODE-IVPs
- Lecture 44 - Solving ODE-IVPs
- Lecture 45 - Solving ODE-IVPs
- Lecture 46 - Solving ODE-IVPs
- Lecture 47 - Solving ODE-IVPs
- Lecture 48 - Methods for Solving System of Differential Algebraic Equations
- Lecture 49 - Methods for Solving System of Differential Algebraic Equations (Continued...) and Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Introduction to Evolutionary Dynamics

Subject Co-ordinator - Prof. Supreet Saini

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - History of the theory of Natural Selection - 1
- Lecture 2 - History of the theory of Natural Selection - 2
- Lecture 3 - Exponential growth models
- Lecture 4 - Logistic Growth Models - 1
- Lecture 5 - Logistic Growth Models - 2
- Lecture 6 - Modelling selection - 1
- Lecture 7 - Modelling Selection - 2
- Lecture 8 - Modelling Selection - 3
- Lecture 9 - Modelling Mutations - 1
- Lecture 10 - Modelling Mutations - 2
- Lecture 11 - Modelling Mutations - 3
- Lecture 12 - Genetic Code and Sequence Spaces
- Lecture 13 - Sequence Spaces as Networks
- Lecture 14 - Sequence Space to Fitness Landscape
- Lecture 15 - Properties of Fitness Landscapes and Quasi-species
- Lecture 16 - Integrating Reproduction, Selection and Mutation
- Lecture 17 - Obtaining Fitness Landscapes Experimentally
- Lecture 18 - NK Model of Fitness Landscape
- Lecture 19 - Modelling Evolution on Fitness Landscapes - 1
- Lecture 20 - Modelling Evolution on Fitness Landscapes - 2
- Lecture 21 - Modelling Evolution on Fitness Landscapes - 3
- Lecture 22 - Role of Randomness in Evolution
- Lecture 23 - Genetic Drift in Evolution of Microbial Populations
- Lecture 24 - Dynamics of a Moran Process without Selection
- Lecture 25 - Dynamics of a Moran Process without Selection
- Lecture 26 - Evolution, Selection, and Genetic Drift
- Lecture 27 - Representing Microbial Evolution
- Lecture 28 - Estimating Timescales of Evolution
- Lecture 29 - Estimating the Speed of Microbial Evolution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Evolutionary Dynamics when Mutations are Rare
- Lecture 31 - Evolutionary Dynamics when Mutations are Rapid - 1
- Lecture 32 - Evolutionary Dynamics when Mutations are Rapid - 2
- Lecture 33 - Evolutionary Dynamics when Mutations are Rapid - 3
- Lecture 34 - Evolutionary Game Theory - 1
- Lecture 35 - Evolutionary Game Theory - 2
- Lecture 36 - Evolutionary Game Theory - 3
- Lecture 37 - Evolutionary Game Theory - 4
- Lecture 38 - Evolutionary Game Theory Applied to Moran Process
- Lecture 39 - Evolutionary Games During Weak Selection
- Lecture 40 - Evolutionary Dynamics of HIV

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Heat Transfer

Subject Co-ordinator - Prof. Ganesh A. Viswanathan

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction to Conduction
- Lecture 3 - Energy Balance
- Lecture 4 - 1D Steadystate Conduction - Resistance Concept
- Lecture 5 - Resistances in Composite Wall Case
- Lecture 6 - Resistances in Radial Systems
- Lecture 7 - Heat Generation - I Plane and Cylindrical Wall
- Lecture 8 - Heat Generation - II Problem; Introduction to Extended Surfaces
- Lecture 9 - Extended Surfaces I - General Formulation
- Lecture 10 - Extended Surfaces II - Fixed Cross-section Area
- Lecture 11 - Extended Surfaces III - Varying Cross-section Area
- Lecture 12 - 2D Plane Wall
- Lecture 13 - Transient Analyses I
- Lecture 14 - Transient Analyses II
- Lecture 15 - Transient Analyses
- Lecture 16 - Introduction to Convective Heat Transfer
- Lecture 17 - Heat and Mass Transport Coefficients
- Lecture 18 - Boundary Layer
- Lecture 19 - Laminar and Turbulent Flows; Momentum Balance
- Lecture 20 - Energy and Mass Balances; Boundary Layer Approximations
- Lecture 21 - Order of Magnitude Analysis
- Lecture 22 - Transport Coefficients
- Lecture 23 - Relationship between Momentum, Thermal and Concentration Boundary Layer
- Lecture 24 - Reynolds and Chilton-Colburn Analogies
- Lecture 25 - Forced Convection
- Lecture 26 - Flow Past Flat Plate I - Method of Blasius
- Lecture 27 - Flow Past Flat Plate II - Correlations for Heat and Mass Transport
- Lecture 28 - Flow Past Cylinders
- Lecture 29 - Flow through Pipes - I

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Flow through Pipes - II
- Lecture 31 - Flow through Pipes - III
- Lecture 32 - Flow through Pipes - IV - Mixing-cup Temperature
- Lecture 33 - Flow through Pipes - V - Log mean Temperature Difference
- Lecture 34 - Flow through Pipes - VI - Correlations for Laminar and Turbulent Conditions
- Lecture 35 - Example problems
- Lecture 36 - Introduction to Free/Natural Convection
- Lecture 37 - Heated Plate in a Quiescent Fluid - I
- Lecture 38 - Heated Plate in a Quiescent Fluid - II
- Lecture 39 - Boiling - I
- Lecture 40 - Boiling - II
- Lecture 41 - Condensation - I
- Lecture 42 - Condensation - II
- Lecture 43 - Radiation
- Lecture 44 - Spectral Intensity
- Lecture 45 - Radiation
- Lecture 46 - Properties of a Blackbody
- Lecture 47 - Surface Adsorption
- Lecture 48 - Kirchoff's Law
- Lecture 49 - Radiation Exchange - View Factor
- Lecture 50 - View Factor Examples
- Lecture 51 - View Factor - Inside Sphere Method, Blackbody Radiation Exchange
- Lecture 52 - Diffuse, Gray Surfaces in an Enclosure
- Lecture 53 - Resistances - Oppenheim Matrix Method
- Lecture 54 - Resistances - Examples
- Lecture 55 - More Examples
- Lecture 56 - Introduction and Examples
- Lecture 57 - Parallel Flow Heat Exchangers
- Lecture 58 - LMTD I
- Lecture 59 - Shell and Tube Heat Exchangers
- Lecture 60 - Epsilon-NTU Method

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Chemical Reaction Engineering-II

Subject Co-ordinator - Prof. Ganesh Vishwanathan

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction to catalysis and catalytic processes
- Lecture 3 - Catalyst properties and classification
- Lecture 4 - Steps in catalysis
- Lecture 5 - Adsorption isotherm
- Lecture 6 - Surface reaction
- Lecture 7 - Rate controlling steps and Rate law
- Lecture 8 - Rate law
- Lecture 9 - Heterogeneous data analysis for reactor design - I
- Lecture 10 - Heterogeneous data analysis for reactor design - II
- Lecture 11 - Design of reactors
- Lecture 12 - Case study
- Lecture 13 - Catalyst deactivation - I
- Lecture 14 - Catalyst deactivation - II
- Lecture 15 - Catalyst deactivation - III
- Lecture 16 - Catalyst deactivation - IV
- Lecture 17 - Diffusional effects
- Lecture 18 - Internal diffusion effects
- Lecture 19 - Non-dimensionalization
- Lecture 20 - Concentration profile
- Lecture 21 - Internal effectiveness factor - I
- Lecture 22 - Internal effectiveness factor - II
- Lecture 23 - Internal effectiveness factor - III
- Lecture 24 - Falsification of kinetics
- Lecture 25 - External mass transport limitations
- Lecture 26 - Estimation of mass transfer coefficient
- Lecture 27 - Mass transfer to a single particle with reaction
- Lecture 28 - Packed-bed reactor design
- Lecture 29 - Mass transfer coefficient in Packed-beds

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Estimation of conversion in Packed-bed reactor
- Lecture 31 - Overall effectiveness factor - I
- Lecture 32 - Overall effectiveness factor - II
- Lecture 33 - Identification of internal diffusion and reaction-limited regimes
- Lecture 34 - Packed-bed reactor design
- Lecture 35 - Generalized criterion for diffusion and reaction-limited conditions
- Lecture 36 - Network of first order reactions
- Lecture 37 - Use of experimental data
- Lecture 38 - Packed-bed reactor design
- Lecture 39 - Fluidized bed reactor design - I
- Lecture 40 - Fluidized bed reactor design - II
- Lecture 41 - Fluidized bed reactor design - III
- Lecture 42 - Fluidized bed reactor design - IV
- Lecture 43 - Fluid-solid noncatalytic reactions - I
- Lecture 44 - Fluid-solid noncatalytic reactions - II
- Lecture 45 - Fluid-solid noncatalytic reactions - III
- Lecture 46 - Fluid-solid noncatalytic reactions - IV
- Lecture 47 - Fluid-solid noncatalytic reactions - V
- Lecture 48 - Fluid-solid noncatalytic reactions - VI
- Lecture 49 - Residence time distribution (RTD)
- Lecture 50 - RTD
- Lecture 51 - Measurement of RTD - I
- Lecture 52 - Measurement of RTD - II
- Lecture 53 - RTD function
- Lecture 54 - Properties of RTD function
- Lecture 55 - Reactor diagnostics and troubleshooting - I
- Lecture 56 - Reactor diagnostics and troubleshooting - II
- Lecture 57 - Modeling nonideal reactors - I
- Lecture 58 - Modeling nonideal reactors - II
- Lecture 59 - Non-ideal reactors
- Lecture 60 - Non-ideal reactors



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Chemical Process Control

Subject Co-ordinator - Prof. Sujit Jogwar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation for process control
- Lecture 2 - Functions of process control system
- Lecture 3 - Common control strategies
- Lecture 4 - Components of process control system
- Lecture 5 - Introduction to process dynamics
- Lecture 6 - First principle dynamic models
- Lecture 7 - Empirical and gray box models
- Lecture 8 - Degree of freedom analysis
- Lecture 9 - Introduction to first order dynamical systems
- Lecture 10 - Linearization of process dynamics
- Lecture 11 - Response to step input
- Lecture 12 - Response to sinusoidal input
- Lecture 13 - Introduction to second order dynamical systems
- Lecture 14 - Examples of second order dynamical systems
- Lecture 15 - Response to step input
- Lecture 16 - Effect of damping coefficient
- Lecture 17 - Higher order dynamics
- Lecture 18 - Approximation as FOPDT model
- Lecture 19 - Numerator dynamics
- Lecture 20 - Prediction of step response
- Lecture 21 - Block diagram representation
- Lecture 22 - ON-OFF control
- Lecture 23 - Proportional control
- Lecture 24 - Proportional-Integral control
- Lecture 25 - PID control
- Lecture 26 - Limitations of PID controllers
- Lecture 27 - Stability of dynamical processes
- Lecture 28 - Laplace domain analysis - Part I
- Lecture 29 - Laplace domain analysis - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Frequency response
- Lecture 31 - Frequency domain analysis
- Lecture 32 - Synthesis problem
- Lecture 33 - Selection problem
- Lecture 34 - Criteria-based controller tuning
- Lecture 35 - Heuristics-based controller tuning
- Lecture 36 - Direct synthesis-based controller tuning
- Lecture 37 - Frequency response-based controller tuning
- Lecture 38 - Cascade control
- Lecture 39 - Split range control and override control
- Lecture 40 - Auctioneering, ratio and inferential control
- Lecture 41 - Openloop control and Internal model control
- Lecture 42 - Dynamic Matrix and Model predictive control
- Lecture 43 - Introduction to multivariable control
- Lecture 44 - Input-output pairing
- Lecture 45 - Tuning of multi-loop SISO controller
- Lecture 46 - Introduction to batch process control
- Lecture 47 - Programmable logic control
- Lecture 48 - Batch to batch control

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Introduction to Interfacial Waves

Subject Co-ordinator - Prof. Ratul Dasgupta

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Coupled, linear, spring-mass systems
- Lecture 3 - Coupled, linear, spring-mass systems (Continued...)
- Lecture 4 - Coupled, linear, spring-mass systems (Continued...)
- Lecture 5 - Coupled, linear, spring-mass system: continuum limit
- Lecture 6 - Normal modes of a string fixed at both ends
- Lecture 7 - Vibrations of clamped membranes
- Lecture 8 - Vibrations of clamped membranes (Continued...)
- Lecture 9 - Introduction to Jacobian elliptic functions
- Lecture 10 - The non-linear pendulum
- Lecture 11 - The non-linear pendulum (Continued...)
- Lecture 12 - Time period of the non-linear pendulum
- Lecture 13 - Introduction to perturbation methods
- Lecture 14 - Perturbation methods (Continued...)
- Lecture 15 - Non-dimensionalisation
- Lecture 16 - Perturbative solution to the projectile equation
- Lecture 17 - Perturbative solution to the nonlinear pendulum
- Lecture 18 - Lindstedt-Poincare technique
- Lecture 19 - Method of multiple scales
- Lecture 20 - Method of multiple scales (Continued...)
- Lecture 21 - Multiple scale analysis for damped-harmonic oscillator
- Lecture 22 - Duffing equation using multiple scales
- Lecture 23 - Duffing equation (Continued...)
- Lecture 24 - Kapitza pendulum
- Lecture 25 - Introduction to Floquet theory
- Lecture 26 - Floquet theorem (Continued...)
- Lecture 27 - Floquet analysis of the Mathieu equation
- Lecture 28 - Introduction to waves on an interface
- Lecture 29 - Linearized wave equations in deep water

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linearized wave equations in deep water: dispersion relation
- Lecture 31 - Linearised deep-water surface gravity waves (Continued...)
- Lecture 32 - Standing and travelling waves in deep water
- Lecture 33 - Cauchy-Poisson initial value problem for surface-gravity waves in deep water
- Lecture 34 - Cauchy-Poisson problem (Continued...)
- Lecture 35 - Cauchy-Poisson problem in cylindrical geometry
- Lecture 36 - Cauchy-Poisson problem in cylindrical geometry (Continued...)
- Lecture 37 - Group-velocity and the Cauchy-Poisson problem
- Lecture 38 - Cauchy-Poisson problem for delta function initial condition
- Lecture 39 - Cauchy-Poisson problem for delta function initial condition (Continued...)
- Lecture 40 - Capillary-gravity waves
- Lecture 41 - Waves on a pool of finite depth
- Lecture 42 - Axisymmetric Cauchy-Poisson problem visualisation: the pebble in the deep pond problem
- Lecture 43 - Rayleigh-Plateau capillary instability
- Lecture 44 - Rayleigh-Plateau capillary instability (Continued...)
- Lecture 45 - Rayleigh-Plateau capillary instability on thin film coating a rod
- Lecture 46 - Rayleigh-Plateau capillary instability of a cylindrical air column in a liquid
- Lecture 47 - Mechanism of the Rayleigh-Plateau instability
- Lecture 48 - Shape oscillations of a spherical interface
- Lecture 49 - Shape oscillations of a spherical interface (Continued...)
- Lecture 50 - Shape oscillations of a spherical interface (Continued...)
- Lecture 51 - Analysis of  $l=0$  and  $l=1$  modes for a spherical drop
- Lecture 52 - Faraday waves on an interface - stability of time dependent base states
- Lecture 53 - Mathieu equation for Faraday waves
- Lecture 54 - Applications of Faraday waves - atomisation and spray formation
- Lecture 55 - Waves and instability on density stratified shear flows - the KH model
- Lecture 56 - Limits of KH dispersion relation: Rayleigh-Taylor instability
- Lecture 57 - KH dispersion relation : model of wind wave generation
- Lecture 58 - Helmholtz instability of a vortex sheet and summary
- Lecture 59 - Derivation of the Stokes travelling wave
- Lecture 60 - Derivation of the Stokes travelling wave (Continued...)
- Lecture 61 - Derivation of the Stokes travelling wave (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Hydrogen Energy: Production, Storage, Transportation and Safety

Subject Co-ordinator - Prof. Pratibha Sharma

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Properties of Hydrogen
- Lecture 2 - Status of Hydrogen Supply and Demand
- Lecture 3 - Methods of Hydrogen Production
- Lecture 4 - Steam Methane Reforming - Part 1
- Lecture 5 - Steam Methane Reforming - Part 2
- Lecture 6 - Steam Reforming of Higher Hydrocarbons
- Lecture 7 - Tutorial-1
- Lecture 8 - Advanced Methods of Steam Reforming
- Lecture 9 - Partial Oxidation Method for Hydrogen Production
- Lecture 10 - Autothermal Reforming
- Lecture 11 - Combined, Dry, Bi and Tri Reforming
- Lecture 12 - Reforming using Alternate Energy Sources
- Lecture 13 - Tutorial-2
- Lecture 14 - Hydrogen Production by Methane Decomposition
- Lecture 15 - Hydrogen Production from Biomass - Part 1
- Lecture 16 - Hydrogen Production from Biomass - Part 2
- Lecture 17 - Hydrogen Production from Biomass - Part 3
- Lecture 18 - Hydrogen Production from Coal
- Lecture 19 - Tutorial-3
- Lecture 20 - Hydrogen Separation and Purification - Part 1
- Lecture 21 - Hydrogen Separation and Purification - Part 2
- Lecture 22 - Thermochemical Cycles for Hydrogen Production
- Lecture 23 - Electrolysis of Water for Hydrogen Production
- Lecture 24 - Fundamental of Electrolysis of Water
- Lecture 25 - Electrolytic Cell Components and Electrolyzer stack
- Lecture 26 - Different Types of Electrolyzer Technologies
- Lecture 27 - Photoelectrochemical Hydrogen Production
- Lecture 28 - Tutorial-4
- Lecture 29 - Technical Comparison of Various Hydrogen Production Routes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Economics and Status of Various Hydrogen Production Routes
- Lecture 31 - Introduction to Hydrogen Storage
- Lecture 32 - Underground Hydrogen Storage
- Lecture 33 - Fundamentals of Hydrogen Compression and Expansion
- Lecture 34 - Thermodynamics of Hydrogen Compression - Part 1
- Lecture 35 - Thermodynamics of Hydrogen Compression - Part 2
- Lecture 36 - Reciprocating and Diaphragm compressors for Hydrogen Compression
- Lecture 37 - Linear and Liquid Hydrogen Compressors
- Lecture 38 - Cryogenic and Metal Hydride based Hydrogen Compressors
- Lecture 39 - Electrochemical and Adsorption based Compressors
- Lecture 40 - Compressed Hydrogen Tanks
- Lecture 41 - Tutorial-5
- Lecture 42 - Hydrogen Liquefaction
- Lecture 43 - Liquid State Hydrogen Storage
- Lecture 44 - Fundamentals of Adsorption based Materials for Hydrogen Storage
- Lecture 45 - Adsorption based Solid State Hydrogen Storage Materials
- Lecture 46 - Metal Hydrides for Solid State Hydrogen Storage - Part 1
- Lecture 47 - Fundamentals of Metal hydrides for Solid State Hydrogen Storage - Part 1
- Lecture 48 - Fundamentals of Metal Hydrides for Solid State Hydrogen Storage - Part 2
- Lecture 49 - Different Types of Hydrides for Hydrogen Storage
- Lecture 50 - Tailoring Metal Hydrides for Practical Applications: Nanostructure - Part 1
- Lecture 51 - Tailoring Metal Hydrides for Practical Applications: Nanostructure - Part 2
- Lecture 52 - MH System Design and Experimental Facilities on SolidState Hydrogen Storage
- Lecture 53 - Tutorial-6 (MH systems design)
- Lecture 54 - Novel Materials and Overall Storage
- Lecture 55 - Overview of Storage Methods and Economics
- Lecture 56 - Hydrogen Transportation via H2 Pipelines
- Lecture 57 - Other Options for Long Distance Hydrogen Transmission
- Lecture 58 - Hydrogen Transport via Road
- Lecture 59 - Hydrogen Refuelling Stations
- Lecture 60 - Use of Hydrogen in Internal Combustion Engines - Part 1
- Lecture 61 - Use of Hydrogen in Internal Combustion Engines - Part 2
- Lecture 62 - Use of Hydrogen in Fuel Cells
- Lecture 63 - Hydrogen Sensing - Part 1
- Lecture 64 - Hydrogen Sensing - Part 2
- Lecture 65 - Properties of Hydrogen Associated with Accidents
- Lecture 66 - Classification of Hydrogen related Hazards
- Lecture 67 - Compressed and Liquid Hydrogen Related Hazards
- Lecture 68 - Regulations, Codes and Standards

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Lecture 69 - Utilisation in Different Sectors, Global Status and Future Directions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Modeling Stochastic Phenomena for Engineering Applications: P

Subject Co-ordinator - Prof. Yelia Shankaranarayana Mayya

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Stirling's Approximation
- Lecture 2 - Fourier Transforms and characteristic function
- Lecture 3 - Dirac Delta function
- Lecture 4 - Applications of delta function and Generating functions
- Lecture 5 - Laplace Transforms and Convolution theorem
- Lecture 6 - Generating function for discrete variables and Binomial distribution
- Lecture 7 - Bernoulli and Poisson distributions
- Lecture 8 - Waiting time distributions; Gaussian approximation to Poisson distribution
- Lecture 9 - Introduction to Central Limit Theorem
- Lecture 10 - Proof of Central Limit Theorem (CLT)
- Lecture 11 - Universality of Normal distribution and Exceptions
- Lecture 12 - Introduction to Random Walk: Extension of Central Limit Theorem
- Lecture 13 - Random walk and Diffusion coefficient: Conditional and Transition
- Lecture 14 - Characteristics of Stochastic Phenomena: Markov Processes
- Lecture 15 - Propagating Markov processes via Transition Probability Matrix with
- Lecture 16 - Chapman-Kolmogorov Equation for Multistep Transition probability and solution
- Lecture 17 - Transient solutions and Continuous time Markov process
- Lecture 18 - Exact solution to Symmetric (or unbiased) one-dimensional Random walk (1-D RW)
- Lecture 19 - Properties of the solution for 1-D unbiased RW
- Lecture 20 - 1-D unbiased RW: Asymptotic form of occupancy probability and transition
- Lecture 21 - Solution to the problem of 1-D Random Walk with Bias
- Lecture 22 - Generalized Random Walk with Bias and Pausing
- Lecture 23 - Effect of Pausing on Mean and Variance of Random walk
- Lecture 24 - Random-walk in the presence of reflecting barrier
- Lecture 25 - Boundary conditions for reflected Random-Walk and formulating absorbing
- Lecture 26 - The survival probability and first-passage time distribution for Random walker
- Lecture 27 - Random Walk with Bias and Absorber
- Lecture 28 - Drift and Survival probability for Random walk with bias and absorber
- Lecture 29 - Introduction to gambler's ruin problem

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- Lecture 30 - Solution for ultimate winning probability in Gambler's ruin problem
- Lecture 31 - Solution to gambler's ruin problem with site dependent jump probabilities
- Lecture 32 - Fourier transform method of solving lattice Random walks
- Lecture 33 - Two and higher dimensional Random walks
- Lecture 34 - Formulating the problem of Probability of Return to the origin
- Lecture 35 - Relationship between occupancy probability and first-time-return probability
- Lecture 36 - Proof of Polya's theorem on the probability of return
- Lecture 37 - Return probability estimates in various dimensions and effect of bias in 1-D
- Lecture 38 - Dependence of first time return probability ( $F_k$ ) on steps
- Lecture 39 - Equilibrium solutions in lattice random walk models
- Lecture 40 - Equilibrium solution to Ehrenfest's flea model
- Lecture 41 - Differential equation formulation of stochastic phenomena
- Lecture 42 - Derivation of Fokker-Planck equation
- Lecture 43 - Generalized transition probability functions for Fokker-Planck equation
- Lecture 44 - Solution to 1-D Fokker-Planck equation for free particle: Method of Fourier
- Lecture 45 - General non-gaussian solution to translationally invariant Chapman-Kolmogorov
- Lecture 46 - Cauchy distribution, power-law and other non-gaussian solutions
- Lecture 47 - Wiener process and solution to absorbing barrier problems from Fokker-Planck
- Lecture 48 - Application of Fourier Sine transform for single absorber problem
- Lecture 49 - Setting up Langevin equation for velocity fluctuations of Brownian particles
- Lecture 50 - Understanding the origin of systematic and random parts of force from kinetic
- Lecture 51 - Kinetic derivation of a formula for delta-correlated random force
- Lecture 52 - Mean square velocity, thermal equilibrium and relationship between relaxation
- Lecture 53 - Velocity autocorrelation in Brownian motion
- Lecture 54 - Derivation of Stokes-Einstein relationship between diffusion coefficient and
- Lecture 55 - Alternative derivation of Stokes-Einstein relationship and Brownian motion with
- Lecture 56 - Numerical simulation of the Langevin equation
- Lecture 57 - Derivation of Klein-Kramers equation from Langevin equation for joint
- Lecture 58 - Illustrative solutions to the Klein-Kramers equation
- Lecture 59 - Numerical simulation: Sampling from general distributions and Central
- Lecture 60 - Numerical simulation of Random walk trajectories and method of solving Fokker

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Heterogeneous Catalysis and Catalytic Processes

Subject Co-ordinator - Dr. K.K. Pant

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
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Lecture 4  
Lecture 5  
Lecture 6  
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Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
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Lecture 26  
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Lecture 29

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Lecture 30  
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Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Interfacial Engineering

Subject Co-ordinator - Prof. A.N. Bhaskarwar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - General Introduction Definitions

Lecture 2 - General Introduction, Definitions, Surface Tension

Lecture 3 - Surface Tension Free Energies and Adsorption

Lecture 4 - Properties over Curved Surfaces

Lecture 5 - Total Surface Energy

Lecture 6 - Interfacial Tension Entropy, Cohesion, Adhesion

Lecture 7 - Cohesion, Adhesion and Spreading

Lecture 8 - Spreading from Liquids and Solids

Lecture 9 - Spreading, Interfacial Tensions, Surface Tensions

Lecture 10 - Spreading, Contact Angles Free Energies

Lecture 11 - Spreading/Contact Angles Rough Surfaces, Free Energies

Lecture 12 - Spreading/Contact Angles Work of Adhesion, De-wetting

Lecture 13 - Work of Adhesion, Surface and Interfacial Tensions

Lecture 14 - Surface and Interfacial Tensions

Lecture 15 - Surface and Interfacial Tensions

Lecture 16 - Wetting Balance Method Spreading Coefficient Work of Adhesion Sessile Drop Method, Positive S

Lecture 17 - Indirect and Direct Methods for Positive S, Adhesion Energies Interfacial Potentials

Lecture 18 - Surface and Interfacial Potentials Distribution and Contact Potentials

Lecture 19 - Diffusion Potential Surface and Interfacial Potentials Components of Contact Potential

Lecture 20 - Electrically Charged Monolayers Gouy Theory

Lecture 21 - Equations of State, Cohesion Repulsion, Limiting Area

Lecture 22 - Condensed and Liquid Expanded Monolayers Phase Transformations

Lecture 23 - Films of Polymers Molecular Weight, Surface Viscosity Drag, Canal Method

Lecture 24 - Canal Method Joly's Semi-Empirical Correction Rotational Torsional Surface Viscometer Compression

Lecture 25 - Magnitudes of Surface Compressional Moduli Surface Waves and Ripples

Lecture 26 - Surface waves and Ripples, Velocity Effect of Surface Tension and Surface Compressional Modulus

Lecture 27 - Surface waves and ripples, velocity effect of surface tension and surface compressional modulus

Lecture 28 - Shear Elastic Moduli, Yield Stress Fibres from MLs, Surface Reactions

Lecture 29 - Surface Reactions, Comparison with Bulk-Phase Reactions Steric Factors, Inhibition

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hydrolyses of Esters by Alkali Acid or Enzyme Photochemical Reactions in Monolayers Polymerization
- Lecture 31 - Catalytic Effects Reactions in Emulsions Complex Formation
- Lecture 32 - Complex Formation Penetration into Monolayers Thermodynamics of Penetration Adsorption from Vapor
- Lecture 33 - Introductory Concepts Resistances and their Magnitudes Evaporation and its Retardation
- Lecture 34 - Evaporation and its Retardation Resistances and their Analysis Diffusional Resistance in Gas Phase
- Lecture 35 - Resistances in Liquid Phase and Interface and Their Importance Some Effects and Applications, Theories
- Lecture 36 - Surface Instability Theories of Mass Transfer Experiments on static and Dynamic Systems
- Lecture 37 - Colloids, Aerosols, Emulsions Foams, Coagulation Smoluchowski's Theory

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Fluid Mechanics and its Applications

Subject Co-ordinator - Prof. Vijay Gupta

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 (1)  
Lecture 2 (1A)  
Lecture 3 (2)  
Lecture 4 (2A)  
Lecture 5 (3)  
Lecture 6 (3A)  
Lecture 7 (4)  
Lecture 8 (4A)  
Lecture 9 (5)  
Lecture 10 (5A)  
Lecture 11 (6)  
Lecture 12 (6A)  
Lecture 13 (7)  
Lecture 14 (7A)  
Lecture 15 (8)  
Lecture 16 (8A)  
Lecture 17 (8B)  
Lecture 18 (9)  
Lecture 19 (9A)  
Lecture 20 (10)  
Lecture 21 (10A)  
Lecture 22 (10B)  
Lecture 23 (11)  
Lecture 24 (12)  
Lecture 25 (12A)  
Lecture 26 (12B)  
Lecture 27 (13)  
Lecture 28 (13A)  
Lecture 29 (14)

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Lecture 30 (14A)  
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Lecture 32 (15A)  
Lecture 33 (16)  
Lecture 34 (16A)  
Lecture 35 (17)  
Lecture 36 (17A)  
Lecture 37 (18)  
Lecture 38 (18A)  
Lecture 39 (19)  
Lecture 40 (19A)  
Lecture 41 (20)  
Lecture 42 (20A)  
Lecture 43 (20B)  
Lecture 44 (21)  
Lecture 45 (21A)  
Lecture 46 (22)  
Lecture 47 (22A)  
Lecture 48 (23)  
Lecture 49 (23A)  
Lecture 50 (24)  
Lecture 51 (24A)  
Lecture 52 (25)  
Lecture 53 (25A)  
Lecture 54 (26)  
Lecture 55 (26A)  
Lecture 56 (25)  
Lecture 57 (27)  
Lecture 58 (28)  
Lecture 59 (28A)  
Lecture 60 (29)  
Lecture 61 (29A)  
Lecture 62 (30)  
Lecture 63 (30A)  
Lecture 64 (31)  
Lecture 65 (31A)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Computational Process Design

Subject Co-ordinator - Prof. Manojkumar Ramteke, Prof. Hariprasad Kodamana

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Flowsheet Synthesis - I

Lecture 2 - Flowsheet Synthesis - II

Lecture 3 - Mass Balance - I

Lecture 4 - Mass Balance - II

Lecture 5 - Mass and Energy Balance of Complete Flowsheet

Lecture 6 - Equipment Sizing and Costing

Lecture 7 - Economic Evaluation

Lecture 8 - Design of Batch Plants

Lecture 9 - Simulations for Process Flowsheet

Lecture 10 - Optimization Methods used for Designing

Lecture 11 - Heat Exchanger Network Design - 1

Lecture 12 - Heat Exchanger Network Design - 2

Lecture 13 - Geometric Methods for Reactor Network Synthesis

Lecture 14 - Optimization Methods for Process Design - 1

Lecture 15 - Optimization Methods for Process Design - 2

Lecture 16 - Quantifying Sustainability for Design

Lecture 17 - Process Network Analysis and Footprint Assessment

Lecture 18 - Energy, Exergy and Emergy

Lecture 19 - Ecosystems in Sustainability Assessment

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Heat Transfer

Subject Co-ordinator - Prof. A.K. Ghoshal

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to heat transfer
- Lecture 2 - General heat conduction equation
- Lecture 3 - One dimensional steady state conduction in rectangular coordinate
- Lecture 4 - One dimensional steady state conduction in cylindrical and spherical coordinate
- Lecture 5 - Critical and optimum insulation
- Lecture 6 - Extended surface heat transfer - 1
- Lecture 7 - Extended surface heat transfer - 2
- Lecture 8 - Analysis of lumped parameter model
- Lecture 9 - Transient heat flow in semi infinite solid
- Lecture 10 - Infinite body subjected to sudden convective
- Lecture 11 - Graphical solutions of unsteady state heat conduction problem
- Lecture 12 - Dimensional analysis for forced convection
- Lecture 13 - Dimensional analysis for free convection
- Lecture 14 - Heat transfer co-relations for laminar and internal flows
- Lecture 15 - Heat transfer co-relations for turbulent and internal flows
- Lecture 16 - Co-relation for turbulent and external flows
- Lecture 17 - Heat transfer co-relations for flow across tube banks
- Lecture 18 - Momentum and heat transfer analogies
- Lecture 19 - Boundary layer heat transfer
- Lecture 20 - Boundary layer equations
- Lecture 21 - Approximate analysis in boundary layer
- Lecture 22 - Theoretical concepts of natural / free convection heat transfer
- Lecture 23 - Empirical relations for free convection heat transfer
- Lecture 24 - Condensation heat transfer over vertical plate
- Lecture 25 - Condensation heat transfer for various conditions and geometries
- Lecture 26 - Fundamentals of boiling heat transfer
- Lecture 27 - Boiling heat transfer co-relations
- Lecture 28 - Classification of heat exchangers
- Lecture 29 - Various types of shell and tube heat exchangers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Various types of compact heat exchangers
- Lecture 31 - Effectiveness-NTU, method of heat exchanger analysis
- Lecture 32 - Design of double pipe heat exchanger
- Lecture 33 - Design of shell and tube heat exchanger
- Lecture 34 - Introduction to evaporation and evaporators
- Lecture 35 - Evaporation principles and evaporator performance
- Lecture 36 - Evaporator calculations
- Lecture 37 - Introduction to radiation heat transfer
- Lecture 38 - Radiation intensity and radiation view factor
- Lecture 39 - Radiation heat exchange
- Lecture 40 - Radiation shield and gas radiation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Mass Transfer Operations I

Subject Co-ordinator - Dr. B. Mandal

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Mass Transfer
- Lecture 2 - Molecular Diffusion
- Lecture 3 - Fick's Law of Diffusion
- Lecture 4 - Steady state molecular diffusion in fluids - Part I
- Lecture 5 - Steady state molecular diffusion in fluids - Part II
- Lecture 6 - Diffusion coefficient
- Lecture 7 - Diffusion Coefficient
- Lecture 8 - Multicomponent Diffusion and Diffusivity in Solids
- Lecture 9 - Concept of Mass Transfer Coefficient
- Lecture 10 - Dimensionless Groups and Co-relations for Convective
- Lecture 11 - Mass Transfer coefficient in Laminar Flow Condition
- Lecture 12 - Boundary Layer Theory and Film Theory in Mass Transfer
- Lecture 13 - Mass Transfer Coefficients in Turbulent Flow
- Lecture 14 - Interphase Mass Transfer and Mass Transfer Theories - Part I
- Lecture 15 - Interphase Mass Transfer and Mass Transfer Theories - Part II
- Lecture 16 - Interphase Mass Transfer and Mass Transfer Theories - Part III
- Lecture 17 - Agitated and Sparged Vessels
- Lecture 18 - Tray Column - Part I
- Lecture 19 - Tray Column - Part II
- Lecture 20 - Packed Tower
- Lecture 21 - Introduction to Absorption and Solvent selection
- Lecture 22 - Packed Tower Design - Part I
- Lecture 23 - Packed Tower Design - Part II
- Lecture 24 - Packed Tower Design - Part III
- Lecture 25 - Mass Transfer Coefficients Correlation and HETP Concept
- Lecture 26 - Tray Tower Design and Introduction to Multicomponent System
- Lecture 27 - Introduction to Distillation and Phase diagrams
- Lecture 28 - Azeotropes and Enthalpy Concentration Diagrams
- Lecture 29 - Flash Distillation

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- Lecture 30 - Batch and Steam Distillation
- Lecture 31 - Fractional Distillation
- Lecture 32 - Fractional Distillation
- Lecture 33 - Fractional Distillation
- Lecture 34 - Fractional Distillation
- Lecture 35 - Fractional Distillation
- Lecture 36 - Multistage Batch Distillation with Reflux
- Lecture 37 - Fractional Distillation
- Lecture 38 - Ponchan and Savarit Method and Packed Tower Distillation
- Lecture 39 - Multicomponent Distillation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Process Design Decisions and Project Economics

Subject Co-ordinator - Dr. Vijay S. Moholkar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General Introduction to the Course and Syllabus
- Lecture 2 - Hierarchical Approach to Process Design - I
- Lecture 3 - Hierarchical Approach to Process Design - Examples
- Lecture 4 - Input Information and Design Aspects of Batch vs. Continuous Process
- Lecture 5 - Input / Output Structure of Flowsheet - Part I
- Lecture 6 - Input / Output Structure of Flowsheet - Part II
- Lecture 7 - Input / Output Structure of Flowsheet - Part III and Recycle Structure of Flowsheet - Part I
- Lecture 8 - Recycle Structure of Flowsheet - Part II
- Lecture 9 - Recycle Structure of Flowsheet - Part III
- Lecture 10 - Recycle Structure of Flowsheet - Part IV and Tutorial - Part I
- Lecture 11 - Tutorial - Part II
- Lecture 12 - Tutorial - Part III
- Lecture 13 - Algorithm and Basic Principles of Reactor Design
- Lecture 14 - Reactor Non-ideality, Residence Time Distribution (RTD) and Types of Chemical Reactions & Catalysis
- Lecture 15 - Types of Reactors and Selection Criteria
- Lecture 16 - Tutorial on Reactor Design and Cost Estimation
- Lecture 17 - General Introduction (Types of Separation Processes and Criteria for Selection of the Processes)
- Lecture 18 - Guidelines for Design of Separation Systems
- Lecture 19 - Design of Distillation Columns - Part I (Sequencing of Columns, Energy Integration / Thermal Coupling)
- Lecture 20 - Design of Distillation Columns - Part II (Plate and Packed Towers, Number of Plates, Diameter and Height)
- Lecture 21 - Tutorial - Part I (Design of Absorption Column)
- Lecture 22 - Tutorial - Part II (Design of Distillation Column)
- Lecture 23 - Concepts and Basic Principles of Energy (or Heat) Integration - Part 1 (Composite Curves and ?T<sub>min</sub>)
- Lecture 24 - Concepts and Basic Principles of Heat Integration - Part 2 (Problem Table Algorithm and Identification of Heat Recovery Targets)
- Lecture 25 - Identification of Area and Cost Targets
- Lecture 26 - Pinch Technology for Heat Exchanger Network Design
- Lecture 27 - Tutorial - I (Composite Curves, Problem Table Algorithm and Enthalpy Intervals)
- Lecture 28 - Tutorial - II (Heat Exchanger Network Synthesis Using Pinch Technology)
- Lecture 29 - Selection of Process, Design of Flowsheet and Materials Balance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Energy Balance, Process Alternatives and Design of the Absorber
- Lecture 31 - Rules of Thumb & Their Limitations and Tutorial
- Lecture 32 - General Concepts & Principles and Cost Allocation Procedure
- Lecture 33 - Lumped Cost Diagram and Cost Allocation Diagram (Case Study of Hydro-dealkylation Process)
- Lecture 34 - Assessment of Process Alternatives with Cost Allocation Diagram (Case Study of Hydrodealkylation)
- Lecture 35 - Tutorial on Lumped Cost Diagram and Cost Allocation Diagram
- Lecture 36 - Introduction to Chemical Projects and Their Economic Aspects
- Lecture 37 - Selection of the Process and Project Site - Part I
- Lecture 38 - Selection of the Process and Project Site - Part II
- Lecture 39 - Project Cost Estimation - Part I
- Lecture 40 - Project Cost Estimation - Part II
- Lecture 41 - Simplified Cost Model and Depreciation
- Lecture 42 - Time Value of Money
- Lecture 43 - Measures of Profitability and Project Evaluation - Part I
- Lecture 44 - Measures of Profitability and Project Evaluation - Part II
- Lecture 45 - Tutorial on Project Economics - Part I
- Lecture 46 - Tutorial on Project Economics - Part II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Fluidization Engineering

Subject Co-ordinator - Dr. S.K. Majumder

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Particle properties
- Lecture 3 - Particle / Powder Classifications
- Lecture 4 - Minimum Fluidization Velocity
- Lecture 5 - Minimum Fluidization Velocity
- Lecture 6 - Flow regime and its map
- Lecture 7 - Flow regime and its map
- Lecture 8 - Frictional pressure drop in fluidized bed-fluid-solid system
- Lecture 9 - Frictional pressure drop in fluidized Bed-Gas-liquid-solid system
- Lecture 10 - Analysis of Frictional Pressure Drop in Fluidized Bed By Different Models
- Lecture 11 - Gas Distribution Through Distributor
- Lecture 12 - Calculation of gas pumping power consumption in fluidized bed
- Lecture 13 - Bubbling Fluidization Part 1
- Lecture 14 - Bubbling Fluidization Part 2
- Lecture 15 - Bubbling Fluidization Part 3
- Lecture 16 - Bubbling Fluidization Part 4
- Lecture 17 - Bubbling Fluidization Part 5
- Lecture 18 - Bubbling Fluidization Part 6
- Lecture 19 - Entrainment Characteristics (Part 1)
- Lecture 20 - Entrainment Characteristics (Part 2)
- Lecture 21 - Entrainment Characteristics (Part 2)
- Lecture 22 - Entrainment Characteristics (Part 2)
- Lecture 23 - Attrition in Fluidized Bed (Part 2)
- Lecture 24 - Solid movement, mixing
- Lecture 25 - Solid segregation
- Lecture 26 - Solid mixing and segregation
- Lecture 27 - Gas Dispersion and Interchange
- Lecture 28 - Mass transfer in fluidized Bed-Gas-solid system
- Lecture 29 - Mass transfer in fluidized Bed-Gas-liquid-solid system (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Heat transfer Characteristics

Lecture 31 - Fluidized bed reactor design and its performance



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:An Introduction to Cardiovascular Fluid Mechanics

Subject Co-ordinator - Dr. Raghvendra Gupta

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - An Introduction

Lecture 2 - Fluid Mechanics

Lecture 3 - Solid Mechanics

Lecture 4 - Rheology of blood

Lecture 5 - Blood morphology

Lecture 6 - Blood flow in a channel

Lecture 7 - Viscometers and Rheometers

Lecture 8 - Viscoelasticity

Lecture 9 - Flow Bifurcation

Lecture 10 - Pulsatile Flow 1

Lecture 11 - Pulsatile Flow 2

Lecture 12 - Flow in Elastic Tubes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Multiphase Microfluidics

Subject Co-ordinator - Dr. Raghvendra Gupta

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Introduction
- Lecture 2 - Interface and Surface Tension
- Lecture 3 - Flow Regimes 1
- Lecture 4 - Flow Regimes 2
- Lecture 5 - Taylor Flow 1
- Lecture 6 - Taylor Flow 2
- Lecture 7 - Computational Techniques
- Lecture 8 - Bubble and Droplet Generation
- Lecture 9 - Interface and Surface tension 2
- Lecture 10 - Void Fraction and Pressure Drop
- Lecture 11 - Liquid-Liquid Flow
- Lecture 12 - Ideal annular Flow
- Lecture 13 - Taylor Flow
- Lecture 14 - Taylor Flow
- Lecture 15 - Taylor Flow
- Lecture 16 - Taylor Flow
- Lecture 17 - Flow boiling in microchannels
- Lecture 18 - Flow boiling in microchannels (Continued...)
- Lecture 19 - Flow Measurement Techniques
- Lecture 20 - Particle image Velocimetry
- Lecture 21 - Inertial Microfluidics
- Lecture 22 - Microfluidic applications
- Lecture 23 - Microfluidic applications (Continued...)
- Lecture 24 - Concluding Remarks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Measurement Technique in Multiphase Flows

Subject Co-ordinator - Prof. Rajesh Kumar Upadhyay

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Multiphase flow Measurement Techniques

Lecture 2 - Invasive and Non-invasive Techniques

Lecture 3 - Hot Wire Anemometry

Lecture 4 - Optical Fiber Probe

Lecture 5 - Laser Doppler Anemometry (LDA)

Lecture 6 - LDA Post Processing and Particle Image Velocimetry (PIV)

Lecture 7 - PIV and Positron Emission Particle Tracking

Lecture 8 - Radioactive Particle Tracking - I

Lecture 9 - Radioactive Particle Tracking - II

Lecture 10 - Capacitance Probe, Optical Fiber Probe and ECT

Lecture 11 - Gamma-ray and X-ray Tomography, MRI

Lecture 12 - Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Multiphase Flows

Subject Co-ordinator - Prof. Rajesh Kumar Upadhyay

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Multiphase flow introduction
- Lecture 2 - Fundamental definitions and terminology used in Multiphase - I
- Lecture 3 - Fundamental definitions and terminology used in Multiphase - II
- Lecture 4 - Flow Regime Map for Gas-Liquid System
- Lecture 5 - Flow Regime Map for Fluid-Solid System
- Lecture 6 - Pneumatic Conveying
- Lecture 7 - Momentum Equation through Reynolds Transport Theorem
- Lecture 8 - Lockhart Martinelli Correlation
- Lecture 9 - Pressure Drop Calculation for Homogeneous Flow
- Lecture 10 - Pressure Drop Calculation for Separated and Annular Flow Regime
- Lecture 11 - Lagrangian Tracking of Single Particle Under Different Forces
- Lecture 12 - Multiphase Interactions
- Lecture 13 - Multiphase Interactions
- Lecture 14 - Introduction to Multiphase Flow Modeling
- Lecture 15 - Algebraic Slip Method and Euler-Euler Method
- Lecture 16 - KTGF and Euler-Lagrangian Model
- Lecture 17 - Measurement Techniques
- Lecture 18 - Measurement Techniques
- Lecture 19 - Bubble Column
- Lecture 20 - Packed Bed Reactor
- Lecture 21 - Fluidized Bed Reactor
- Lecture 22 - Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Introduction to Polymer Physics (IIT-G)

Subject Co-ordinator - Prof. Amit Kumar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Polymers
- Lecture 2 - Ideal Chain Models
- Lecture 3 - Ideal and Real Chains
- Lecture 4 - Thermodynamics of Polymer Solutions - I
- Lecture 5 - Thermodynamics of Polymer Solutions - II
- Lecture 6 - Thermodynamics of Polymer Solutions - III
- Lecture 7 - Phase Behaviour of Polymer Solutions and Blends
- Lecture 8 - Phase Behaviour of Polymer Blends and Copolymers
- Lecture 9 - Determination of Polymer Molar Mass
- Lecture 10 - Determination of Polymer Molar Mass
- Lecture 11 - Determination of Polymer Molar Mass
- Lecture 12 - Determination of Polymer Molar Mass
- Lecture 13 - Branching
- Lecture 14 - Branching, Network Formation and Gelation
- Lecture 15 - Gelation and Swelling of Network Polymers
- Lecture 16 - Amorphous State of Polymers
- Lecture 17 - Crystalline State of Polymers
- Lecture 18 - Mechanical Properties of Polymers
- Lecture 19 - Viscoelasticity
- Lecture 20 - Viscoelasticity, Dynamic Mechanical Analysis and Rheology
- Lecture 21 - Rubber Elasticity
- Lecture 22 - Unentangled Polymer Dynamics
- Lecture 23 - Entangled Polymer Dynamics
- Lecture 24 - Review

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Natural Gas Engineering

Subject Co-ordinator - Prof. Pankaj Tiwari

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Natural Gas - I
- Lecture 2 - Introduction to Natural Gas - II
- Lecture 3 - Introduction to Natural Gas - III
- Lecture 4 - Wellbore Performance Relationship (WPR)
- Lecture 5 - Choke Performance Relationship (CPR)
- Lecture 6 - Nodal Analysis
- Lecture 7 - Inflow Performance Relationship (IPR) - I
- Lecture 8 - Inflow Performance Relationship (IPR) - II
- Lecture 9 - Gas Well Testing
- Lecture 10 - Wellbore Performance Relationship (WPR)
- Lecture 11 - Choke Performance Relationship (CPR)
- Lecture 12 - Nodal Analysis
- Lecture 13 - Natural Gas Separation - I
- Lecture 14 - Natural Gas Separation - II
- Lecture 15 - Dehydration of Natural Gas
- Lecture 16 - Sweetening of Natural Gas
- Lecture 17 - Compressor Design
- Lecture 18 - Measurement of Natural Gas
- Lecture 19 - Transportation of Natural Gas - I
- Lecture 20 - Transportation of Natural Gas - II
- Lecture 21 - Unconventional production of Natural Gas
- Lecture 22 - Review

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Chemical Engineering Thermodynamics

Subject Co-ordinator - Prof. Sasidhar Gumma

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - First law for closed systems
- Lecture 3 - First law for open systems
- Lecture 4 - Simple processes
- Lecture 5 - Processes involving liquids and ideal gases
- Lecture 6 - Temperature dependency of  $C_p$  in an ideal gas
- Lecture 7 - Efficiency of Heat engines and Statement of Second Law
- Lecture 8 - Entropy
- Lecture 9 - Lost Work
- Lecture 10 - Maxwell's Relations
- Lecture 11 - Thermodynamic Diagrams
- Lecture 12 - Thermodynamic Tables, Residual Properties
- Lecture 13 - Virial Equation of State
- Lecture 14 - Residual property relations from EoS
- Lecture 15 - Cubic Equation of State
- Lecture 16 - Cubic Equation of State
- Lecture 17 - Thermodynamic Tables
- Lecture 18 - Correlations for Liquids
- Lecture 19 - Process Involving Phase Changes
- Lecture 20 - Chemical potential
- Lecture 21 - Partial molar properties
- Lecture 22 - Examples
- Lecture 23 - Ideal Solutions
- Lecture 24 - Excess Properties
- Lecture 25 - Fugacity
- Lecture 26 - Calculation of Fugacity using EoS - Part 1
- Lecture 27 - Calculation of Fugacity using EoS - Part 2
- Lecture 28 - Calculation of Fugacity in Mixtures using Cubic EoS
- Lecture 29 - Fugacity in Liquids, Activity Coefficient

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- Lecture 30 - Models for Excess Gibbs free energy - Part 1
- Lecture 31 - Models for Excess Gibbs free energy - Part 2
- Lecture 32 - Vapor Liquid Equilibrium - Part 1
- Lecture 33 - Vapor Liquid Equilibrium - Part 2
- Lecture 34 - Azeotropes
- Lecture 35 - Gamma/Phi Formulation
- Lecture 36 - LLE
- Lecture 37 - VLLE
- Lecture 38 - Enthalpy changes upon reaction
- Lecture 39 - Reaction coordinate
- Lecture 40 - Equilibrium constant
- Lecture 41 - Examples
- Lecture 42 - Conclusion



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Mass Transfer Operations-I

Subject Co-ordinator - Dr. B. Mandal

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Overview of Mass Transfer Operation
- Lecture 2 - Molecular and Eddy Diffusion, Diffusion Velocities and Fluxes
- Lecture 3 - Fick's First and Second Law
- Lecture 4 - Steady State Molecular Diffusion in fluids under stagnant and laminar flow conditions
- Lecture 5 - Diffusion through variable cross-sectional area
- Lecture 6 - Gas Phase Diffusion Coefficient measurement
- Lecture 7 - Gas Phase Diffusion Coefficient prediction and liquid phase diffusion coefficient measurement and
- Lecture 8 - Multicomponent diffusion and diffusivity in solids
- Lecture 9 - Mass transfer coefficient concept and classifications
- Lecture 10 - Dimensionless groups and correlations for convective mass transfer coefficients
- Lecture 11 - Mass transfer coefficient in laminar flow
- Lecture 12 - Boundary Layer Theory and mass transfer coefficients in turbulent flow
- Lecture 13 - Mass transfer theories
- Lecture 14 - Interphase mass transfer
- Lecture 15 - Interphase mass transfer and material balance for operating line
- Lecture 16 - Number of ideal stages in counter current operation
- Lecture 17 - Introduction, classification, Sparged and agitated vessels design
- Lecture 18 - Gas dispersed
- Lecture 19 - Sieve Tray
- Lecture 20 - Liquid dispersed
- Lecture 21 - Introduction to absorption, Equilibrium in gas-liquid system, and minimum liquid rate
- Lecture 22 - Design of packed column absorber based on the Individual Mass Transfer Coefficient
- Lecture 23 - Design of packed column absorber based on the Overall Mass Transfer Coefficient
- Lecture 24 - Height Equivalent to a Theoretical Plate (HETP), Design of packed column absorber for dilute and
- Lecture 25 - Absorption in plate column
- Lecture 26 - Introduction to distillation, binary equilibrium diagrams and concept of relative volatility
- Lecture 27 - Distillation in non-ideal systems and concept of enthalpy-concentration diagram
- Lecture 28 - Flash distillation
- Lecture 29 - Batch and steam distillation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Continuous multistate fractionation
- Lecture 31 - Number of trays by McCabe and Thiele for distillation
- Lecture 32 - Pinch Points and minimum reflux
- Lecture 33 - Reflux below its bubble point
- Lecture 34 - Multiple feeds, multiple product withdrawal or side streams
- Lecture 35 - Multistage batch distillation with reflux
- Lecture 36 - The Ponchon-Savarit method
- Lecture 37 - The Ponchon-Savarit method
- Lecture 38 - Packed Distillation
- Lecture 39 - Introduction to multicomponent distillation and multicomponent flash distillation
- Lecture 40 - Minimum stages and minimum reflux in multicomponent distillation
- Lecture 41 - Multicomponent batch distillation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Transport Phenomena of Non-Newtonian Fluids

Subject Co-ordinator - Prof. N. Kishore

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Basic Concepts
- Lecture 2 - Classification of Non-Newtonian Fluids
- Lecture 3 - Mathematical Models for Non-Newtonian Fluids
- Lecture 4 - Viscoelastic Non-Newtonian Fluids
- Lecture 5 - Capillary Viscometers: Sources of Errors and Correction Methods
- Lecture 6 - Rotational Viscometers
- Lecture 7 - Capillary Viscometers - Errors and Corrections II
- Lecture 8 - Equation of Change for Non-Isothermal Systems
- Lecture 9 - Rotational Viscometers - II
- Lecture 10 - Rotational Viscometers - III
- Lecture 11 - Transition from Laminar to Turbulent Flow in Pipes for GNF
- Lecture 12 - Equations of Change for Isothermal Systems
- Lecture 13 - Equations of Change for Non-Isothermal Systems
- Lecture 14 - Power-law Fluids Flow in Concentric Annulus
- Lecture 15 - Power-law and Ellis Model Fluids Flow Through Pipes
- Lecture 16 - Bingham Plastic Fluids Flow through Pipes
- Lecture 17 - Herschel Bulkley Fluids Flow through Pipes
- Lecture 18 - Transition and Turbulent Flow of GNF in Pipes - I
- Lecture 19 - Transition and Turbulent Flow of GNF in Pipes - II
- Lecture 20 - Laminar flow of GNFs between Parallel Plates and along Inclined Surface
- Lecture 21 - Laminar flow of GNFs along Inclined Surface and Concentric Annulus
- Lecture 22 - Flow of Non-Newtonian Fluids through Packed Beds
- Lecture 23 - Dispersion in Packed Beds: Non-Newtonian Effects
- Lecture 24 - Liquid-Solid Fluidization by Power-law Liquids
- Lecture 25 - Free Convection between Two Vertical Plates
- Lecture 26 - Viscous Heat Generation
- Lecture 27 - Temperature distribution in fluids confined between co-axial cylinders
- Lecture 28 - Temperature distribution for FDF of Newtonian fluids in tubes
- Lecture 29 - Heat Transfer Combined with Chemical Reactions

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- Lecture 30 - Transpiration Cooling
- Lecture 31 - Basics of MT; Diffusion Through Stagnant Gas Film
- Lecture 32 - Non-Isothermal Diffusive MT and Forced Convective MT
- Lecture 33 - Simultaneous Heat and Mass Transfer
- Lecture 34 - Mass Transfer Combined with Chemical Reactions
- Lecture 35 - Quasi-Steady Analysis of Simultaneous HT, MT and Chemical Reaction
- Lecture 36 - Quasi-Steady Analysis of Simultaneous HT and MT - I
- Lecture 37 - Quasi-Steady Analysis of Simultaneous HT and MT - II
- Lecture 38 - Quasi-Steady Analysis of Simultaneous HT and MT - III
- Lecture 39 - Momentum and Thermal Boundary Layer Flows
- Lecture 40 - Momentum Boundary Layer Thickness of Non-Newtonian Fluids
- Lecture 41 - Thermal and Concentration Boundary Layer Thickness of Non-Newtonian Fluids

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Fluid Flow Operations

Subject Co-ordinator - Dr. S.K. Majumder

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Characteristics of fluid (Continued...)  
Lecture 3 - Fluid Statics  
Lecture 4 - Fluid Statics (Continued...)  
Lecture 5 - Fundamentals of flow - Part 1  
Lecture 6 - Fundamentals of flow - Part 2  
Lecture 7 - One dimensional flow - Part 1  
Lecture 8 - One dimensional flow - Part 2  
Lecture 9 - One dimensional flow - Part 3  
Lecture 10 - Flow of Viscous fluid - Introduction  
Lecture 11 - Velocity distribution in laminar flow  
Lecture 12 - Velocity distribution in turbulent flow  
Lecture 13 - Boundary layer theory  
Lecture 14 - Theory of lubrication  
Lecture 15 - Frictional resistance  
Lecture 16 - Losses in gematric change  
Lecture 17 - Losses in geometric change (Continued...)  
Lecture 18 - Flow Velocity and Optimum Shape  
Lecture 19 - Equation of Energy and Discharge of Water Channel  
Lecture 20 - Drag  
Lecture 21 - Lift and Cavitation  
Lecture 22 - Dimensional Analysis  
Lecture 23 - Dimensional Analysis  
Lecture 24 - Law of Similarity and Significant Dimensionless Number  
Lecture 25 - Compressible Flow - Part 1  
Lecture 26 - Compressible Flow - Part 2  
Lecture 27 - Measurement of Flow - Part 1  
Lecture 28 - Measurement of Flow - Part 2  
Lecture 29 - Measurement of Flow - Part 3

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- Lecture 30 - Introduction to multiphase flow
- Lecture 31 - Hydrodynamics in multiphase flow
- Lecture 32 - Hydrodynamics in multiphase flow (Continued...)
- Lecture 33 - Applications of multiphase flow

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Chemical Process Intensification

Subject Co-ordinator - Dr. S.K. Majumder

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - History, Philosophy and Concept
- Lecture 2 - Principle Features
- Lecture 3 - Strategies and domain based techniques
- Lecture 4 - Intensification by fluid flow process
- Lecture 5 - Mechanism of Intensification by mixing
- Lecture 6 - Intensification in Reactive system
- Lecture 7 - Problems leading to sustainable development
- Lecture 8 - Concept, Issues and Challenges
- Lecture 9 - Strategies in process design
- Lecture 10 - Scales and stages of process intensification
- Lecture 11 - Methods and Tools for Achieving sustainable design
- Lecture 12 - Multi-level Computer aided tools
- Lecture 13 - Introduction on Stochastic Optimization
- Lecture 14 - Optimization Algorithms
- Lecture 15 - Applications of Optimization Algorithms
- Lecture 16 - Introduction and Mechanism of Cavitation-based PI
- Lecture 17 - Cavitation Reactor Configurations and activity
- Lecture 18 - Parametric effects on cavitation
- Lecture 19 - Introduction of monolith reactor
- Lecture 20 - Preparation of monolithic catalyst
- Lecture 21 - Application of monolithic catalyst
- Lecture 22 - Hydrodynamics, transport of monolithic reactor
- Lecture 23 - Overview of interfacial area based processes
- Lecture 24 - Ejector induced downflow system for PI
- Lecture 25 - Hydrodynamics and transport in downflow system
- Lecture 26 - Introduction and Principles
- Lecture 27 - Types of Intensified Distillation Units
- Lecture 28 - Design of membrane-assisted distillation
- Lecture 29 - Introduction and Principles

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Supercritical extraction for process intensification
- Lecture 31 - Introduction to membrane and its principles
- Lecture 32 - Membrane engineering in process intensification
- Lecture 33 - Introduction to microprocess technology
- Lecture 34 - Process Intensification by Microreactors
- Lecture 35 - Hydrodynamics and transport in microchannel based microreactor



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Chemical Reaction Engineering-I

Subject Co-ordinator - Dr. B. Mandal

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Overview on Reaction Engineering
- Lecture 2 - Kinetics of Homogeneous Reactions
- Lecture 3 - Kinetic Model and Temperature Dependency
- Lecture 4 - Introduction and Stoichiometry for the Batch System
- Lecture 5 - Stoichiometry for Constant Volume Flow and Variable Volume Batch Systems
- Lecture 6 - Stoichiometry for Variable Volume Flow System
- Lecture 7 - Analysis of Batch Reactor Kinetic Data
- Lecture 8 - Integral Method of Analysis of Batch Reactor Data - Part 1
- Lecture 9 - Integral Method of Analysis of Batch Reactor Data - Part 2
- Lecture 10 - Differential Method of Analysis and Variable Volume Batch Reactor Data
- Lecture 11 - Introduction and Ideal Batch Reactor Design
- Lecture 12 - Ideal Mixed Flow Reactor Design
- Lecture 13 - Ideal Plug Flow Reactor Design
- Lecture 14 - Size Comparison of Single and Multiple Reactors
- Lecture 15 - Size Comparison Multiple Reactors
- Lecture 16 - Recycle and Autocatalytic Reactors
- Lecture 17 - Design for Parallel Reactions
- Lecture 18 - Design for Series Reactions
- Lecture 19 - Design for Series-Parallel Reactions
- Lecture 20 - Denbigh Reactions and Their Special Cases
- Lecture 21 - Heats of Reaction and Equilibrium Conversion from Thermodynamics
- Lecture 22 - General Graphical Reactor Design Procedure
- Lecture 23 - Material and Energy Balances in Batch Reactor
- Lecture 24 - Optimum Temperature Progression in Batch Reactor
- Lecture 25 - Material and Energy Balances in Plug Flow and Mixed Flow Reactors
- Lecture 26 - Ideal and Non-Ideal Mixed Flow Reactor Design and Multiple Steady States
- Lecture 27 - Non-Ideal Reactors and Residence Time Distribution
- Lecture 28 - RTD Measurement and Moments of RTD
- Lecture 29 - RTD in Ideal Reactors

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Lecture 30 - Reactor Modeling using the RTD

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Mass Transfer Operations-II

Subject Co-ordinator - Dr. Chandan Das

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic concepts, Adiabatic saturation temperature
- Lecture 2 - Design calculations of cooling tower
- Lecture 3 - Design of cooling tower
- Lecture 4 - Design of cooling tower
- Lecture 5 - Air conditioning, Example problems on dehumidification
- Lecture 6 - Mechanism of drying and drying equilibria, drying rate curve
- Lecture 7 - Drying
- Lecture 8 - Drying
- Lecture 9 - Drying time calculation from drying rate curve
- Lecture 10 - Introduction to liquid-liquid extraction, liquid-liquid equilibria
- Lecture 11 - Effect of temperature on LLE and Design of single stage extraction
- Lecture 12 - Design Calculation of Multistage Operation
- Lecture 13 - Design calculation of multistage cross-current extraction
- Lecture 14 - Design calculation of multistage counter-current extraction, Selection of extractors
- Lecture 15 - Leaching
- Lecture 16 - Leaching
- Lecture 17 - Supercritical Fluid Extraction, equipmet for leaching
- Lecture 18 - Fundamentals of membrane separation processes
- Lecture 19 - Manufacturing of membranes,advantages and limitations
- Lecture 20 - Various models and applications
- Lecture 21 - Various models and applications
- Lecture 22 - Electric field enhanced membrane separation processes
- Lecture 23 - Micellar-enhanced ultrafiltration
- Lecture 24 - Adsorption
- Lecture 25 - Stage wise and continuous adsorption
- Lecture 26 - Fluidized bed and teeter bed
- Lecture 27 - Unsteady state fixed bed adsorbers, ion exchange
- Lecture 28 - Crystallization, types of crystal geometry
- Lecture 29 - Solid-liquid phase equilibrium, Theory of crystallization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Design of crystallizer, crystallization equipment

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Mechanical Unit Operations

Subject Co-ordinator - Prof. Nanda Kishore

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of Particulate Solids
- Lecture 2 - Particle Size
- Lecture 3 - Particle Shape and Density
- Lecture 4 - Screening
- Lecture 5 - Size Analysis by Screening
- Lecture 6 - Screening Equipment, Effectiveness and Capacity
- Lecture 7 - Methods of Size Reduction
- Lecture 8 - Equipment for Size Reduction - Crushers
- Lecture 9 - Equipment for Size Reduction - Gridners
- Lecture 10 - Equipment for Size Reduction - Ultrafine Grinders and Cutting Machines
- Lecture 11 - Storage of Bulk Solids
- Lecture 12 - Solids Flow Out and their Flow Patterns
- Lecture 13 - Conveying of Bulk Solids
- Lecture 14 - Size Enlargement Methods
- Lecture 15 - Size Enlargement Equipment - 1
- Lecture 16 - Size Enlargement Equipment - 2
- Lecture 17 - Flow past Immersed Solid Objects
- Lecture 18 - Motion of Particles through Fluids - 1
- Lecture 19 - Motion of Particles through Fluids - 2
- Lecture 20 - Motion of Particles through Fluids - 3
- Lecture 21 - Flow through Beds of Solids - 1
- Lecture 22 - Flow through Beds of Solids - 2
- Lecture 23 - Flow through Fluidized Beds - 1
- Lecture 24 - Flow through Fluidized Beds - 2
- Lecture 25 - Filtration
- Lecture 26 - Principles of Cake Filtration - 1
- Lecture 27 - Principles of Cake Filtration - 2
- Lecture 28 - Filtration Equipment
- Lecture 29 - Cross Flow Filtration - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cross Flow Filtration - 2
- Lecture 31 - Gravity Sedimentation - Classifiers
- Lecture 32 - Gravity Sedimentation - Design of Thickeners - 1
- Lecture 33 - Gravity Sedimentation - Design of Thickeners - 2
- Lecture 34 - Centrifugal Separations - 1
- Lecture 35 - Centrifugal Separations - 2
- Lecture 36 - Flootation - 1
- Lecture 37 - Flootation - 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Advanced Thermodynamics

Subject Co-ordinator - Prof. Nanda Kishore

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of Phase Equilibrium
- Lecture 2 - Classical Thermodynamics of Phase Equilibria - 1
- Lecture 3 - Classical Thermodynamics of Phase Equilibria - 2
- Lecture 4 - Thermodynamic Properties from Volumetric Data
- Lecture 5 - Fugacity from Volumetric Data - 1
- Lecture 6 - Fugacity from Volumetric Data - 2
- Lecture 7 - Intermolecular Forces and Non-Ideal Behaviour
- Lecture 8 - Intermolecular Forces-Potential Energy Functions
- Lecture 9 - Molecular Theory of Corresponding States - 1
- Lecture 10 - Molecular Theory of Corresponding States - 2
- Lecture 11 - Intermolecular Potential and EoS
- Lecture 12 - Virial Coefficients from Potential Functions
- Lecture 13 - Virial Coefficients from Corresponding States Theory
- Lecture 14 - Fugacities in Gaseous Mixtures - 1
- Lecture 15 - Fugacities in Gaseous Mixtures - 2
- Lecture 16 - Fugacities in Gaseous Mixtures - 3
- Lecture 17 - Liquid Mixtures and Excess Functions
- Lecture 18 - Excess Functions and Activity Coefficients
- Lecture 19 - Activity Coefficients and Thermodynamic Consistency
- Lecture 20 - Models for Excess Gibbs Energy - 1
- Lecture 21 - Models for Excess Gibbs Energy - 2
- Lecture 22 - Models for Excess Gibbs Energy - 3
- Lecture 23 - Vapour-Liquid Equilibrium - 1
- Lecture 24 - Vapour-Liquid Equilibrium - 2
- Lecture 25 - Vapour-Liquid Equilibrium - 3
- Lecture 26 - Liquid-Liquid Equilibrium - 1
- Lecture 27 - Liquid-Liquid Equilibrium - 2
- Lecture 28 - Vapour-Liquid-Liquid Equilibrium - 1
- Lecture 29 - Vapour-Liquid-Liquid Equilibrium - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Solid-Liquid Equilibrium - 1  
Lecture 31 - Solid-Liquid Equilibrium - 2



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Membrane Technology

Subject Co-ordinator - Prof. Kaustubha Mohanty

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Separation Processes, Historical Development, Definition and Types of Membranes
- Lecture 2 - Membrane Processes and Classifications, Advantages, Disadvantages, Applications
- Lecture 3 - Polymer Basics, Polymers used in Membrane Preparation and their Properties
- Lecture 4 - Inorganic Materials for Membrane Preparation, their Advantages and Disadvantages
- Lecture 5 - Membrane Modules and Selection, Flow Types
- Lecture 6 - Preparation of Synthetic Membrane, Phase Inversion Membranes
- Lecture 7 - Composite membranes
- Lecture 8 - Inorganic membranes
- Lecture 9 - Porous and non-porous membranes, characterization of porous membranes and MF membrane
- Lecture 10 - MF membrane characterization
- Lecture 11 - UF membrane characterization
- Lecture 12 - Passive transport, active transport, description of transport process
- Lecture 13 - Transport through porous membrane and nonporous membrane
- Lecture 14 - Concept of osmosis and reverse osmosis, thermodynamic analysis
- Lecture 15 - Revision of concepts and fundamentals
- Lecture 16 - HP and LP RO, membrane materials, modules, models for RO transport
- Lecture 17 - Advantages of RO, fouling, RO applications, Pressure retarded osmosis
- Lecture 18 - Nanofiltration basics, transport mechanism, fouling model and applications
- Lecture 19 - Basic principles of UF, membranes and modules, UF configurations
- Lecture 20 - Models for UF transport, mass transfer coefficient, membrane rejection and sieving coefficient
- Lecture 21 - Factors affecting UF performance, fouling and permeate flux enhancement, UF applications1
- Lecture 22 - Micellar-enhanced UF, affinity UF, UF based bioseparation
- Lecture 23 - Basic principles, advantages of MF, cross-flow and dead-end MF, membranes and modules
- Lecture 24 - Models for MF transport, plugging and throughput, fouling in MF, MF applications
- Lecture 25 - Problems and solutions based on RO and MF
- Lecture 26 - Problems and solutions based on UF
- Lecture 27 - Dialysis, membranes and modules, mass transport in dialysis, diffusion analysis, applications
- Lecture 28 - Ion-exchange membranes, ED process, energy requirement, applications, reverse ED
- Lecture 29 - PV principle, advantages, mass transfer and applications, hybrid distillation/PV

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problems and solutions based on ED and PV
- Lecture 31 - Concept, types of LM, mechanism of mass transfer in LM, choice of solvent and carrier, applications
- Lecture 32 - Basic principle of gas separation, transport mechanism, factors affecting gas separation, applications
- Lecture 33 - Basic principle of MD, mechanism, process parameters, membranes, applications
- Lecture 34 - Mechanism, coupled transport, carrier agent, active and passive transport, applications
- Lecture 35 - Gas-liquid and liquid-liquid contactors, membrane reactors and bioreactors, PEM hydrogen fuel cell
- Lecture 36 - Perstraction, membrane chromatography and controlled drug delivery

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Computer Aided Applied Single Objective Optimization

Subject Co-ordinator - Prof. Prakash Kotecha

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Optimization
- Lecture 2 - Linear Regression
- Lecture 3 - Multiple, Polynomial and General Linear Least Square Regression
- Lecture 4 - Nonlinear Regression
- Lecture 5 - Regression
- Lecture 6 - Teaching Learning Based Optimization
- Lecture 7 - Implementation of TLBO in MATLAB
- Lecture 8 - Supplementary
- Lecture 9 - Supplementary
- Lecture 10 - Particle Swarm Optimization
- Lecture 11 - Implementation of Particle Swarm Optimization using MATLAB
- Lecture 12 - Differential Evolution
- Lecture 13 - Implementation of Differential Evolution using MATLAB
- Lecture 14 - Binary Coded Genetic Algorithm
- Lecture 15 - Real Coded Genetic Algorithm
- Lecture 16 - Implementation of Real Coded Genetic Algorithm using MATLAB
- Lecture 17 - Artificial Bee Colony Algorithm
- Lecture 18 - Working of Artificial Bee Colony Algorithm
- Lecture 19 - Implementation of Artificial Bee Colony using MATLAB
- Lecture 20 - Comparison of Variation Operators and Survival Strategies
- Lecture 21 - Black-Box Optimization Problems
- Lecture 22 - Constraint-Handling in Metaheuristic Techniques
- Lecture 23 - Case Study
- Lecture 24 - Case Study
- Lecture 25 - Parallelization and Vectorization of Fitness Function
- Lecture 26 - Constraint-Handling using Correction Approach
- Lecture 27 - MATLAB inbuilt functions
- Lecture 28 - MATLAB inbuilt functions
- Lecture 29 - MATLAB Optimization Tool

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - MATLAB inbuilt functions
- Lecture 31 - Simplex Method for LP
- Lecture 32 - Branch and Bound Method for MILP
- Lecture 33 - MILP formulation of Production Planning Problem
- Lecture 34 - Generalized Algebraic Modelling System
- Lecture 35 - Solution of Production Planning Problem using GAMS and NEOS, MIRO

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Basic Principles and Calculations in Chemical Engineering

Subject Co-ordinator - Prof. Subrata Kumar Majumdar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition, History, Role of Chemical Engineer
- Lecture 2 - Basic Features of Chemical Process
- Lecture 3 - Unit systems and dimensions
- Lecture 4 - Variables and Properties of Material in System
- Lecture 5 - Pressure and Temperature of Flow Process
- Lecture 6 - Rate of Process
- Lecture 7 - Principles of material balance and calculation
- Lecture 8 - Material Balances on Processes with Recycle and Bypass
- Lecture 9 - Material balances on reactive processes
- Lecture 10 - Material balances on combustion reactions
- Lecture 11 - State Equation of Ideal Gas and Calculation
- Lecture 12 - State Equation of non-Ideal Gas and Calculation
- Lecture 13 - Phase equilibrium
- Lecture 14 - Equilibrium Laws, Humidity and Saturation
- Lecture 15 - Humidity, Saturation Psychrometric chart
- Lecture 16 - Process of phase change
- Lecture 17 - Principles of Energy
- Lecture 18 - Laws and properties of thermodynamics
- Lecture 19 - Standard Heat of Formation
- Lecture 20 - The mechanical energy balance
- Lecture 21 - Enthalpy balances without reaction
- Lecture 22 - Energy balance with multiple streams without reaction
- Lecture 23 - Energy balance on heat of solution
- Lecture 24 - Energy balance with heat of reaction
- Lecture 25 - Energy balance with heat of reaction (Continued...)
- Lecture 26 - Energy balance with heat of combustion
- Lecture 27 - Material balance of transient process
- Lecture 28 - Unsteady state energy balance
- Lecture 29 - Least Square Method Linear equation fitting

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Non-linear algebraic equation system
- Lecture 31 - Numerical Integration
- Lecture 32 - Process Degrees of Freedom
- Lecture 33 - Process Flowsheeting and codes
- Lecture 34 - Case Study
- Lecture 35 - Case Study

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Renewable Energy Engineering: Solar, Wind and Biomass Energy

Subject Co-ordinator - Prof. R. Anandalakshmi, Prof. Vaibhav Vasant Goud

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Solar Energy: An overview of thermal applications

Lecture 2 - Solar radiation

Lecture 3 - Practice problems - Part I

Lecture 4 - Practice problems - Part II

Lecture 5 - Non-concentrating solar collectors - Part I

Lecture 6 - Non-concentrating solar collectors - Part II

Lecture 7 - Non-concentrating solar collectors - Part III

Lecture 8 - Practice problems - Part I

Lecture 9 - Practice problems - Part II

Lecture 10 - Practice problems - Part III

Lecture 11 - Parabolic solar collectors

Lecture 12 - Practice problems

Lecture 13 - Thermal energy storage systems - Part I

Lecture 14 - Thermal energy storage systems - Part II

Lecture 15 - Solar energy utilization methods

Lecture 16 - Classification of energy resources

Lecture 17 - Broad classification and compositional analysis

Lecture 18 - Characteristics and properties of biomass

Lecture 19 - Properties and structural components of biomass

Lecture 20 - Biomass residues and energy conversion routes

Lecture 21 - Utilisation of biomass through bio-chemical and thermo-chemical routes

Lecture 22 - Conversion mechanism of biomass to biogas and its properties

Lecture 23 - Classification of biogas plants

Lecture 24 - Practice problems - I

Lecture 25 - Practice problems - II

Lecture 26 - Practice problems - III

Lecture 27 - Bioconversion of substrates into alcohol

Lecture 28 - Thermo-chemical conversion, torrefaction and combustion processes

Lecture 29 - Thermo-chemical conversion of biomass to solid, liquid and gaseous fuels

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gasification process
- Lecture 31 - Thermo-chemical conversion processes: pyrolysis, liquefaction and conversion processes
- Lecture 32 - Practice problems - I
- Lecture 33 - Practice problems - II
- Lecture 34 - Turbine terms, types and theories - Part I
- Lecture 35 - Turbine terms, types and theories - Part II
- Lecture 36 - Characteristics and Power Generation from Wind Energy - Part I
- Lecture 37 - Characteristics and Power Generation from Wind Energy - Part II
- Lecture 38 - Practice problems



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC: Biomass Conversion and Biorefinery

Subject Co-ordinator - Prof. Kaustubha Mohanty

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Energy and Environment scenario
- Lecture 2 - Need for biomass based industries
- Lecture 3 - Biomass basics
- Lecture 4 - Dedicated energy crops
- Lecture 5 - Oil crops and microalgae
- Lecture 6 - Enhancing biomass properties
- Lecture 7 - Basic concepts and types
- Lecture 8 - Feedstocks and properties
- Lecture 9 - Economics and LCA
- Lecture 10 - Barriers and Types
- Lecture 11 - Dilute acid, alkali, ozone
- Lecture 12 - Hybrid methods
- Lecture 13 - Physical Processes
- Lecture 14 - Gasification and Pyrolysis
- Lecture 15 - Products and Commercial Success Stories
- Lecture 16 - Types, fundamentals, equipments, applications
- Lecture 17 - Details of various processes
- Lecture 18 - Products and Commercial Success Stories
- Lecture 19 - Diesel from vegetable oils, microalgae and syngas
- Lecture 20 - Transesterification; FT process, catalysts
- Lecture 21 - Biodiesel purification, fuel properties
- Lecture 22 - Biooil and biochar production, reactors
- Lecture 23 - Factors affecting biooil, biochar production, fuel properties characterization
- Lecture 24 - Biooil upgradation technologies
- Lecture 25 - Microorganisms, current industrial ethanol production technology
- Lecture 26 - Cellulase production, SSF and CBP
- Lecture 27 - ABE fermentation pathway and kinetics, product recovery technologies
- Lecture 28 - Biohydrogen production, metabolics, microorganisms
- Lecture 29 - Biogas technology, fermenter designs, biogas purification

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Methanol production and utilization
- Lecture 31 - Biomass as feedstock for synthetic organic chemicals, lactic acid, polylactic acid
- Lecture 32 - Succinic acid, propionic acid, acetic acid, butyric acid
- Lecture 33 - 1,3-propanediol, 2,3-butanediol, PHA
- Lecture 34 - Concept, lignocellulosic biorefinery
- Lecture 35 - Aquaculture and algal biorefinery, waste biorefinery
- Lecture 36 - Techno-economic evaluation
- Lecture 37 - Life-cycle assessment

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Aspen Plus® Simulation Software - A basic course for beginners

Subject Co-ordinator - Prof. Prabirkumar Saha

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Significance of software with example - Simulation on pen and paper vs simulation on Aspen Plus
- Lecture 2 - Understanding Resources and My Exchange, Start using Aspen Plus
- Lecture 3 - Overview of setting up of property environment
- Lecture 4 - Using Model Palette - Mixers/Splitters, Separators
- Lecture 5 - Using Model Palette - Exchangers
- Lecture 6 - Using Model Palette - Columns
- Lecture 7 - Using Model Palette - Reactors
- Lecture 8 - Using Model Palette - Pressure Changers
- Lecture 9 - Example: Hydrocarbon Treatment - Part 1
- Lecture 10 - Example: Hydrocarbon Treatment - Part 2
- Lecture 11 - Setup, Components
- Lecture 12 - Property Methods
- Lecture 13 - Property Methods and Property Sets with example
- Lecture 14 - Analysis tools (Pure Components and Binary mixtures)
- Lecture 15 - Analysis tools (Ternary mixtures), Data and Regression (Part 1)
- Lecture 16 - Data and Regression (Part 2), Property Estimation
- Lecture 17 - Practice problems on pure components
- Lecture 18 - Practice problems on binary mixtures
- Lecture 19 - Miscellaneous practice problems and case studies
- Lecture 20 - Model Analysis Tools
- Lecture 21 - Separation of Hydrocarbon Mixture
- Lecture 22 - Synthesis of Acetaldehyde from Ethanol
- Lecture 23 - BTX Separation through Distillation
- Lecture 24 - Synthesis of Methanol from Syngas
- Lecture 25 - Synthesis of Dimethyl Ether from Carbon Dioxide and Hydrogen
- Lecture 26 - Synthesis of Ammonia in Cryogenic Process
- Lecture 27 - Production of Cumene
- Lecture 28 - Design, Rating and Simulation of Heat Exchanger
- Lecture 29 - Absorption and Distillation - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Absorption and Distillation - Part 2
- Lecture 31 - Hydrodealkylation of Toluene
- Lecture 32 - Isobutene Production Plant
- Lecture 33 - Nitric Oxide Production Plant
- Lecture 34 - Plant Economy and Utilities
- Lecture 35 - Plant Dynamics and Control

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Physical and Electrochemical Characterizations in Chemical En

Subject Co-ordinator - Prof. Tamal Banerjee

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of Characterization Techniques - Part 1
- Lecture 2 - Introduction to Characterization Techniques - Part 2
- Lecture 3 - Infrared Spectroscopy: Fundamentals
- Lecture 4 - Infrared Spectroscopy: IR Bands and Applications
- Lecture 5 - Infrared Spectrophotometer Instrumentation
- Lecture 6 - Raman Spectroscopy
- Lecture 7 - NMR: Concepts and Fundamentals
- Lecture 8 - Chemical Shifts
- Lecture 9 - Factors Affecting Chemical Shift and 2D NMR
- Lecture 10 - Physisorption: Surface Area and Pore Analysis
- Lecture 11 - Physisorption Measurements
- Lecture 12 - Chemisorption
- Lecture 13 - Surface Tension and its Measurement - Part 1
- Lecture 14 - Surface Tension and its Measurement - Part 2
- Lecture 15 - Interfacial Tension and its Application
- Lecture 16 - Interfacial Tension and Influence of Surface Curvature
- Lecture 17 - Rheology: Fundamentals and Principles
- Lecture 18 - Complex Fluids and their Properties
- Lecture 19 - Rheology: Case Study on Hydrogel Synthesis
- Lecture 20 - Electron Spectroscopy for Surface Analysis
- Lecture 21 - Quantification in XRF and XPS Spectroscopy
- Lecture 22 - XPS Instrument and Application
- Lecture 23 - Introduction to Electrochemical Characterization Techniques
- Lecture 24 - Electrode Potential, Kinetics and Mass Transfer Resistance
- Lecture 25 - Voltammetry and Galvanostatic Charge-Discharge

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Chemical Process Technology

Subject Co-ordinator - Prof. Tamal Banerjee

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Important Steps for Process Development
- Lecture 2 - Structure of Chemical Industry
- Lecture 3 - Safety and Loss Prevention
- Lecture 4 - Sulfuric Acid: Reactions and Thermodynamics
- Lecture 5 - SO<sub>2</sub> Conversion Reactor and Sulfuric Acid Production Process
- Lecture 6 - Sulfur Production: Claus Process
- Lecture 7 - Synthesis Gas Production
- Lecture 8 - Coal Gasification
- Lecture 9 - Coal Gasifiers
- Lecture 10 - Gasification Technology and Applications
- Lecture 11 - Thermodynamics of Ammonia Synthesis
- Lecture 12 - Integrated Ammonia Plant and Hydrogen Recovery - I
- Lecture 13 - Integrated Ammonia Plant and Hydrogen Recovery - II
- Lecture 14 - Urea Production
- Lecture 15 - Nitric acid: Reactions and Thermodynamics
- Lecture 16 - Production of Phosphoric Acid: Dihydrate Process
- Lecture 17 - Production of Phosphoric Acid: Hemihydrate Process
- Lecture 18 - Emission Abatement in Phosphoric Acid Plants
- Lecture 19 - Chlorine Production
- Lecture 20 - Soda Ash Process
- Lecture 21 - Heterogeneous Catalysis
- Lecture 22 - Catalysis with Zeolites and production of Iso-butene
- Lecture 23 - Production of Ethylbenzene
- Lecture 24 - Periodic Flow Reversal and Production of Styrene
- Lecture 25 - Selective Oxidation Processes and Ethene Production
- Lecture 26 - Monolith Reactors for Automotive Emission
- Lecture 27 - Methanol Production
- Lecture 28 - Methanol and Formaldehyde Production
- Lecture 29 - Fischer-Tropsch Synthesis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fischer Tropsch Process: SASOL and SDMS
- Lecture 31 - Methanol to Gasoline: Haldor Topsoe and TIGAS
- Lecture 32 - Fuel Additives
- Lecture 33 - Homogenous Catalysis
- Lecture 34 - Methanol Carbonylation for Acetic Acid Production
- Lecture 35 - Hydroformylation Reactions
- Lecture 36 - Hydroformylation of Propene and Higher Alkenes
- Lecture 37 - Ethene Oligomerization
- Lecture 38 - Dimethyl Terephthalate and Terephthalic Acid Production
- Lecture 39 - Bio-refinery products and Process Design
- Lecture 40 - Optimal Synthesis of Sustainable Bio-refineries
- Lecture 41 - Bio-based Fuels
- Lecture 42 - Bio-based Chemicals
- Lecture 43 - Bio-refinery Feedstock: Food Waste as a Renewable Raw Material

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Inorganic Chemical Technology

Subject Co-ordinator - Prof. Nanda Kishore

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Unit Processes
- Lecture 2 - Introduction of Unit Operations
- Lecture 3 - Unit Operations and Other General Principles
- Lecture 4 - General Principles and Chemical Plant Design
- Lecture 5 - Fuel Gases
- Lecture 6 - Natural Gas, LPG and Syngas
- Lecture 7 - Synthesis gas
- Lecture 8 - Industrial Gases
- Lecture 9 - Industrial Gases - Carbon Dioxide
- Lecture 10 - Industrial Gases - Hydrogen
- Lecture 11 - Sulfur Industry
- Lecture 12 - Sulfur and sulfuric acid
- Lecture 13 - Sulfuric Acid
- Lecture 14 - Nitrogen Industries - Ammonia
- Lecture 15 - Nitrogen Industries - Nitric Acid
- Lecture 16 - Nitrogen Industries - Urea
- Lecture 17 - Nitrogen Industries - Ammonium Nitrate
- Lecture 18 - Phosphorus Industries - Phosphorus and Phosphoric Acid Production
- Lecture 19 - Phosphorus Industries - Phosphoric Acid Production by Wet Processes
- Lecture 20 - Phosphorus Industries - Phosphates
- Lecture 21 - Potassium Industries - 1
- Lecture 22 - Potassium Industries - 2
- Lecture 23 - Chlor-Alkali Industry - Soda Ash
- Lecture 24 - Chlor-Alkali Industry - Chlorine and Caustic Soda
- Lecture 25 - Cement and Lime Industry - Cement
- Lecture 26 - Cement and Lime Industry - Lime
- Lecture 27 - Glass Industries
- Lecture 28 - Surface Coating Industry
- Lecture 29 - Paints and Pigments

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Varnishes, Lacquers and Industrial Coatings
- Lecture 31 - Raw Materials and Basic Ceramic Chemistry
- Lecture 32 - Whitewares and Structural Clay Products
- Lecture 33 - Refractories, Specialized Ceramic Products and Vitreous Enamel
- Lecture 34 - Metallurgical Industries - I
- Lecture 35 - Metallurgical Industries - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Organic Chemical Technology

Subject Co-ordinator - Prof. Nanda Kishore

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Organic Chemical Technology
- Lecture 2 - Basic Unit Processes and Unit Operations of OCT
- Lecture 3 - Introduction to Chemical Plant Design
- Lecture 4 - Edible and Essential Oils
- Lecture 5 - Vegetable Oils and Processing
- Lecture 6 - Processing of Oils and Waxes
- Lecture 7 - Soaps and Glycerine Manufacture
- Lecture 8 - Detergents Manufacture
- Lecture 9 - Carbohydrates Industry - Sugar
- Lecture 10 - Carbohydrates Industry - Refined Sugar
- Lecture 11 - Carbohydrates Industry - Beet Sugar and Starch
- Lecture 12 - Fermentation Industry
- Lecture 13 - Fermentation Industry â Ethanol
- Lecture 14 - Fermentation Industry â Citric Acid and Penicillin
- Lecture 15 - Pulp and Paper Industry
- Lecture 16 - Pulp and Paper Industry - 2
- Lecture 17 - Pulp and Paper Industry - 3
- Lecture 18 - Petroleum Industry
- Lecture 19 - Petroleum Refinery Products, Characteristics and Processes
- Lecture 20 - Petroleum Refinery Processes
- Lecture 21 - Petroleum Refinery Processes - 2
- Lecture 22 - Chemicals from C1 Compounds: Methanol and Formaldehyde
- Lecture 23 - Chemicals from C1 and C2 Compounds
- Lecture 24 - Chemicals from C2 Compounds
- Lecture 25 - Chemicals from C2 Compounds - 2
- Lecture 26 - Chemicals from C3 Compounds
- Lecture 27 - Chemicals from C3 Compounds - 2
- Lecture 28 - Chemicals from C4 Compounds
- Lecture 29 - Chemicals from Aromatic Compounds

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Chemicals from Aromatic Compounds - Phenol
- Lecture 31 - Chemicals from Aromatic Compounds - 3
- Lecture 32 - Polymer Industry
- Lecture 33 - Polymer Industry - 2
- Lecture 34 - Rubber Industry
- Lecture 35 - Rubber Industry - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Solid-Fluid Operations

Subject Co-ordinator - Prof. Subrata Kumar Majumder

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Solid-Fluid Operations
- Lecture 2 - Characteristics of Single particle
- Lecture 3 - Particle size and Its distribution in mixture
- Lecture 4 - Mechanism of Size Reduction
- Lecture 5 - General Machines for Size Reduction
- Lecture 6 - Laws of Energy for Size Reduction
- Lecture 7 - Introduction on Size Enlargement
- Lecture 8 - Mechanism of Size Enlargement
- Lecture 9 - Equipment for Size Enlargement
- Lecture 10 - Flow Past a Cylinder and Spherical Particle
- Lecture 11 - Terminal velocity of single particle
- Lecture 12 - Multiple particle Interaction/Sedimentation: Hindered settling velocity
- Lecture 13 - Basic law and terminology of flow through granular bed
- Lecture 14 - General expressions for flow through packed beds-Ergun Equation
- Lecture 15 - Two-phase flow through packed bed
- Lecture 16 - Mixing of Solids: Introduction
- Lecture 17 - Degree of mixing and Its Assessment
- Lecture 18 - Mixing and agitation of fluids/slurries
- Lecture 19 - Basic understandings and applications of fluidization
- Lecture 20 - Minimum Fluidization Velocity
- Lecture 21 - Basic understanding of froth flotation
- Lecture 22 - Separation of particles by Screening
- Lecture 23 - Particulate Matter Separation by Gravity Settling Chamber
- Lecture 24 - Particle Separation by Cyclone and Centrifuge
- Lecture 25 - Particle Separation by Electrostatic Precipitator
- Lecture 26 - Separation by Industrial Fabric (Bag) Filters
- Lecture 27 - Wet Scrubber for Particle Removal
- Lecture 28 - Filtration
- Lecture 29 - Dead-End and Continuous Filtration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Reverse Osmosis
- Lecture 31 - Introduction to Nanoparticles
- Lecture 32 - Synthesis of Nanoparticles - Physical Method
- Lecture 33 - Synthesis of Nanoparticles (Chemical Methods)
- Lecture 34 - Adsorption: Principle and Applications
- Lecture 35 - Analysis of Adsorption by Isotherms
- Lecture 36 - Adsorption Kinetics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Energy Conversion Technologies (Biomass and Coal)

Subject Co-ordinator - Prof. Vaibhav V. Goud

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Sources of energy
- Lecture 2 - Sources of energy
- Lecture 3 - Energy scenario
- Lecture 4 - Environmental aspects of energy
- Lecture 5 - Environmental aspects of energy
- Lecture 6 - Environmental aspects of energy
- Lecture 7 - Environmental aspects of energy
- Lecture 8 - Solid fuels - Part I
- Lecture 9 - Solid fuels - Part II
- Lecture 10 - Liquid fuels - Part I
- Lecture 11 - Liquid fuels - Part II
- Lecture 12 - Practice problems - Part I
- Lecture 13 - Practice problems - Part II
- Lecture 14 - Energy from Bio-based Feedstock
- Lecture 15 - Thermal/Thermochemical processes
- Lecture 16 - Practice problems (Pelletization)
- Lecture 17 - Practice problems (Torrefaction Mass and Energy Yield)
- Lecture 18 - Pyrolysis and Hydrothermal Liquefaction
- Lecture 19 - Gasification
- Lecture 20 - Practice examples (Pyrolysis, Gasification)
- Lecture 21 - Biochemical conversion processes - Anaerobic Digestion in Landfills
- Lecture 22 - Bioethanol Production
- Lecture 23 - Practice examples (Biogas and Bio-ethanol production)
- Lecture 24 - Chemical Conversion Processes - Types of Feedstock and Pretreatment
- Lecture 25 - Mechanism of trans-esterification and biodiesel production
- Lecture 26 - Green diesel synthesis from bio-based feedstocks
- Lecture 27 - Energy from Coal (Carbonization, Gasification and Liquefaction)
- Lecture 28 - Practice Example (Combustion of Biomass and Coal)
- Lecture 29 - Combustion Process (Biomass and Coal)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Concept of integration of energy system

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Petroleum Reservoir Engineering

Subject Co-ordinator - Dr. Pankaj Tiwari

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Petroleum Reservoir Engineering
- Lecture 2 - Petroleum Reserves
- Lecture 3 - Petroleum Geology
- Lecture 4 - Well Drilling Methods
- Lecture 5 - Thermodynamics of Hydrocarbons
- Lecture 6 - Natural Gas Properties
- Lecture 7 - Properties of Crude Oil
- Lecture 8 - Reservoir Rock Properties
- Lecture 9 - Relative Permeability
- Lecture 10 - Primary Drive Mechanisms
- Lecture 11 - General Material (Volumetric) Balance
- Lecture 12 - Volumetric Balance in Oil and Gas Reservoir
- Lecture 13 - Fundamentals of Reservoir Fluid Flow
- Lecture 14 - General Equations for radial Flow in Reservoir
- Lecture 15 - Inflow Performance Relationship for Reservoir Fluids
- Lecture 16 - Well Testing and Performance - I
- Lecture 17 - Well Testing and Performance - II
- Lecture 18 - Secondary Oil Recovery Methods
- Lecture 19 - Enhanced Oil Recovery Methods
- Lecture 20 - Introduction to Reservoir Simulation
- Lecture 21 - Unconventional Natural Gas Production

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Applied Statistical Thermodynamics

Subject Co-ordinator - Prof. Tamal Banerjee

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Statistical Thermodynamics
- Lecture 2 - Postulates and Boltzmann Distribution
- Lecture 3 - Properties of Canonical Partition Function
- Lecture 4 - Canonical Partition Function and Thermodynamic Properties
- Lecture 5 - Thermodynamic Properties of Ideal Monoatomic Gases
- Lecture 6 - Monoatomic Gases and Gibbs Entropy Equation
- Lecture 7 - Energy Fluctuations for Monoatomic Gases
- Lecture 8 - Partition Function for Diatomic Gases
- Lecture 9 - Vibrational Partition Function
- Lecture 10 - Partition Function for Ideal Polyatomic Gas
- Lecture 11 - Normal Mode Analysis
- Lecture 12 - Illustrations
- Lecture 13 - Non-reacting Ideal Gas Mixture
- Lecture 14 - Chemically Reacting Gas Mixture
- Lecture 15 - Degree of Ionization of Gas Molecules
- Lecture 16 - Problems on Ionization of Gas Molecules
- Lecture 17 - Microcanonical and Grand Canonical Ensemble
- Lecture 18 - Isobaric Isothermal Ensemble
- Lecture 19 - Fluctuations in Grand canonical and Isothermal Isobaric Ensembles
- Lecture 20 - Semi Grand Canonical Ensemble and Comparison of Ensembles
- Lecture 21 - Problems and Adsorption Isotherms
- Lecture 22 - Virial Equation of State for Polyatomic Molecules
- Lecture 23 - Virial Equation of State
- Lecture 24 - Virial Equation of State with Higher Order Terms
- Lecture 25 - Thermodynamic Properties from Virial Equation of State
- Lecture 26 - Interaction Potentials for Spherical Molecules
- Lecture 27 - Inferences from Intermolecular Potentials
- Lecture 28 - Engineering Application of Virial Equation of State
- Lecture 29 - Einstein Model

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Einstein Model (Continued...)
- Lecture 31 - Debye Model
- Lecture 32 - Sublimation Pressure and Enthalpy of Crystals
- Lecture 33 - Flory Huggin's Model
- Lecture 34 - Ising Model
- Lecture 35 - Radial Distribution Function
- Lecture 36 - Radial Distribution Function
- Lecture 37 - Molecular Dynamics Simulations
- Lecture 38 - Square well Potential and Barker Henderson Perturbation Theory

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Fluid Mechanics

Subject Co-ordinator - Dr. V. Shankar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Mass Transfer II

Subject Co-ordinator - Prof. Nishith Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Plantwide Control of Chemical Processes

Subject Co-ordinator - Dr. Nitin Kaistha

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Process Dynamics and Negative Feedback
- Lecture 3 - PID control
- Lecture 4 - Common Industrial Control Loops and advanced loops
- Lecture 5 - Advanced loops (Continued...) and multivariable systems
- Lecture 6 - Systematic Tuning Using Frequency Domain Analysis
- Lecture 7 - Frequency Domain Analysis
- Lecture 8 - Multivariable Systems
- Lecture 9 - RGA and dynamic decoupling
- Lecture 10 - Model based control
- Lecture 11 - Dynamic Matrix Control
- Lecture 12 - Control of Distillation Columns
- Lecture 13 - Temperature inferential distillation control
- Lecture 14 - Considerations in temperature inferential control
- Lecture 15 - Control of Complex Column Configurations
- Lecture 16 - Control of Heat Integrated Columns
- Lecture 17 - Homogenous extractive distillation
- Lecture 18 - More on complex columns and reactive distillation
- Lecture 19 - Control of reactors
- Lecture 20 - PFR controls (Continued..) & CSTRs
- Lecture 21 - CSTR heat management
- Lecture 22 - Heat Exchangers and Miscellaneous Systems
- Lecture 23 - Degrees of freedom analysis
- Lecture 24 - Degrees of freedom (Continued...)
- Lecture 25 - Illustration of considerations in control structure synthesis
- Lecture 26 - Two column recycle process
- Lecture 27 - Throughput manipulator selection
- Lecture 28 - Plantwide control structure design
- Lecture 29 - Systematizing plantwide control design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Luyben design procedure
- Lecture 31 - Role of equipment capacity constraints
- Lecture 32 - Recycle process case study
- Lecture 33 - Recycle process case study (Continued...)
- Lecture 34 - C4 isomerization process case study
- Lecture 35 - C4 isomerization process case study (Continued...)
- Lecture 36 - C4 isomerization process case study
- Lecture 37 - Systematic economic plantwide control design procedure
- Lecture 38 - Ethyl benzene process case study
- Lecture 39 - C4 isomerization process revisited
- Lecture 40 - Contrasting conventional and top-down approach
- Lecture 41 - Cumene process plantwide control



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Thermodynamics Of Fluid Phase Equilibria

Subject Co-ordinator - Dr. Jayant K. Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review - 1
- Lecture 2 - Review - Temperature and Pressure
- Lecture 3 - Review - Energy Conservation
- Lecture 4 - Properties - Part 1
- Lecture 5 - Properties - Part 2
- Lecture 6 - Mass-energy analysis of open system
- Lecture 7 - Energy analysis of closed system
- Lecture 8 - The Second Law of Thermodynamics
- Lecture 9 - Entropy
- Lecture 10 - Thermodynamic Calculus - 1
- Lecture 11 - Thermodynamic Calculus - 2
- Lecture 12 - Thermodynamic Calculus - 3
- Lecture 13 - Thermodynamic Calculus - 4
- Lecture 14 - Legendre Transformation and Free-energy
- Lecture 15 - Criteria for phase equilibria
- Lecture 16 - Maxwell Relation
- Lecture 17 - Stability Criteria
- Lecture 18 - Thermodynamics of phase equilibrium
- Lecture 19 - Chemical potential and fugacity
- Lecture 20 - General discussion on fugacity
- Lecture 21 - Ideal Gas Mixture - Part 1
- Lecture 22 - Ideal Gas Mixture - Part 2
- Lecture 23 - Partial Molar Properties
- Lecture 24 - Partial Molar Properties from experimental data
- Lecture 25 - Thermodynamics properties from volumetric data - 1
- Lecture 26 - Thermodynamics properties from volumetric data - 2
- Lecture 27 - Fugacity of pure liquids and solids
- Lecture 28 - Thermodynamics properties from volumetric data
- Lecture 29 - Approaches to phase equilibria calculation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Traditional Approaches to phase equilibria calculations
- Lecture 31 - Algorithms for vapor-liquid equilibria
- Lecture 32 - Probability and Multiplicity
- Lecture 33 - Multiplicity and maximising the multiplicity
- Lecture 34 - Introduction to statistical mechanics
- Lecture 35 - Partition function for independent particles
- Lecture 36 - Lecture 36
- Lecture 37 - Models of Molecular Pair Potentials
- Lecture 38 - Molecular Theory of Corresponding States
- Lecture 39 - Molecular Interactions in Dense Fluid Media
- Lecture 40 - Models for Electrolyte Systems
- Lecture 41 - Membrane Osmometry
- Lecture 42 - Fugacity of liquid mixture - 1
- Lecture 43 - Fugacity of liquid mixture - 2
- Lecture 44 - Models for fugacity of liquid mixtures - 1
- Lecture 45 - Models for fugacity of liquid mixtures - 2
- Lecture 46 - Examples of Fugacity of liquids
- Lecture 47 - Stability of the Fluid Phases
- Lecture 48 - Theories of Solution - I
- Lecture 49 - Theories of Solution - II
- Lecture 50 - Polymer Solutions
- Lecture 51 - Example Problems on Polymer Solutions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Chemical Engineering Thermodynamics (2019)

Subject Co-ordinator - Dr. Jayant K. Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Measurability and controllability of energy
- Lecture 3 - Postulates of thermodynamics - I
- Lecture 4 - Postulates of thermodynamics - II
- Lecture 5 - Definition of intensive variables and driving forces for temperature and pressure flow
- Lecture 6 - Driving force for the matter flow
- Lecture 7 - Basic properties, phase diagram, and thermodynamic table
- Lecture 8 - Work, and heat
- Lecture 9 - First law of thermodynamics for closed system
- Lecture 10 - First law of thermodynamics
- Lecture 11 - First law of thermodynamics for open system
- Lecture 12 - First law of thermodynamics
- Lecture 13 - The second law of the thermodynamics
- Lecture 14 - Carnot cycle and thermodynamic temperature
- Lecture 15 - The concept of entropy
- Lecture 16 - Maximum work and entropy of ideal gas
- Lecture 17 - Power cycles and examples
- Lecture 18 - Mathematical properties of fundamental equations
- Lecture 19 - Generalized thermodynamic potential - I
- Lecture 20 - Generalized thermodynamic potential - II
- Lecture 21 - Multivariable Calculus
- Lecture 22 - Maxwell's relations and examples
- Lecture 23 - Jacobian method and its applications
- Lecture 24 - Equilibrium and stability - I
- Lecture 25 - Equilibrium and stability - II
- Lecture 26 - Stability criteria
- Lecture 27 - Intrinsic stability of thermodynamic system
- Lecture 28 - Phase transitions
- Lecture 29 - Clapeyron Equation and Vapour Pressure Correlations

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equation of state
- Lecture 31 - Equation of state (Continued...)
- Lecture 32 - Repulsive Interaction
- Lecture 33 - Fugacity
- Lecture 34 - Thermodynamics of mixtures
- Lecture 35 - Partial molar properties and examples
- Lecture 36 - Examples of partial molar properties for real processes
- Lecture 37 - Obtaining the partial molar properties from experimental data
- Lecture 38 - Partial molar properties of ideal gas mixtures
- Lecture 39 - Chemical potential of ideal gas mixtures
- Lecture 40 - Fugacity coefficient in terms of measurable properties
- Lecture 41 - Fugacity coefficient for mixtures
- Lecture 42 - Fugacity coefficient for ideal mixtures
- Lecture 43 - Activity coefficient for mixtures
- Lecture 44 - Gibbs - Duhem relations and its impacts on the activity
- Lecture 45 - Excess Gibbs free energy model - I
- Lecture 46 - Two suffix Margules equation
- Lecture 47 - Excess Gibbs free energy model - II
- Lecture 48 - Vapor Liquid Equilibria
- Lecture 49 - Vapor Liquid Equilibria (examples)
- Lecture 50 - Vapor Liquid Equilibria (non-ideal mixtures - I)
- Lecture 51 - Vapor Liquid Equilibria (non-ideal mixtures - II)
- Lecture 52 - Azeotropes
- Lecture 53 - Azeotrope (binary mixture)
- Lecture 54 - Liquid-Liquid equilibria - 1
- Lecture 55 - liquid-liquid equilibria (Continued...) and solid-liquid equilibria
- Lecture 56 - Solid-liquid equilibria (Continued...)
- Lecture 57 - Solid-liquid equilibria examples and properties
- Lecture 58 - Examples of boiling point elevation
- Lecture 59 - Solubility of gases in the liquid
- Lecture 60 - Chemical reaction equilibria - I
- Lecture 61 - Chemical reaction equilibria - II
- Lecture 62 - Chemical reaction equilibria - III
- Lecture 63 - Chemical reaction equilibria - IV

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Biochemical Engineering

Subject Co-ordinator - Dr. Saikat Chakraborty, Dr. Rintu Banerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Biology & Biotechnology
- Lecture 2 - Glimpses of Microbial World - Bacteria
- Lecture 3 - Virus and Cell Organelles
- Lecture 4 - Carbohydrate
- Lecture 5 - Nucleic Acid
- Lecture 6 - Lipids
- Lecture 7 - Proteins
- Lecture 8 - Biochemistry & Thermodynamics of Enzymes
- Lecture 9 - Enzyme Kinetics
- Lecture 10 - Regulation of Enzyme Activity
- Lecture 11 - Regulation of Enzyme Activity
- Lecture 12 - Effects of Substrate and Inhibition, pH and Temperature on Enzyme Activity
- Lecture 13 - Immobilized Enzymes
- Lecture 14 - Immobilized Enzymes (Continued...)
- Lecture 15 - Interphase Mass Transfer and Reaction in Immobilized Enzymes
- Lecture 16 - Interphase Mass Transfer and Reaction in Immobilized Enzymes (Continued...)
- Lecture 17 - Effectiveness Factor in Immobilized Enzymes
- Lecture 18 - Bioenergetics and Glycolysis
- Lecture 19 - TCA Cycle
- Lecture 20 - Electron Transport Chain & Oxidative Phosphorylation
- Lecture 21 - Pentose Phosphate Pathways Glycogenesis & Glycogenolysis
- Lecture 22 - Urea Cycle, Gluconeogenesis and Glyoxalate Cycle
- Lecture 23 - Microbial Growth
- Lecture 24 - Effect of Mass Transfer on Microbial & Fungal Growth
- Lecture 25 - Effect of Multiple Substrates and Inhibition on Microbial Growth
- Lecture 26 - Design of Bioreactors
- Lecture 27 - Design of Chemostats
- Lecture 28 - Stability of Bioreactors
- Lecture 29 - Stability of Bioreactors (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Receptor - Ligand Binding
- Lecture 31 - Effects of Ligand Depletion and Multiple Receptors on Binding Kinetics
- Lecture 32 - Effects of Ligand Depletion and Multiple Receptors on Binding Kinetics (Continued...)
- Lecture 33 - Receptors-Mediated Endocytosis
- Lecture 34 - Kinetics of Receptor-Mediated Endocytosis
- Lecture 35 - General Model for Receptor-Mediated Endocytosis
- Lecture 36 - Multiple Interacting Microbial Population
- Lecture 37 - Manufacture of Biochemicals
- Lecture 38 - Manufacture of Biochemicals (Continued...) & Strategies for Biomolecules Separation
- Lecture 39 - Strategies for Biomolecules Separation (Continued...)
- Lecture 40 - Strategies for Biomolecules Separation (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Microscale Transport Processes

Subject Co-ordinator - Dr. Somnath Ganguly, Prof. S. Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Lab on Chip  
Lecture 4 - Lab on Chip (Continued...)  
Lecture 5 - Microscale manufacturing practices  
Lecture 6 - Photolithography  
Lecture 7 - Photolithography (Continued...)  
Lecture 8 - Deposition  
Lecture 9 - Plastic microfluidic devices  
Lecture 10 - Mixing  
Lecture 11 - Micro Heat Pipes  
Lecture 12 - Mixing (Continued...)  
Lecture 13 - Mixing (Continued...)  
Lecture 14 - Micro Heat Pipes (Continued...)  
Lecture 15 - Mixing (Continued...)  
Lecture 16 - Dispersion  
Lecture 17 - Dispersion (Continued...)  
Lecture 18 - Dispersion (Continued...)  
Lecture 19 - Electrowetting  
Lecture 20 - Electro osmosis  
Lecture 21 - Electrowetting (Continued...)  
Lecture 22 - Electro osmosis (Continued...)  
Lecture 23 - Dielectrophoresis  
Lecture 24 - Dielectrophoresis (Continued...)  
Lecture 25 - Dielectrophoresis (Continued...)  
Lecture 26 - Scaling dimension and issues  
Lecture 27 - Slip flow  
Lecture 28 - Microstructured reactor  
Lecture 29 - Immiscible flow in microchannel

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Immiscible flow in microchannel (Continued...)
- Lecture 31 - Immiscible flow in microchannel (Continued...)
- Lecture 32 - Scaling dimension and issues (Continued...)
- Lecture 33 - Immiscible flow in microchannel (Continued...)
- Lecture 34 - Plastic device making
- Lecture 35 - Transport processes and their descriptions
- Lecture 36 - Convective fluid dynamics in microchannels
- Lecture 37 - Microfluidic networks
- Lecture 38 - Electrohydrodynamic atomization
- Lecture 39 - Electrohydrodynamic atomization (Continued...)
- Lecture 40 - Interfacial phenomena in thin liquid films



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Multiphase Flow

Subject Co-ordinator - Prof. P.K. Das, Prof. Gargi Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Estimation of Flow Patterns
- Lecture 3 - Estimation of Flow Patterns (Continued...)
- Lecture 4 - Flow Pattern Maps Fascinating Taylor Bubbles
- Lecture 5 - Definitions and Common Terminologies
- Lecture 6 - Definitions and Common Terminologies (Continued...)
- Lecture 7 - Simple Analytical Models
- Lecture 8 - The Homogeneous Flow Theory
- Lecture 9 - The Homogeneous Flow Theory (Continued...)
- Lecture 10 - Compressible Flow A Recapitulation
- Lecture 11 - Compressible Flow A Recapitulation (Continued...)
- Lecture 12 - Choked Flow Condition for Homogeneous Flow
- Lecture 13 - Drift Flux Model
- Lecture 14 - Drift Flux Model (Continued...)
- Lecture 15 - Drift Flux Model (Continued...)
- Lecture 16 - Drift Flux Model (Continued...)
- Lecture 17 - Separated Flow Model
- Lecture 18 - Separated Flow Model (Continued...)
- Lecture 19 - Separated Flow Model (Continued...)
- Lecture 20 - Separated Flow Model - Condition of Choking
- Lecture 21 - Separated Flow Model - Condition of Choking (Continued...)
- Lecture 22 - Separated Flow Model - Estimation of Frictional Pressure Drop and Void Fraction
- Lecture 23 - Separated Flow Model - Estimation of Frictional Pressure Drop and Void Fraction (Continued...)
- Lecture 24 - Separated Flow Model - Estimation of Frictional Pressure Drop and Void Fraction (Continued...)
- Lecture 25 - Separated Flow Model - Estimation of Frictional Pressure Drop and Void Fraction (Continued...)
- Lecture 26 - Analysis of Specific Flow Regimes
- Lecture 27 - Analysis of Specific Flow Regimes (Continued...)
- Lecture 28 - Analysis of Specific Flow Regimes - Slug Flow (Continued...)
- Lecture 29 - Two Phase Flow with Phase Change - An Introduction to Boiling Heat Transfer

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Bubble Growth
- Lecture 31 - Different Types of Nucleation
- Lecture 32 - Ibullition from Hot Surfaces
- Lecture 33 - Cycle of Bubble Growth and Departure
- Lecture 34 - Heat Transfer in Different Regimes of Boiling
- Lecture 35 - Heat Transfer in Different Regimes of Boiling (Continued...)
- Lecture 36 - Critical Heat Flux, Film Boiling
- Lecture 37 - Measurement Techniques for Two Phase flow Parameters
- Lecture 38 - Measurement Techniques for Two Phase flow Parameters - Void Fraction Measurement
- Lecture 39 - Measurement Techniques for Two Phase flow Parameters - Void Fraction Measurement (Continued...)
- Lecture 40 - Measurement Techniques for Two Phase flow Parameters - Estimation of Flow Patterns

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Novel Separation Processes

Subject Co-ordinator - Prof. S. De

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Separation Processes
- Lecture 2 - Identification of Novel Separation Processes
- Lecture 3 - Membrane Separation Processes
- Lecture 4 - Membrane Separation Processes (Continued...1)
- Lecture 5 - Membrane Separation Processes (Continued...2)
- Lecture 6 - Membrane Separation Processes (Continued...3)
- Lecture 7 - Membrane Separation Processes (Continued...4)
- Lecture 8 - Membrane Separation Processes (Continued...5)
- Lecture 9 - Membrane Separation Processes (Continued...6)
- Lecture 10 - Membrane Separation Processes (Continued...7)
- Lecture 11 - Membrane Separation Processes (Continued...8)
- Lecture 12 - Membrane Separation Processes (Continued...9)
- Lecture 13 - Membrane Separation Processes (Continued...10)
- Lecture 14 - Membrane Separation Processes (Continued...11)
- Lecture 15 - Membrane Separation Processes (Continued...12)
- Lecture 16 - Membrane Separation Processes (Continued...13)
- Lecture 17 - Membrane Separation Processes (Continued...14)
- Lecture 18 - Membrane Separation Processes (Continued...15)
- Lecture 19 - Membrane Separation Processes (Continued...16)
- Lecture 20 - Membrane Separation Processes (Continued...17)
- Lecture 21 - Membrane Separation Processes (Continued...18)
- Lecture 22 - External Field Induced Membrane Separation Processes
- Lecture 23 - External Field Induced Membrane Separation Processes (Continued...1)
- Lecture 24 - External Field Induced Membrane Separation Processes (Continued...2)
- Lecture 25 - External Field Induced Membrane Separation Processes (Continued...3)
- Lecture 26 - External Field Induced Membrane Separation Processes (Continued...4)
- Lecture 27 - Gas Separation
- Lecture 28 - Gas Separation (Continued...)
- Lecture 29 - Surfactant Based Separation Processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Surfactant Based Separation Processes (Continued...)
- Lecture 31 - Micellar Enhanced Ultrafiltration
- Lecture 32 - Micellar Enhanced Ultrafiltration (Continued...)
- Lecture 33 - Liquid Membranes
- Lecture 34 - Liquid Membranes (Continued...)
- Lecture 35 - Centrifugal Separation Processes
- Lecture 36 - Chromatographic Separation Processes
- Lecture 37 - Chromatographic Separation Processes (Continued...)
- Lecture 38 - Ion Exchange Processes
- Lecture 39 - Electrophoretic Separation Methods
- Lecture 40 - Electrophoretic Separation Methods (Continued...)
- Lecture 41 - Supercritical Fluid Extraction

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Process Control and Instrumentation

Subject Co-ordinator - Dr. D. Sarkar, Dr. A.K. Jana

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Process Control
- Lecture 2 - Introduction to Process Control (Continued...)
- Lecture 3 - Mathematical Modeling (Continued...1)
- Lecture 4 - Mathematical Modeling (Continued...2)
- Lecture 5 - Mathematical Modeling (Continued...3)
- Lecture 6 - Dynamic Behavior of Chemical Processes
- Lecture 7 - Dynamic Behavior of Chemical Processes (Continued...1)
- Lecture 8 - Dynamic Behavior of Chemical Processes (Continued...2)
- Lecture 9 - Dynamic Behavior of Chemical Processes (Continued...3)
- Lecture 10 - Dynamic Behavior of Chemical Processes (Continued...4)
- Lecture 11 - Dynamic Behavior of Chemical Processes (Continued...5)
- Lecture 12 - Dynamic Behavior of Chemical Processes (Continued...6)
- Lecture 13 - Dynamic Behavior of Chemical Processes (Continued...7)
- Lecture 14 - Dynamic Behavior of Chemical Processes (Continued...8)
- Lecture 15 - Feedback Control Schemes
- Lecture 16 - Feedback Control Schemes (Continued...1)
- Lecture 17 - Feedback Control Schemes (Continued...2)
- Lecture 18 - Feedback Control Schemes (Continued...3)
- Lecture 19 - Feedback Control Schemes (Continued...4)
- Lecture 20 - Feedback Control Schemes (Continued...5)
- Lecture 21 - Feedback Control Schemes (Continued...6)
- Lecture 22 - Feedback Control Schemes (Continued...7)
- Lecture 23 - Feedback Control Schemes (Continued...8)
- Lecture 24 - Feedback Control Schemes (Continued...9)
- Lecture 25 - Feedback Control Schemes (Continued...10)
- Lecture 26 - Feedback Control Schemes (Continued...11)
- Lecture 27 - Feedback Control Schemes (Continued...12)
- Lecture 28 - Feedback Control Schemes (Continued...13)
- Lecture 29 - Feedback Control Schemes (Continued...14)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Advanced Control Schemes
- Lecture 31 - Advanced Control Schemes (Continued...1)
- Lecture 32 - Advanced Control Schemes (Continued...2)
- Lecture 33 - Advanced Control Schemes (Continued...3)
- Lecture 34 - Advanced Control Schemes (Continued...4)
- Lecture 35 - Instrumentation
- Lecture 36 - Instrumentation
- Lecture 37 - Instrumentation
- Lecture 38 - Instrumentation
- Lecture 39 - Instrumentation
- Lecture 40 - Instrumentation
- Lecture 41 - Transducer Elements
- Lecture 42 - Pressure Measurement
- Lecture 43 - Pressure Measurement (Continued...1)
- Lecture 44 - Pressure Measurement (Continued...2)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Instability and Patterning of Thin Polymer Films

Subject Co-ordinator - Dr. R. Mukherjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Some Fundamental Surface Related Concepts - I
- Lecture 4 - Surface Tension (in terms of molecular interactions)
- Lecture 5 - Effect Surface Tension
- Lecture 6 - Young Laplace Equation
- Lecture 7 - Rayleish Instability
- Lecture 8 - Meso Scale Fabrication Approaches
- Lecture 9 - Photo Lithography - I
- Lecture 10 - Photo Lithography - II
- Lecture 11 - Photo Lithography - III
- Lecture 12 - Photo Lithography - IV
- Lecture 13 - Photo Lithography - V
- Lecture 14 - Nano Imprint Lithography
- Lecture 15 - Nano Imprint Lithography (Continued...)
- Lecture 16 - Soft Lithography - I
- Lecture 17 - Soft Lithography - II
- Lecture 18 - Soft Lithography - III
- Lecture 19 - Soft Lithography - IV
- Lecture 20 - Soft Lithography - V
- Lecture 21 - Soft Lithography - VI
- Lecture 22 - Atomic Force Microscope - I
- Lecture 23 - Atomic Force Microscope - II
- Lecture 24 - Atomic Force Microscope - III
- Lecture 25 - Atomic Force Microscope - IV
- Lecture 26 - Atomic Force Microscope - V
- Lecture 27 - Intermolecular Forces between Particles and Surfaces - I
- Lecture 28 - Intermolecular Forces between Particles and Surfaces - II
- Lecture 29 - Intermolecular Forces between Particles and Surfaces - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Intermolecular Forces between Particles and Surfaces - IV
- Lecture 31 - Spontaneous instability and dewetting of thin polymer film - I
- Lecture 32 - Spontaneous instability and dewetting of thin polymer film - II
- Lecture 33 - Spontaneous instability and dewetting of thin polymer film - III
- Lecture 34 - Spontaneous instability and dewetting of thin polymer film - IV
- Lecture 35 - Spontaneous instability and dewetting of thin polymer film - V
- Lecture 36 - Spontaneous instability and dewetting of thin polymer film - VI
- Lecture 37 - Spontaneous instability and dewetting of thin polymer film - VII
- Lecture 38 - Template Guided Dewetting
- Lecture 39 - Elastic Contact Instability and Lithography
- Lecture 40 - Gradient Surfaces



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Advanced Mathematical Techniques in Chemical Engineering

Subject Co-ordinator - Prof. S. De

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to vector space
- Lecture 2 - Introduction to vector space (Continued...)
- Lecture 3 - Onto, into, one to one function
- Lecture 4 - Vectors
- Lecture 5 - Vectors (Continued...)
- Lecture 6 - Contraction Mapping
- Lecture 7 - Contraction Mapping (Continued...)
- Lecture 8 - Matrix, Determinant
- Lecture 9 - Eigenvalue Problem in Discrete Domain
- Lecture 10 - Eigenvalue Problem in Discrete Domain (Continued...)
- Lecture 11 - Eigenvalue Problem in Discrete Domain (Continued...)
- Lecture 12 - Eigenvalue Problem in Discrete Domain (Continued...)
- Lecture 13 - Stability Analysis
- Lecture 14 - Stability Analysis (Continued...)
- Lecture 15 - Stability Analysis (Continued...)
- Lecture 16 - More Examples
- Lecture 17 - Partial Differential Equations
- Lecture 18 - Partial Differential Equations (Continued...)
- Lecture 19 - Eigenvalue Problem in Continuous Domain
- Lecture 20 - Special ODEs
- Lecture 21 - Adjoint Operator
- Lecture 22 - Theorems of Eigenvalues and Eigenfunction
- Lecture 23 - Solution PDE
- Lecture 24 - Solution of Parabolic PDE
- Lecture 25 - Solution of Parabolic PDE
- Lecture 26 - Solution of Higher Dimensional PDEs
- Lecture 27 - Solution of Higher Dimensional PDEs (Continued...)
- Lecture 28 - Four Dimensional Parabolic PDE
- Lecture 29 - Solution of Elliptic and Hyperbolic PDE

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Solution of Elliptic and Hyperbolic PDE (Continued...)
- Lecture 31 - PDE in Cylindrical and Spherical Coordinate
- Lecture 32 - Solution of non-homogeneous PDE
- Lecture 33 - Solution of non-homogeneous PDE (Continued...)
- Lecture 34 - Solution of non-homogeneous Parabolic PDE
- Lecture 35 - Solution of non-homogeneous Elliptic PDE
- Lecture 36 - Solution of non-homogeneous Elliptic PDE (Continued...)
- Lecture 37 - Similarity Solution
- Lecture 38 - Similarity Solution (Continued...)
- Lecture 39 - Integral Method
- Lecture 40 - Laplace Transform
- Lecture 41 - Fourier Transform

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Introduction to Process Modeling in Membrane Separation Processes

Subject Co-ordinator - Prof. S. De

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Separation Processes and Introduction of Membrane System
- Lecture 2 - Fundamentals of Separation Processes and Introduction of Membrane System (Continued...)
- Lecture 3 - Fundamentals of Separation Processes and Introduction of Membrane System (Continued...)
- Lecture 4 - Fundamentals of Separation Processes and Introduction of Membrane System (Continued...)
- Lecture 5 - Modeling of Reverse Osmosis
- Lecture 6 - Concentration Polarization
- Lecture 7 - Osmotic Pressure Controlling Filtration
- Lecture 8 - Osmotic Pressure Controlling Filtration (Continued...)
- Lecture 9 - Osmotic Pressure Controlling Filtration (Continued...)
- Lecture 10 - Osmotic Pressure Controlling Filtration (Continued...)
- Lecture 11 - Osmotic Pressure Controlling Filtration (Continued...)
- Lecture 12 - Osmotic Pressure Controlling Filtration (Continued...)
- Lecture 13 - Modeling of Gel Layer Controlling Filtration
- Lecture 14 - Modeling of Gel Layer Controlling Filtration (Continued...)
- Lecture 15 - Modeling of Gel Layer Controlling Filtration (Continued...) and Resistance in Series Models
- Lecture 16 - Design of Membrane Module
- Lecture 17 - Design of Membrane Module (Continued...)
- Lecture 18 - Design of Membrane Module (Continued...)
- Lecture 19 - Modeling of Dialysis
- Lecture 20 - Modeling of Dialysis (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Soft Nano Technology

Subject Co-ordinator - Dr. R. Mukherjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - 1  
Lecture 2 - Introduction - 2  
Lecture 3 - Introduction - 3  
Lecture 4 - Fundamental Concepts Related to Surface Tension - 1  
Lecture 5 - Fundamental Concepts Related to Surface Tension - 2  
Lecture 6 - Fundamental Concepts Related to Surface Tension - 3  
Lecture 7 - Fundamental Concepts Related to Surface Tension - 4  
Lecture 8 - Components of Surface Tension - 1  
Lecture 9 - Components of Surface Tension - 2  
Lecture 10 - Self Assembly of Surfactant Molecules  
Lecture 11 - Laplace Pressure  
Lecture 12 - Photo Lithography - 1  
Lecture 13 - Photo Lithography - 2  
Lecture 14 - Photo Lithography - 3  
Lecture 15 - Photo Lithography - 4  
Lecture 16 - Photo Lithography - 5  
Lecture 17 - Photo Lithography - 6  
Lecture 18 - Soft Lithography - I  
Lecture 19 - Soft Lithography - 2  
Lecture 20 - Soft Lithography - 3  
Lecture 21 - Soft Lithography - 4  
Lecture 22 - Soft Lithography - 5  
Lecture 23 - Soft Lithography - 6  
Lecture 24 - Atomic Force Microscope - 1  
Lecture 25 - Atomic Force Microscope - 2  
Lecture 26 - Atomic Force Microscope - 3  
Lecture 27 - Atomic Force Microscope - 4  
Lecture 28 - Atomic Force Microscope - 5  
Lecture 29 - Atomic Force Microscope - 6

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dewetting - 1
- Lecture 31 - Dewetting - 2
- Lecture 32 - VdW Interaction Between Two Surfaces
- Lecture 33 - Interaction Between Two Surfaces - 2
- Lecture 34 - Interaction Between Two Surfaces - 3
- Lecture 35 - Dewetting - 3
- Lecture 36 - Pattern Directed Dewetting - I
- Lecture 37 - Pattern Directed Dewetting - II
- Lecture 38 - Spin Dewetting
- Lecture 39 - Elastic Contact Instability - I
- Lecture 40 - Elastic Contact Instability - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Adiabatic Two-Phase Flow and Flow Boiling in Microchannel

Subject Co-ordinator - Prof. Gargi Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Brief Introduction to Multiphase Flow
- Lecture 2 - Brief Introduction to Multiphase Flow (Continued...)
- Lecture 3 - Two Phase Flow through Micro Channels
- Lecture 4 - Two Phase Flow through Micro Channels (Continued...)
- Lecture 5 - Criteria for Confinement for in Case of Two Phase Flow
- Lecture 6 - Pertinent Dimensionless Numbers in Two Phase
- Lecture 7 - Flow Pattern Maps for Milli and Micro Systems
- Lecture 8 - Pattern Transition from Energy Minimisation Principle
- Lecture 9 - Experimental Identification of Flow Regimes
- Lecture 10 - Experimental Identification of Flow Regimes (Continued...)
- Lecture 11 - Flow Regimes and Void Fraction Estimation
- Lecture 12 - Influence of Operating Parameter on Flow Patterns
- Lecture 13 - Influence of Operating Parameter on Flow Patterns (Continued...)
- Lecture 14 - Influence of Operating Parameter on Flow Patterns (Continued...)
- Lecture 15 - Influence of Operating Parameter on Flow Patterns (Continued...)
- Lecture 16 - Void Fraction Characteristic Mini and Micro Channel
- Lecture 17 - Void Fraction and Pressure Drop in Reduced Dimensions - Experimental results
- Lecture 18 - Void Fraction and Pressure Drop in Reduced Dimensions - Experimental results (Continued...)
- Lecture 19 - Theoretical Analysis of Two Phase Flow in Reduced Dimensions
- Lecture 20 - Theoretical Analysis of Two Phase Flow in Reduced Dimensions (Continued...)
- Lecture 21 - Flow Pattern based Analysis in Micro Systems - Drift Flux Model
- Lecture 22 - Flow Pattern based Modelling - Slug Flow Model
- Lecture 23 - Flow Boiling in Microchannels
- Lecture 24 - Tutorial - I
- Lecture 25 - Tutorial - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Phase Equilibrium Thermodynamics

Subject Co-ordinator - Prof. Gargi Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - First Law of Thermodynamics  
Lecture 4 - Second Law of Thermodynamics  
Lecture 5 - Second Law of Thermodynamics (Continued...)  
Lecture 6 - Entropy Change during Spontaneous Processes  
Lecture 7 - Criteria of Spontaneity  
Lecture 8 - Criteria of Spontaneity (Continued...)  
Lecture 9 - Thermodynamic Network  
Lecture 10 - Thermodynamic Network (Continued...)  
Lecture 11 - Tutorial 1  
Lecture 12 - Gibbs free energy as a function of temperature and pressure  
Lecture 13 - P-v-T behaviour of gases  
Lecture 14 - P-v-T behaviour (Continued...)  
Lecture 15 - P-v-T behaviour (Continued...)  
Lecture 16 - P-v-T behaviour (Continued...)  
Lecture 17 - Tutorial 2  
Lecture 18 - Property estimation from P-v-T behaviour  
Lecture 19 - Property estimation (Continued...)  
Lecture 20 - Concept of chemical potential  
Lecture 21 - Chemical potential (Continued...)  
Lecture 22 - Homogeneous open systems  
Lecture 23 - Homogeneous open systems (Continued...)  
Lecture 24 - Heterogeneous Closed Systems  
Lecture 25 - Tutorial 3  
Lecture 26 - Concept of fugacity  
Lecture 27 - Fugacity (Continued...)  
Lecture 28 - Estimation of fugacity coefficients  
Lecture 29 - Fugacity of condensed phase

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- Lecture 30 - Mixtures
- Lecture 31 - Mixtures (Continued...)
- Lecture 32 - Tutorial 4
- Lecture 33 - Partial molar properties
- Lecture 34 - Partial molar properties (Continued...)
- Lecture 35 - Partial molar fugacity
- Lecture 36 - Ideal solutions
- Lecture 37 - Ideal solutions (Continued...)
- Lecture 38 - Ideal solutions (Continued...)
- Lecture 39 - Ideal solutions (Continued...)
- Lecture 40 - Non-ideal solutions
- Lecture 41 - Non-ideal solutions (Continued...)
- Lecture 42 - Non-ideal solutions (Continued...)
- Lecture 43 - Non-ideal solutions (Continued...)
- Lecture 44 - Non-ideal solutions (Continued...)
- Lecture 45 - Deviations from ideal dilute solutions
- Lecture 46 - Tutorial 5
- Lecture 47 - Tutorial 6
- Lecture 48 - Thermodynamics Consistency Test of VLE Data
- Lecture 49 - Retrograde Condensation
- Lecture 50 - Partial and Complete Immiscibility of Liquid Mixtures
- Lecture 51 - Partial and Complete Immiscibility of Liquid Mixtures (Continued...)
- Lecture 52 - Phase Equilibrium for Mass Transfer Processes
- Lecture 53 - Control Mass Analysis of Transient process
- Lecture 54 - Control Volume Analysis
- Lecture 55 - Throttling and problem
- Lecture 56 - Tutorial 7
- Lecture 57 - First Law for reacting systems
- Lecture 58 - Estimation of standard heat of reaction
- Lecture 59 - Effect of operating variables on heat of reaction
- Lecture 60 - Chemical Reaction Equilibrium
- Lecture 61 - Equilibrium constant and its estimation
- Lecture 62 - Relation of Equilibrium constant to composition
- Lecture 63 - Effect of operating conditions on equilibrium conversion
- Lecture 64 - Relation of Equilibrium constant to composition (Continued...)
- Lecture 65 - Miscellaneous concepts on Reaction Equilibrium



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Transport Phenomena

Subject Co-ordinator - Prof. Sunando Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Fourier and Fick's Laws
- Lecture 3 - Shell Momentum Balance
- Lecture 4 - Example of Shell Momentum Balance
- Lecture 5 - Example of Shell Momentum Balance (Continued...)
- Lecture 6 - Example of Shell Momentum Balance (Continued...)
- Lecture 7 - Example of Shell Momentum Balance (Continued...)
- Lecture 8 - Example of Shell Momentum Balance (Continued...)
- Lecture 9 - Equations of Change for Isothermal Systems
- Lecture 10 - Equations of Change for Isothermal Systems (Continued...)
- Lecture 11 - Equations of Change for Isothermal Systems (Continued...)
- Lecture 12 - Equations of Change for Isothermal Systems (Continued...)
- Lecture 13 - Equations of Change for Isothermal Systems (Continued...)
- Lecture 14 - Equations of Change for Isothermal Systems (Continued...)
- Lecture 15 - Unsteady Flow
- Lecture 16 - Boundary Layers
- Lecture 17 - Boundary Layers (Continued...)
- Lecture 18 - Boundary Layers (Continued...)
- Lecture 19 - Boundary Layers (Continued...)
- Lecture 20 - Boundary Layers (Continued...)
- Lecture 21 - Boundary Layers (Continued...)
- Lecture 22 - Boundary Layers (Continued...)
- Lecture 23 - Boundary Layers (Continued...)
- Lecture 24 - Boundary Layers (Continued...)
- Lecture 25 - Turbulent Boundary Layers
- Lecture 26 - Turbulent Boundary Layers (Continued...)
- Lecture 27 - Turbulent Boundary Layers (Continued...)
- Lecture 28 - Drag
- Lecture 29 - Drag (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heat Transfer Basics
- Lecture 31 - Heat Transfer Basics (Continued...)
- Lecture 32 - 1-D Heat Conduction - Temperature Distributions
- Lecture 33 - 1-D Heat Conduction - Shell Heat Balance
- Lecture 34 - Shell Heat Balance
- Lecture 35 - Viscous Dissipation
- Lecture 36 - Transient Conduction
- Lecture 37 - Transient Conduction (Continued...)
- Lecture 38 - Forced Convection
- Lecture 39 - Energy Equation
- Lecture 40 - Energy Equation (Continued...)
- Lecture 41 - Free Convection
- Lecture 42 - Thermal Boundary Layer
- Lecture 43 - Mass Transfer
- Lecture 44 - Mass Transfer (Continued...)
- Lecture 45 - Mass Transfer (Continued...)
- Lecture 46 - Mass Transfer (Continued...)
- Lecture 47 - Mass Transfer (Continued...)
- Lecture 48 - Mass Transfer (Continued...)
- Lecture 49 - Mass Transfer (Continued...)
- Lecture 50 - Mass Transfer (Continued...)
- Lecture 51 - (Lecture Missing)
- Lecture 52 - Boundary Layer Similarity
- Lecture 53 - Boundary Layer - Analogy
- Lecture 54 - Analogy - Tutorial I
- Lecture 55 - Analogy - Tutorial II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Chemical Process Instrumentation

Subject Co-ordinator - Prof. Debasis Sarkar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - General Principles and Representation of Instruments  
Lecture 2 - General Principles and Representation of Instruments (Continued...)  
Lecture 3 - General Principles and Representation of Instruments (Continued...)  
Lecture 4 - General Principles and Representation of Instruments (Continued...)  
Lecture 5 - General Principles and Representation of Instruments (Continued...)  
Lecture 6 - Performance Characteristics of Instruments and Data Analysis - I  
Lecture 7 - Performance Characteristics of Instruments and Data Analysis - I (Continued...)  
Lecture 8 - Performance Characteristics of Instruments and Data Analysis - I (Continued...)  
Lecture 9 - Performance Characteristics of Instruments and Data Analysis - I (Continued...)  
Lecture 10 - Performance Characteristics of Instruments and Data Analysis - I (Continued...)  
Lecture 11 - Performance Characteristics of Instruments and Data Analysis - II  
Lecture 12 - Performance Characteristics of Instruments and Data Analysis - II (Continued...)  
Lecture 13 - Performance Characteristics of Instruments and Data Analysis - II (Continued...)  
Lecture 14 - Performance Characteristics of Instruments and Data Analysis - II (Continued...)  
Lecture 15 - Performance Characteristics of Instruments and Data Analysis - II (Continued...)  
Lecture 16 - Transducer Elements  
Lecture 17 - Transducer Elements (Continued...)  
Lecture 18 - Transducer Elements (Continued...)  
Lecture 19 - Transducer Elements (Continued...)  
Lecture 20 - Transducer Elements (Continued...)  
Lecture 21 - Pressure Measurement  
Lecture 22 - Pressure Measurement  
Lecture 23 - Pressure Measurement  
Lecture 24 - Pressure Measurement  
Lecture 25 - Pressure Measurement  
Lecture 26 - High Vacuum Measurement  
Lecture 27 - High Vacuum Measurement (Continued...)  
Lecture 28 - High Vacuum Measurement (Continued...)  
Lecture 29 - High Vacuum Measurement (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pressure Measurement
- Lecture 31 - Temperature Measurement
- Lecture 32 - Temperature Measurement (Continued...)
- Lecture 33 - Temperature Measurement (Continued...)
- Lecture 34 - Temperature Measurement (Continued...)
- Lecture 35 - Temperature Measurement (Continued...)
- Lecture 36 - Temperature Measurement (Continued...)
- Lecture 37 - Temperature Measurement (Continued...)
- Lecture 38 - Temperature Measurement (Continued...)
- Lecture 39 - Temperature Measurement (Continued...)
- Lecture 40 - Temperature Measurement (Continued...)
- Lecture 41 - Flow Measurement
- Lecture 42 - Flow Measurement (Continued...)
- Lecture 43 - Flow Measurement (Continued...)
- Lecture 44 - Flow Measurement (Continued...)
- Lecture 45 - Flow Measurement (Continued...)
- Lecture 46 - Level Measurement
- Lecture 47 - Level Measurement (Continued...)
- Lecture 48 - Level Measurement (Continued...)
- Lecture 49 - Level Measurement (Continued...)
- Lecture 50 - Level Measurement (Continued...)
- Lecture 51 - Miscellaneous Measurements
- Lecture 52 - Miscellaneous Measurements
- Lecture 53 - Miscellaneous Measurements
- Lecture 54 - Miscellaneous Measurements
- Lecture 55 - Miscellaneous Measurements
- Lecture 56 - Pneumatic Control Valve
- Lecture 57 - Pneumatic Control Valve (Continued...)
- Lecture 58 - Pneumatic Control Valve (Continued...) and P&ID
- Lecture 59 - GATE Questions
- Lecture 60 - GATE Questions (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Optimization in Chemical Engineering

Subject Co-ordinator - Prof. Debasis Sarkar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Optimization  
Lecture 2 - Introduction to Optimization (Continued...)  
Lecture 3 - Introduction to Optimization (Continued...)  
Lecture 4 - Introduction of Optimization (Continued...)  
Lecture 5 - Introduction of Optimization (Continued...)  
Lecture 6 - Optimization Problem Formulation  
Lecture 7 - Optimization Problem Formulation (Continued...)  
Lecture 8 - Optimization Problem Formulation (Continued...)  
Lecture 9 - Optimization Problem Formulation (Continued...)  
Lecture 10 - Optimization Problem Formulation (Continued...)  
Lecture 11 - Basic Concepts of Optimization - I  
Lecture 12 - Basic Concepts of Optimization - I (Continued...)  
Lecture 13 - Basic Concepts of Optimization - I (Continued...)  
Lecture 14 - Basic Concepts of Optimization - I (Continued...)  
Lecture 15 - Basic Concepts of Optimization - I (Continued...)  
Lecture 16 - Basic Concepts of Optimization - II  
Lecture 17 - Basic Concepts of Optimization - II (Continued...)  
Lecture 18 - Basic Concepts of Optimization - II (Continued...)  
Lecture 19 - Basic Concepts of Optimization - II (Continued...)  
Lecture 20 - Basic Concepts of Optimization - II (Continued...)  
Lecture 21 - Unconstrained Single Variable Optimization  
Lecture 22 - Unconstrained Single Variable Optimization  
Lecture 23 - Unconstrained Single Variable Optimization  
Lecture 24 - Unconstrained Single Variable Optimization  
Lecture 25 - Unconstrained Single Variable Optimization  
Lecture 26 - Unconstrained Multivariable Optimization  
Lecture 27 - Unconstrained Multivariable Optimization  
Lecture 28 - Unconstrained Multivariable Optimization  
Lecture 29 - Unconstrained Multivariable Optimization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Unconstrained Multivariable Optimization
- Lecture 31 - Unconstrained Multivariable Optimization
- Lecture 32 - Unconstrained Multivariable Optimization
- Lecture 33 - Unconstrained Multivariable Optimization
- Lecture 34 - Unconstrained Multivariable Optimization
- Lecture 35 - Unconstrained Multivariable Optimization
- Lecture 36 - Introduction to Linear Programming
- Lecture 37 - Introduction to Linear Programming (Continued...)
- Lecture 38 - Introduction to Linear Programming (Continued...)
- Lecture 39 - Introduction to Linear Programming (Continued...)
- Lecture 40 - Introduction to Linear Programming (Continued...)
- Lecture 41 - Linear Programming - The Simplex Method
- Lecture 42 - Linear Programming - The Simplex Method (Continued...)
- Lecture 43 - Linear Programming - The Simplex Method (Continued...)
- Lecture 44 - Linear Programming - The Simplex Method (Continued...)
- Lecture 45 - Linear Programming - The Simplex Method (Continued...)
- Lecture 46 - Constrained Nonlinear Programming
- Lecture 47 - Constrained Nonlinear Programming (Continued...)
- Lecture 48 - Constrained Nonlinear Programming (Continued...)
- Lecture 49 - Constrained Nonlinear Programming (Continued...)
- Lecture 50 - Constrained Nonlinear Programming (Continued...)
- Lecture 51 - Applications of Optimization
- Lecture 52 - Applications of Optimization (Continued...)
- Lecture 53 - Applications of Optimization (Continued...)
- Lecture 54 - Applications of Optimization (Continued...)
- Lecture 55 - Applications of Optimization (Continued...)
- Lecture 56 - Software Tools for Optimization
- Lecture 57 - Software Tools for Optimization (Continued...)
- Lecture 58 - Software Tools for Optimization (Continued...)
- Lecture 59 - Software Tools for Optimization (Continued...)
- Lecture 60 - Software Tools for Optimization (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Heat Transfer (2018)

Subject Co-ordinator - Prof. Sunando Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Heat Transfer
- Lecture 2 - Introduction to Heat Transfer
- Lecture 3 - Heat Diffusion Equation
- Lecture 4 - Relevant Boundary Conditions in Conduction
- Lecture 5 - One Dimensional Steady State Conduction
- Lecture 6 - Temperature Distribution in Radial Systems
- Lecture 7 - Tutorial Problem on Critical Insulation Thickness
- Lecture 8 - Heat Source Systems
- Lecture 9 - Tutorial Problems of Heat Generating Systems
- Lecture 10 - Transient Conduction
- Lecture 11 - Lumped Capacitance (Continued...) and Tutorial Problem
- Lecture 12 - Transient heat Conduction
- Lecture 13 - Transient Conduction - Heisler Chart
- Lecture 14 - Heat Transfer from Extended Surface
- Lecture 15 - Fins and General Conduction Analysis
- Lecture 16 - Fundamentals of Convection
- Lecture 17 - Equations of Change for Non-isothermal Systems
- Lecture 18 - Equations of Change for Non-isothermal Systems (Continued...)
- Lecture 19 - Tutorial on the Application of Energy Equation
- Lecture 20 - Nusselt Number of a heated sphere in Stagnant Air
- Lecture 21 - Momentum and Thermal Boundary Layers
- Lecture 22 - The Flat Plate in Parallel Flow - Hydrodynamics and Momentum Transfer
- Lecture 23 - The Flat Plate in Parallel Flow - Heat Transfer
- Lecture 24 - The Effects of Turbulence
- Lecture 25 - Turbulent External Flow
- Lecture 26 - Heat and Momentum Transfer Analogy
- Lecture 27 - Mixed Boundary Layers
- Lecture 28 - Tutorial Problem on External Flow and Behavior of Heat Transfer Coefficient
- Lecture 29 - Tutorial Problem in External Flow and Convection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial Problem in External Flow and Convection
- Lecture 31 - Tutorial Problem in External Flow and Convection
- Lecture 32 - Internal Flow Heat Transfer
- Lecture 33 - Internal Flow Heat Transfer (Continued...)
- Lecture 34 - Internal Flow Heat Transfer (Continued...)
- Lecture 35 - Internal Flow and Heat Transfer (Continued...)
- Lecture 36 - Internal Flow and Heat Transfer (Tutorial)
- Lecture 37 - Free Convection
- Lecture 38 - Heat Exchangers
- Lecture 39 - Heat Exchangers
- Lecture 40 - Heat Exchangers
- Lecture 41 - Tutorial Problems on Heat Exchanger Calculations
- Lecture 42 - Tutorial Problem on LMTD and Dirt Factor
- Lecture 43 - Epsilon-NTU Method - 1
- Lecture 44 - Epsilon-NTU Method - 1 (Continued...)
- Lecture 45 - Tutorial Problems on Epsilon - NTU Methods
- Lecture 46 - Tutorial Problems on Epsilon - NTU Methods
- Lecture 47 - Boiling, Evaporation and Evaporators
- Lecture 48 - Radiation - Fundamental Concepts
- Lecture 49 - Spectral Blackbody Radiation Intensity and Emissive Power
- Lecture 50 - Wein's Law, Stephen Boltzmann Law, Blackbody Radiation Function, Tutorial Problem
- Lecture 51 - Kirchhoff's Law
- Lecture 52 - Tutorial on Emissivity, Absorptivity and Blackbody Radiation Functions
- Lecture 53 - Solar Radiation and the Concept of View Factors
- Lecture 54 - Determination of View Factors
- Lecture 55 - Radiosity Blackbody Radiation Exchanges, Relevant Problem
- Lecture 56 - Network Method for Radiation Exchange in an Enclosure
- Lecture 57 - Network Method - Two and Three Zone Enclosures
- Lecture 58 - Tutorial Problem on Radiation Exchange using the Network Method
- Lecture 59 - Radiation Shields
- Lecture 60 - Gaseous Radiation (Participating Medium)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Flow through Porous Media

Subject Co-ordinator - Dr. Somnath Ganguly

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction (Definition Of Porous Media)
- Lecture 2 - Introduction (Conceptual Flow Models)
- Lecture 3 - Introduction (Applications)
- Lecture 4 - Mass Continuity (Introduction)
- Lecture 5 - Mass Continuity (Cartesian Coordinates)
- Lecture 6 - Mass Continuity (Cylindrical Coordinates)
- Lecture 7 - Mass Continuity (Radial Flow)
- Lecture 8 - Mass Continuity (Non-Uniform Permeability)
- Lecture 9 - Mass Continuity (Continued...)
- Lecture 10 - Mass Continuity (Streamlines And Potential Lines)
- Lecture 11 - Mass Continuity (Elementary Flow)
- Lecture 12 - Mass Continuity (Source/Sink)
- Lecture 13 - Mass Continuity (Superposition Of Elementary Flow)
- Lecture 14 - Mass Continuity (Superposition Of Elementary Flow) (Continued...)
- Lecture 15 - Transport Mechanisms (Introduction)
- Lecture 16 - Transport Mechanisms (Combined Mode)
- Lecture 17 - Transport Mechanisms (Adsorption/Pore Condensation)
- Lecture 18 - Transport Mechanisms (Continued...)
- Lecture 19 - Flow Equation (Introduction)
- Lecture 20 - Flow Equations (Continued...)
- Lecture 21 - Flow Equations (Viscous Flow in Capillary)
- Lecture 22 - Flow Equations (Packed Bed)
- Lecture 23 - Flow Equations (Fluidized Bed)
- Lecture 24 - Miscible Displacement (Uniform Velocity Over Capillary Cross-Section)
- Lecture 25 - Miscible Displacement (Laminar Flow in Capillary)
- Lecture 26 - Miscible Displacement (Movement of Concentration Pulse)
- Lecture 27 - Miscible Displacement (Step Change in Concentration)
- Lecture 28 - Miscible Displacement (Continued...)
- Lecture 29 - Miscible Displacement (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Miscible Displacement (Continued...)
- Lecture 31 - Miscible Displacement (Continued...)
- Lecture 32 - Miscible Displacement (Fractured Porous Media)
- Lecture 33 - Miscible Displacement (Viscous Front)
- Lecture 34 - Immiscible Flow
- Lecture 35 - Immiscible Flow (Continued...)
- Lecture 36 - Immiscible Flow (Continued...)
- Lecture 37 - Immiscible Flow (Continued...)
- Lecture 38 - Immiscible Flow (Continued...)
- Lecture 39 - Immiscible Flow (Continued...)
- Lecture 40 - Immiscible Flow (Continued...)
- Lecture 41 - IMMISCIBLE FLOW (Continued...)
- Lecture 42 - Immiscible Flow (Continued...)
- Lecture 43 - Immiscible Flow (Continued...)
- Lecture 44 - Immiscible Flow (Continued...)
- Lecture 45 - Immiscible Flow (Continued...)
- Lecture 46 - Immiscible Flow (Continued...)
- Lecture 47 - Interception Of Suspended Solids
- Lecture 48 - Interception Of Suspended Solids (Continued...)
- Lecture 49 - Interception Of Suspended Solids (Continued...)
- Lecture 50 - Interception Of Suspended Solids (Continued...)
- Lecture 51 - Interception Of Suspended Solids (Continued...)
- Lecture 52 - Interception Of Suspended Solids (Continued...)
- Lecture 53 - Deformable Porous Media
- Lecture 54 - Deformable Porous Media (Continued...)
- Lecture 55 - Deformable Porous Media (Continued...)
- Lecture 56 - Heat Transfer With Fluid Flow
- Lecture 57 - Heat Transfer With Fluid Flow (Continued...)
- Lecture 58 - Heat Transfer With Fluid Flow (Continued...)
- Lecture 59 - Characterization
- Lecture 60 - Characterization (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Fundamentals of Particle and Fluid Solid Processing

Subject Co-ordinator - Prof. Arnab Atta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Solid particle characterization  
Lecture 2 - Solid particle characterization (Continued...)  
Lecture 3 - Particle size distribution  
Lecture 4 - Particle size distribution (Continued...)  
Lecture 5 - Particle size distribution (Continued...)  
Lecture 6 - Fluid - particle mechanics  
Lecture 7 - Fluid - particle mechanics (Continued...)  
Lecture 8 - Fluid - particle mechanics (Continued...)  
Lecture 9 - Fluid - particle mechanics (Continued...)  
Lecture 10 - Fluid - particle mechanics (Continued...)  
Lecture 11 - Fluid - particle mechanics (Continued...)  
Lecture 12 - Fluid - particle mechanics (Continued...)  
Lecture 13 - Fluid - particle mechanics (Continued...)  
Lecture 14 - Fluid - particle mechanics (Continued...)  
Lecture 15 - Fluid - particle mechanics (Continued...)  
Lecture 16 - Flow through packed beds  
Lecture 17 - Flow through packed beds (Continued...)  
Lecture 18 - Flow through packed beds (Continued...)  
Lecture 19 - Flow through packed beds (Continued...)  
Lecture 20 - Flow through packed beds (Continued...)  
Lecture 21 - Fluidization  
Lecture 22 - Fluidization (Continued...)  
Lecture 23 - Fluidization (Continued...)  
Lecture 24 - Fluidization (Continued...)  
Lecture 25 - Fluidization (Continued...)  
Lecture 26 - Sedimentation  
Lecture 27 - Sedimentation (Continued...)  
Lecture 28 - Sedimentation (Continued...)  
Lecture 29 - Sedimentation (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sedimentation (Continued...)
- Lecture 31 - Filtration
- Lecture 32 - Filtration (Continued...)
- Lecture 33 - Filtration (Continued...)
- Lecture 34 - Filtration (Continued...)
- Lecture 35 - Filtration (Continued...)
- Lecture 36 - Centrifugal Separation
- Lecture 37 - Centrifugal Separation (Continued...)
- Lecture 38 - Centrifugal Separation (Continued...)
- Lecture 39 - Centrifugal Separation (Continued...)
- Lecture 40 - Centrifugal Separation (Continued...)
- Lecture 41 - Particle size reduction
- Lecture 42 - Particle size reduction (Continued...)
- Lecture 43 - Particle size reduction (Continued...)
- Lecture 44 - Particle size reduction (Continued...)
- Lecture 45 - Particle size reduction (Continued...)
- Lecture 46 - Particle size reduction (Continued...)
- Lecture 47 - Particle size enlargement
- Lecture 48 - Particle size enlargement (Continued...)
- Lecture 49 - Particle size enlargement (Continued...)
- Lecture 50 - Particle size enlargement (Continued...)
- Lecture 51 - Fluid - solid transport
- Lecture 52 - Fluid - solid transport (Continued...)
- Lecture 53 - Fluid - solid transport (Continued...)
- Lecture 54 - Fluid - solid transport (Continued...)
- Lecture 55 - Fluid - solid transport (Continued...)
- Lecture 56 - Colloids and nanoparticles
- Lecture 57 - Colloids and nanoparticles (Continued...)
- Lecture 58 - Colloids and nanoparticles (Continued...)
- Lecture 59 - Colloids and nanoparticles (Continued...)
- Lecture 60 - Colloids and nanoparticles (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Plant Design and Economics

Subject Co-ordinator - Prof. Debasis Sarkar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Typical Design Steps
- Lecture 3 - Flow Diagram
- Lecture 4 - Flow Diagram - Mass and Energy Balance
- Lecture 5 - Piping and Instrumentation Diagram
- Lecture 6 - Selection of Process Equipment
- Lecture 7 - Process Utilities
- Lecture 8 - Plant Location
- Lecture 9 - Site and Plant Layout
- Lecture 10 - Heuristics in Process Synthesis and Design
- Lecture 11 - Capital Investment
- Lecture 12 - Capital Cost Estimates
- Lecture 13 - Cost Components in Capital Investments
- Lecture 14 - Methods of Capital Cost Estimates
- Lecture 15 - Estimation of Total Product Cost
- Lecture 16 - Different Types of Interest
- Lecture 17 - Continuous Interest, Cash Flow Diagram, Time Value of Money
- Lecture 18 - Uniform Cash Flows and Continuous Flows
- Lecture 19 - Income Tax and Depreciation
- Lecture 20 - Depreciation
- Lecture 21 - Cumulative Cash Flow and Profitability Standards
- Lecture 22 - Profitability Analysis
- Lecture 23 - Profitability Analysis (Continued...)
- Lecture 24 - Profitability Analysis (Continued...)
- Lecture 25 - Alternative Investment, Replacement and Sensitivity Analysis
- Lecture 26 - Introduction to Process Synthesis
- Lecture 27 - Hierarchical Approach to Process Synthesis - I
- Lecture 28 - Hierarchical Approach to Process Synthesis - II
- Lecture 29 - Hierarchical Approach to Process Synthesis - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hierarchical Approach to Process Synthesis - IV
- Lecture 31 - Basic Reactor Principles
- Lecture 32 - Reactor Synthesis for Complex Reactions by Attainable Region
- Lecture 33 - Reactor Synthesis for Complex Reactions by Attainable Region
- Lecture 34 - Reactor Synthesis for Complex Reactions by Attainable Region
- Lecture 35 - General Procedure for Reactor Design and Cost Estimation
- Lecture 36 - Introduction to Separation Systems
- Lecture 37 - Selection Criteria for Separation Processes
- Lecture 38 - Design of Multi-component Distillation Column
- Lecture 39 - Design of Multi-component Distillation Column
- Lecture 40 - Introduction to Sequencing of Ordinary Distillation Columns
- Lecture 41 - Sequences for Simple Nonintegrated Distillation Columns
- Lecture 42 - Distillation Sequencing using Columns with Sidestreams
- Lecture 43 - Distillation Sequencing using Thermal Coupling
- Lecture 44 - Azeotropic Distillation
- Lecture 45 - Azeotropic Distillation Methods and Cost Estimation
- Lecture 46 - Introduction to Pinch Technology
- Lecture 47 - Composite Curves
- Lecture 48 - The Problem Table Method
- Lecture 49 - The Heat Recovery Pinch and The Grand Composite Curve
- Lecture 50 - Heat Exchanger Network Design
- Lecture 51 - Introduction
- Lecture 52 - Fires and Explosions
- Lecture 53 - Fires and Explosions
- Lecture 54 - Toxic Release, Hazard Identification and MSDS
- Lecture 55 - Inherently Safer Design
- Lecture 56 - Optimality Criteria for Unconstrained Functions
- Lecture 57 - Examples
- Lecture 58 - Equality Constrained Problems
- Lecture 59 - Linear Programming Problems
- Lecture 60 - Batch Process Scheduling

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Material and Energy Balance Computations

Subject Co-ordinator - Prof. Arnab Atta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Engineering Calculations
- Lecture 2 - Introduction to Engineering Calculations (Continued...)
- Lecture 3 - Introduction to Engineering Calculations (Continued...)
- Lecture 4 - Introduction to Processes and Process Variables
- Lecture 5 - Introduction to Processes and Process Variables (Continued...)
- Lecture 6 - Fundamentals of Material Balance
- Lecture 7 - Fundamentals of Material Balance (Continued...)
- Lecture 8 - Fundamentals of Material Balance (Continued...)
- Lecture 9 - Fundamentals of Material Balance (Continued...)
- Lecture 10 - Material Balance of Single-unit
- Lecture 11 - Material Balance of Multiple Units
- Lecture 12 - Material Balance of Multiple Units (Continued...)
- Lecture 13 - Material Balance of Multiple Units (Continued...)
- Lecture 14 - Material Balance of Multiple Units (Continued...)
- Lecture 15 - Material Balance of Multiple Units - Recycle
- Lecture 16 - Material Balance of Recycle and Bypass Units
- Lecture 17 - Material Balance of Recycle and Bypass Units (Continued...)
- Lecture 18 - Introduction
- Lecture 19 - Introduction (Continued...)
- Lecture 20 - Introduction (Continued...)
- Lecture 21 - Multiple reactions and reactive process balance
- Lecture 22 - Reactive process balance
- Lecture 23 - Multiple reactions and reactive process balance
- Lecture 24 - Reactive process balance (Continued...)
- Lecture 25 - Reactive process balance (Continued...)
- Lecture 26 - Combustion reactions balance
- Lecture 27 - Combustion reactions balance (Continued...)
- Lecture 28 - Single-phase systems
- Lecture 29 - Single phase systems (Continued...)

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- Lecture 30 - Single-phase problems and concept of multi-phase system
- Lecture 31 - Introduction to Energy Balance - I
- Lecture 32 - Introduction to Energy Balance - II
- Lecture 33 - Introduction to Energy Balance - III
- Lecture 34 - Introduction to Energy Balance - IV
- Lecture 35 - Introduction to Energy Balance - V
- Lecture 36 - Introduction to Energy Balance - VI
- Lecture 37 - Introduction to Energy Balance - VII
- Lecture 38 - Introduction to Energy Balance - VIII
- Lecture 39 - Introduction to Energy Balance - IX
- Lecture 40 - Introduction to Energy Balance - X
- Lecture 41 - Introduction to Energy Balance - XI
- Lecture 42 - Estimation of Physical Properties - I
- Lecture 43 - Estimation of Physical Properties - II
- Lecture 44 - Estimation of Physical Properties - III
- Lecture 45 - Tutorial - I
- Lecture 46 - Tutorial - II
- Lecture 47 - Tutorial - III
- Lecture 48 - Tutorial - IV
- Lecture 49 - Estimation of Physical Parameters - IV
- Lecture 50 - Estimation of Physical Parameters - V
- Lecture 51 - Energy Balance with Chemical Reactions - I
- Lecture 52 - Energy Balance with Chemical Reactions - II
- Lecture 53 - Energy Balance with Chemical Reactions - III
- Lecture 54 - Energy Balance with Chemical Reactions - IV
- Lecture 55 - Energy Balance with Chemical Reactions - V
- Lecture 56 - Energy Balance with Chemical Reactions - VI
- Lecture 57 - Humidity and Psychrometric Chart - I
- Lecture 58 - Humidity and Psychrometric Chart - II
- Lecture 59 - Humidity and Psychrometric Chart - III
- Lecture 60 - Humidity and Psychrometric Chart - IV



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Principles and Practices of Process Equipment and Plant Design

Subject Co-ordinator - Prof. Gargi Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Optimum design and design documentation
- Lecture 4 - Introduction to Mass Transfer Processes
- Lecture 5 - Phase Equilibrium
- Lecture 6 - Phase Equilibrium (Continued...)
- Lecture 7 - Phase Equilibrium (Continued...)
- Lecture 8 - Distillation
- Lecture 9 - Flash Distillation and Design problem
- Lecture 10 - Fractionation
- Lecture 11 - Fractionation (Continued...)
- Lecture 12 - McCabe-Thiele construction for number of ideal stages
- Lecture 13 - Optimum Design
- Lecture 14 - Multi-component fractionation design
- Lecture 15 - Batch Distillation
- Lecture 16 - Practical issues in designing distillation processes
- Lecture 17 - Design of absorbers
- Lecture 18 - Design of absorbers (Continued...)
- Lecture 19 - Design of absorbers (Continued...)
- Lecture 20 - Tower and Tower internals
- Lecture 21 - Tower and Tower internals (Continued...)
- Lecture 22 - Tower and Tower internals (Continued...)
- Lecture 23 - Sieve Tray Design
- Lecture 24 - Sieve Tray Design (Continued...)
- Lecture 25 - Sieve Tray Design (Continued...)
- Lecture 26 - Bubble Cap Tray Design
- Lecture 27 - Bubble Cap Tray Design (Continued...)
- Lecture 28 - Bubble Cap Tray Design (Continued...)
- Lecture 29 - Tower and Tower internals (Packed Tower Design)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tower and Tower internals (Packed Tower Design) (Continued...)
- Lecture 31 - Adsorption
- Lecture 32 - Packed bed adsorption
- Lecture 33 - Packed bed adsorber design
- Lecture 34 - Packed bed adsorber design (Continued...)
- Lecture 35 - Liquid-liquid extraction (LLE)
- Lecture 36 - Liquid-liquid extraction (L2)
- Lecture 37 - Liquid-liquid extraction (L3)
- Lecture 38 - Liquid-liquid extraction (L4)
- Lecture 39 - Liquid-liquid extraction (L5)
- Lecture 40 - Design of Mass Transfer Processes (Review)
- Lecture 41 - Design of Heat Transfer Processes - Introduction
- Lecture 42 - Double Pipe Heat exchanger
- Lecture 43 - Double Pipe Heat exchanger (Continued...)
- Lecture 44 - Double Pipe Heat exchanger (Continued...)
- Lecture 45 - Design of Shell and Tube Heat Exchangers - a general overview
- Lecture 46 - Design of Shell and Tube Heat Exchangers - a general overview (Continued...)
- Lecture 47 - Shell and Tube Heat Exchanger - Design
- Lecture 48 - Shell and Tube Heat Exchanger - Design
- Lecture 49 - Heat exchanger Network Analysis
- Lecture 50 - Heat exchanger Network Analysis (Continued...)
- Lecture 51 - Heat exchanger Network Analysis (Continued...)
- Lecture 52 - Heat exchanger Network Analysis (Continued...)
- Lecture 53 - Heat exchanger Network Analysis (Continued...)
- Lecture 54 - Plant Hydraulics
- Lecture 55 - Plant Hydraulics (Continued...)
- Lecture 56 - Plant Hydraulics (Continued...)
- Lecture 57 - Plant Hydraulics (End)
- Lecture 58 - Process Vessels
- Lecture 59 - Process Instrumentation and Control
- Lecture 60 - Engineered Safety
- Lecture 61 - Process Utilities
- Lecture 62 - Process Design using Simulators
- Lecture 63 - Process Packages
- Lecture 64 - Design of a 10 TPD Mono-nitrotoluene plant

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Mathematical Modelling and Simulation of Chemical Engineering

Subject Co-ordinator - Prof. Sourav Mondal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Constitutive relations
- Lecture 4 - Constitutive relations - Mass transfer and thermodynamics
- Lecture 5 - Process diagrams
- Lecture 6 - Special functions
- Lecture 7 - Partial differential equations
- Lecture 8 - Partial differential equations - Separation of variables
- Lecture 9 - PDE - Separation of variables (Continued...)
- Lecture 10 - PDE - Integral transforms
- Lecture 11 - Numerical techniques of solving PDE - Discretization
- Lecture 12 - Stability of finite difference schemes
- Lecture 13 - Numerical solution of PDE - Method of lines
- Lecture 14 - Numerical solution of implicit formulation - Tridiagonal matrix
- Lecture 15 - Numerical solution of PDE - Finite volume method
- Lecture 16 - Perturbation methods
- Lecture 17 - Asymptotics
- Lecture 18 - Matched Asymptotics
- Lecture 19 - Stability of dynamical systems
- Lecture 20 - Stability of dynamical systems (Continued...)
- Lecture 21 - Modelling transport phenomena problems - Part 1
- Lecture 22 - Modelling transport phenomena problems - Part 2
- Lecture 23 - Modelling transport phenomena problems - Part 3
- Lecture 24 - Modelling transport phenomena problems - Part 4
- Lecture 25 - Modelling transport phenomena problems - Part 5
- Lecture 26 - Modelling reaction systems - Packed bed catalytic reactor
- Lecture 27 - Modelling intraparticle transport and catalysis
- Lecture 28 - Modelling pore diffusion and reaction
- Lecture 29 - Modelling enzymatic reactions

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- Lecture 30 - Demonstration of COMSOL Multiphysics
- Lecture 31 - Modelling of multistage distillation process
- Lecture 32 - FUG method of stage calculations
- Lecture 33 - MESH equations and DOF analysis
- Lecture 34 - Tearing method
- Lecture 35 - Bubble point method stage calculations
- Lecture 36 - Simultaneous correction method
- Lecture 37 - Block tridiagonal matrix
- Lecture 38 - Simple binary batch distillation
- Lecture 39 - Multistage batch distillation
- Lecture 40 - Heat exchanger network design pinch analysis
- Lecture 41 - Pinch point temperature
- Lecture 42 - Heat exchanger network synthesis
- Lecture 43 - Solving a distillation column using Aspen plus
- Lecture 44 - Solving two unit operations using Aspen Plus
- Lecture 45 - Solving multiple units using Aspen Plus
- Lecture 46 - Dispersed phase modelling - Introduction
- Lecture 47 - Population balance equation
- Lecture 48 - Dispersed phase modelling - Breakage process
- Lecture 49 - Drop size distribution in lean mixtures
- Lecture 50 - Mass transfer in lean liquid-liquid dispersion
- Lecture 51 - Dispersed phase modelling - Aggregation
- Lecture 52 - Dispersed phase modelling - Aerosol dynamics
- Lecture 53 - Dispersed phase modelling - Aerosol dynamics (Continued...)
- Lecture 54 - Solution of the population balance equation
- Lecture 55 - Numerical solution of the population balance equation
- Lecture 56 - Kinetic monte carlo simulation
- Lecture 57 - Response surface methodology
- Lecture 58 - Design of experiments
- Lecture 59 - Artificial neural network
- Lecture 60 - Supervised training

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Advanced Process Dynamics

Subject Co-ordinator - Prof. Parag A. Deshpande

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and motivation
- Lecture 2 - Dynamics of linear first order autonomous systems
- Lecture 3 - Dynamics of linear first order autonomous systems (Continued...)
- Lecture 4 - Lumped parameter analysis of cooling of a body
- Lecture 5 - Lumped parameter analysis of cooling of a body (Continued...)
- Lecture 6 - Introduction to higher order systems
- Lecture 7 - Phase plane analysis of linear autonomous second order systems
- Lecture 8 - Phase plane analysis of linear autonomous second order systems (Continued...)
- Lecture 9 - Analysis of a free spring-mass system
- Lecture 10 - Analysis of a free spring-mass system (Continued...)
- Lecture 11 - Dynamics of non-autonomous systems
- Lecture 12 - Similarity solution for non-autonomous higher order dynamics
- Lecture 13 - Similarity solution for non-autonomous higher order dynamics (Continued...)
- Lecture 14 - Analysis of a forced spring-mass system
- Lecture 15 - Analysis of a forced spring-mass system (Continued...)
- Lecture 16 - Phase portraits of linear autonomous systems of order three and higher
- Lecture 17 - Phase portraits of linear autonomous systems of order three and higher (Continued...)
- Lecture 18 - Analysis of complex reaction systems
- Lecture 19 - Analysis of complex reaction systems (Continued...)
- Lecture 20 - Analysis of complex reaction systems (Continued...)
- Lecture 21 - Introduction to non-linear systems
- Lecture 22 - Logistic population growth model
- Lecture 23 - Logistic population growth model (Continued...)
- Lecture 24 - Logistic population growth with harvesting
- Lecture 25 - Logistic population growth with harvesting (Continued...)
- Lecture 26 - Logistic population growth with threshold population
- Lecture 27 - Logistic population growth with threshold population (Continued...)
- Lecture 28 - Analysis of population dynamics in discrete domain
- Lecture 29 - Analysis of fixed points and bifurcation in discrete domain

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of fixed points and bifurcation in discrete domain (Continued...)
- Lecture 31 - More on bifurcations in non-linear systems
- Lecture 32 - Non-linear systems in higher dimensions
- Lecture 33 - Reactor stability analysis
- Lecture 34 - Reactor stability analysis (Continued...)
- Lecture 35 - Reactor stability analysis (Continued...)
- Lecture 36 - Analysis of infectious disease dynamics
- Lecture 37 - Analysis of infectious disease dynamics (Continued...)
- Lecture 38 - Analysis of infectious disease dynamics (Continued...)
- Lecture 39 - Analysis of atmosphere dynamics using Lorenz equations
- Lecture 40 - Analysis of atmosphere dynamics using Lorenz equations (Continued...)
- Lecture 41 - Analysis of system dynamics in transform domain
- Lecture 42 - Analysis of first order system subjected to ideal forcing functions
- Lecture 43 - Analysis of first order system subjected to ideal forcing functions (Continued...)
- Lecture 44 - Analysis of response of second order systems
- Lecture 45 - Analysis of response of second order systems (Continued...)
- Lecture 46 - Analysis of (p,q) order systems
- Lecture 47 - Analysis of (p,q) order systems (Continued...)
- Lecture 48 - Analysis of multiple input - multiple output systems
- Lecture 49 - Block diagrams and inter-conversion of state-space and transform domain models
- Lecture 50 - Analysis of inverse response systems
- Lecture 51 - Analysis of dynamics of discrete-time systems
- Lecture 52 - Sampling and reconstruction of continuous signals
- Lecture 53 - Conversion of continuous models to discrete-time models
- Lecture 54 - Introduction to z-transforms
- Lecture 55 - z-transforms Continued
- Lecture 56 - Response of discrete-time systems
- Lecture 57 - Response of discrete-time systems (Continued...)
- Lecture 58 - Response of discrete-time systems (Continued...)
- Lecture 59 - Stability analysis in transform domain
- Lecture 60 - Review of the course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Metallocene and Metal-Carbene based Organometallic Compounds

Subject Co-ordinator - Prof. Sanjib K. Patra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - A Brief Introduction to Polymers

Lecture 2 - A Brief Introduction to Polymers (Continued...)

Lecture 3 - Polyethylene and Polypropylene: Chemical structure and properties

Lecture 4 - Polyethylene and Polypropylene: Chemical structure and properties (Continued...)

Lecture 5 - Common polymerization protocol and mechanism

Lecture 6 - Common polymerization protocol and mechanism (Continued...)

Lecture 7 - Common polymerization protocol and mechanism: Controlled Polymerization

Lecture 8 - Anionic living polymerization and Coordination polymerization

Lecture 9 - Transition metal/Organometallic complexes: Unique reactions

Lecture 10 - Metallocene compounds: Structure and Bonding

Lecture 11 - Metallocene compounds: Structure and Bonding (Continued...)

Lecture 12 - Bonding in Metallocene, MOT and Electronic nature

Lecture 13 - Bonding and Electronic nature in Bent Metallocene

Lecture 14 - Bonding and Electronic nature in Bent Metallocene (Continued...)

Lecture 15 - General Synthetic Strategies for Metallocenes (Parallel and Bent)

Lecture 16 - Properties and Unique Reactivities of parallel and bent Metallocenes

Lecture 17 - Unique Reactivities of bent Metallocenes

Lecture 18 - Unique Reactivities of bent Metallocenes (Continued...)

Lecture 19 - Coordination polymerization of olefin and stereoregularity

Lecture 20 - Olefin polymerization by Zeigler Natta Catalyst: Important features

Lecture 21 - Coordination polymerization of olefin by Metallocene Catalysts: A new avenue in polyolefin catal

Lecture 22 - Coordination polymerization of olefin by Metallocene Catalysts: A new avenue in polyolefin catal

Lecture 23 - Symmetry of metallocene and Stereoregularity in polyolefin

Lecture 24 - Symmetry of metallocene and Stereoregularity in polyolefin (Continued...)

Lecture 25 - Metallocene to Post-metallocene catalysts for olefin polymerization

Lecture 26 - Metallocene to Post-metallocene catalysts for olefin polymerization (Continued...)

Lecture 27 - Polymerization strategy for industrial preparation of LLDPE

Lecture 28 - Polymerization strategy for industrial preparation of LLDPE (Continued...)

Lecture 29 - Metallocene and Post-metallocene Catalysts: Homogeneous to Heterogeneous and Lab to Industry

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Metallocene and Post-metallocene Catalysts: Homogeneous to Heterogeneous and Lab to Industry (Co
- Lecture 31 - Depolymerization of synthetic polymers: Role of organometallic and metallocene based catalysts
- Lecture 32 - Depolymerization of synthetic polymers: Role of organometallic and metallocene based catalysts
- Lecture 33 - Metal-carbene complexes as versatile catalysts for multiple useful reactions: A short introduction
- Lecture 34 - Metal-carbene complexes as versatile catalysts for multiple useful reactions: A short introduction
- Lecture 35 - Bonding and Electronic properties in Metal-carbene complexes
- Lecture 36 - General synthetic protocol of Metal-carbene complexes
- Lecture 37 - N-Heterocyclic carbene (NHC) complex: Bonding and General synthetic protocol
- Lecture 38 - Alkene metathesis by metal-carbene catalysts and its mechanism
- Lecture 39 - Utility of metal-carbene catalysts in alkene polymerization
- Lecture 40 - Industrially important polymers by ROMP: Recent development and scope; Overall summary of this course



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Chemical Engineering Fluid Dynamics and Heat Transfer

Subject Co-ordinator - Prof. Rabibrata Mukherjee, Prof. Arnab Atta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction Basic Concepts and Kinematics - 1  
Lecture 2 - Kinematics - 2  
Lecture 3 - Kinematics - 3  
Lecture 4 - Kinematics - 4  
Lecture 5 - Kinematics - 5 - Shear Stress  
Lecture 6 - Kinematics - 6 and Conservation Equation - 1  
Lecture 7 - Conservation Equation - 2  
Lecture 8 - Conservation Equation - 3 - Conservation of Momentum  
Lecture 9 - Conservation Equation - 4 - Conservation of Momentum - 2  
Lecture 10 - Conservation Equation - 5 - Conservation of Momentum - 3  
Lecture 11 - Exact Solution - 1  
Lecture 12 - Exact Solution - 2  
Lecture 13 - Exact Solution - 3  
Lecture 14 - Exact Solution - 4  
Lecture 15 - Boundary Layer Analysis - 1  
Lecture 16 - Boundary Layer Analysis - 2  
Lecture 17 - Boundary Layer Analysis - 3  
Lecture 18 - Boundary Layer Analysis - 4: Blasius Solution - 1  
Lecture 19 - Boundary Layer Analysis - 4: Blasius Solution - 2  
Lecture 20 - Boundary Layer Analysis - 5: Momentum Integral Method - 1  
Lecture 21 - Boundary Layer Analysis - 6: Momentum Integral Method - 2  
Lecture 22 - Boundary Layer Analysis - 6: Momentum Integral Method - 3  
Lecture 23 - Turbulence - 1  
Lecture 24 - Turbulence - 2  
Lecture 25 - Turbulence - 3  
Lecture 26 - Turbulence - 4  
Lecture 27 - Turbulence - 5  
Lecture 28 - Turbulence - 6  
Lecture 29 - Turbulence - 7

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Turbulence - 8 and Final Wrap-up
- Lecture 31 - Fundamentals and Mechanism of Heat Transfer
- Lecture 32 - Fundamentals and Mechanism of Heat Transfer (Continued...)
- Lecture 33 - Fundamentals and Mechanism of Heat Transfer (Continued...)
- Lecture 34 - Fundamentals and Mechanism of Heat Transfer (Continued...)
- Lecture 35 - Fundamentals and Mechanism of Heat Transfer (Continued...)
- Lecture 36 - One-dimensional Heat Conduction
- Lecture 37 - One-dimensional Heat Conduction (Continued...)
- Lecture 38 - One-dimensional Heat Conduction (Continued...)
- Lecture 39 - One-dimensional Heat Conduction (Continued...)
- Lecture 40 - One-dimensional Heat Conduction (Continued...)
- Lecture 41 - One-dimensional Heat Conduction (Continued...)
- Lecture 42 - One-dimensional Heat Conduction (Continued...)
- Lecture 43 - Transient Heat Conduction
- Lecture 44 - Transient Heat Conduction (Continued...)
- Lecture 45 - Transient Heat Conduction (Continued...)
- Lecture 46 - Forced Convection
- Lecture 47 - Forced Convection (Continued...)
- Lecture 48 - Forced Convection (Continued...)
- Lecture 49 - Forced Convection (Continued...)
- Lecture 50 - Forced Convection (Continued...)
- Lecture 51 - Internal Forced Convection
- Lecture 52 - Internal Forced Convection (Continued...)
- Lecture 53 - Internal Forced Convection (Continued...)
- Lecture 54 - Internal Forced Convection (Continued...)
- Lecture 55 - Internal Forced Convection (Continued...)
- Lecture 56 - Natural Convection
- Lecture 57 - Natural Convection (Continued...)
- Lecture 58 - Boiling and Condensation
- Lecture 59 - Radiation
- Lecture 60 - Radiation (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Characterization of Polymers, Elastomers and Composites

Subject Co-ordinator - Prof. Santanu Chattopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction of Structure-Property-Process Correlation of Polymer, Elastomer and Composite - 1  
Lecture 2 - Introduction of Structure-Property-Process Correlation of Polymer, Elastomer and Composite - 1  
Lecture 3 - Introduction of Structure-Property-Process Correlation of Polymer, Elastomer and Composite - 1  
Lecture 4 - Introduction of Structure-Property-Process Correlation of Polymer, Elastomer and Composite - 1  
Lecture 5 - Introduction of Structure-Property-Process Correlation of Polymer, Elastomer and Composite - 1  
Lecture 6 - Introduction of Structure-Property-Process Correlation of Polymer, Elastomer and Composite - 2  
Lecture 7 - Introduction of Structure-Property-Process Correlation of Polymer, Elastomer and Composite - 2  
Lecture 8 - Introduction of Structure-Property-Process Correlation of Polymer, Elastomer and Composite - 2  
Lecture 9 - Introduction of Structure-Property-Process Correlation of Polymer, Elastomer and Composite - 2  
Lecture 10 - Introduction of Structure-Property-Process Correlation of Polymer, Elastomer and Composite - 2  
Lecture 11 - Identification by Chemical Techniques, Implication of National and International Standards along  
Lecture 12 - Identification by Chemical Techniques, Implication of National and International Standards along  
Lecture 13 - Identification by Chemical Techniques, Implication of National and International Standards along  
Lecture 14 - Identification by Chemical Techniques, Implication of National and International Standards along  
Lecture 15 - Identification by Chemical Techniques, Implication of National and International Standards along  
Lecture 16 - Introduction of UV-Vis and infrared spectroscopy for polymers, elastomers and composites  
Lecture 17 - Introduction of UV-Vis and infrared spectroscopy for polymers, elastomers and composites (Contin  
Lecture 18 - Introduction of UV-Vis and infrared spectroscopy for polymers, elastomers and composites (Contin  
Lecture 19 - Introduction of UV-Vis and infrared spectroscopy for polymers, elastomers and composites (Contin  
Lecture 20 - Introduction of UV-Vis and infrared spectroscopy for polymers, elastomers and composites (Contin  
Lecture 21 - Application of infrared spectroscopy for blends, modification of polymers, compatibilizaion, cou  
Lecture 22 - Application of infrared spectroscopy for blends, modification of polymers, compatibilizaion, cou  
Lecture 23 - Application of infrared spectroscopy for blends, modification of polymers, compatibilizaion, cou  
Lecture 24 - Practical demonstration on UV-Visible spectroscopy  
Lecture 25 - Practical demonstration on FTIR spectroscopy and Sulphur analyzer  
Lecture 26 - Introduction to Photoacoustic spectroscopy (PA), Raman spectroscopy, Atomic absorption spectrosc  
Lecture 27 - Introduction to Photoacoustic spectroscopy (PA), Raman spectroscopy, Atomic absorption spectrosc  
Lecture 28 - Introduction to Photoacoustic spectroscopy (PA), Raman spectroscopy, Atomic absorption spectrosc  
Lecture 29 - Introduction to Photoacoustic spectroscopy (PA), Raman spectroscopy, Atomic absorption spectrosc

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Photoacoustic spectroscopy (PA), Raman spectroscopy, Atomic absorption spectroscopy
- Lecture 31 - NMR Spectroscopy- principles and fundamentals. Application of NMR in polymer, elastomer and composites
- Lecture 32 - NMR Spectroscopy- principles and fundamentals. Application of NMR in polymer, elastomer and composites
- Lecture 33 - NMR Spectroscopy- principles and fundamentals. Application of NMR in polymer, elastomer and composites
- Lecture 34 - NMR Spectroscopy- principles and fundamentals. Application of NMR in polymer, elastomer and composites
- Lecture 35 - NMR Spectroscopy- principles and fundamentals. Application of NMR in polymer, elastomer and composites
- Lecture 36 - Thermal analysis techniques and application in polymer, elastomer and composites
- Lecture 37 - Thermal analysis techniques and application in polymer, elastomer and composites (Continued...)
- Lecture 38 - Thermal analysis techniques and application in polymer, elastomer and composites (Continued...)
- Lecture 39 - Practical demonstration on TGA, DSC and DMA
- Lecture 40 - XRD, XPS and XRF. Principles, Fundamentals and Application in Polymer, Elastomer and Composites
- Lecture 41 - XRD, XPS and XRF. Principles, Fundamentals and Application in Polymer, Elastomer and Composites
- Lecture 42 - XRD, XPS and XRF. Principles, Fundamentals and Application in Polymer, Elastomer and Composites
- Lecture 43 - XRD, XPS and XRF. Principles, Fundamentals and Application in Polymer, Elastomer and Composites
- Lecture 44 - XRD, XPS and XRF. Principles, Fundamentals and Application in Polymer, Elastomer and Composites
- Lecture 45 - Introduction to microscopy (Optical, AFM) with special reference to electron microscopy (SEM, FE-SEM)
- Lecture 46 - Introduction to microscopy (Optical, AFM) with special reference to electron microscopy (SEM, FE-SEM)
- Lecture 47 - Introduction to microscopy (Optical, AFM) with special reference to electron microscopy (SEM, FE-SEM)
- Lecture 48 - Introduction to microscopy (Optical, AFM) with special reference to electron microscopy (SEM, FE-SEM)
- Lecture 49 - Introduction to microscopy (Optical, AFM) with special reference to electron microscopy (SEM, FE-SEM)
- Lecture 50 - Applications of microscopy in polymers, elastomers and composites
- Lecture 51 - Applications of microscopy in polymers, elastomers and composites (Continued...)
- Lecture 52 - Practical demonstration on optical microscopy
- Lecture 53 - Practical demonstration on atomic force microscopy (AFM)
- Lecture 54 - Practical demonstration on image processing using standard software (Image)
- Lecture 55 - Chromatography, DETA, Quantification from Rate Dependent Methods, Reverse Engineering and Recent Advances
- Lecture 56 - Chromatography, DETA, Quantification from Rate Dependent Methods, Reverse Engineering and Recent Advances
- Lecture 57 - Chromatography, DETA, Quantification from Rate Dependent Methods, Reverse Engineering and Recent Advances
- Lecture 58 - Chromatography, DETA, Quantification from Rate Dependent Methods, Reverse Engineering and Recent Advances
- Lecture 59 - Chromatography, DETA, Quantification from Rate Dependent Methods, Reverse Engineering and Recent Advances
- Lecture 60 - Chromatography, DETA, Quantification from Rate Dependent Methods, Reverse Engineering and Recent Advances

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Matlab-Based Programming Lab in Chemical Engineering

Subject Co-ordinator - Prof. Parag A. Deshpande

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation for the Lab Course
- Lecture 2 - Analysis of the Need of Computers in Process Industries
- Lecture 3 - Analysis of the Need of Computers in Process Industries (Continued...)
- Lecture 4 - Discussion on Computational Tools available to Chemical Engineers
- Lecture 5 - Analysis and Comparison of different Programming Languages
- Lecture 6 - MATLAB Primer - Basic Features
- Lecture 7 - MATLAB Primer - Writing Codes
- Lecture 8 - MATLAB Primer - Coding (Continued...)
- Lecture 9 - MATLAB Primer - Coding (Continued...)
- Lecture 10 - MATLAB Primer - Plotting and Presentation of Results
- Lecture 11 - LAB 1 - Analysis of Frictional Losses in Pipe Flows Problem Definition and Analysis
- Lecture 12 - LAB 1 - Analysis of Frictional Losses in Pipe Flows Theory and Solution Strategy
- Lecture 13 - LAB 1 - Analysis of Frictional Losses in Pipe Flows Solution of the Problem under ...
- Lecture 14 - LAB 1 - Analysis of Frictional Losses in Pipe Flows Solution of the Problem under ...
- Lecture 15 - LAB 1 - Analysis of Frictional Losses in Pipe Flows Presentation and Interpretation ...
- Lecture 16 - LAB 2 - Steady-state Operation of a Diabatic CSTR Problem Definition and Analysis
- Lecture 17 - LAB 2 - Steady-state Operation of a Diabatic CSTR Theory and Solution Strategy
- Lecture 18 - LAB 2 - Steady-state Operation of a Diabatic CSTR Solution of the Problem under ...
- Lecture 19 - LAB 2 - Steady-state Operation of a Diabatic CSTR Solution of the Problem under ...
- Lecture 20 - LAB 2 - Steady-state Operation of a Diabatic CSTR Analysis and Presentation ...
- Lecture 21 - LAB 3 - Analysis of multicomponent distillation Problem definition and analysis
- Lecture 22 - LAB 3 - Analysis of Multicomponent Distillation Theory and Solution Strategy
- Lecture 23 - LAB 3 - Analysis of Multicomponent Distillation Solution of the Problem under Various ...
- Lecture 24 - LAB 3 - Analysis of Multicomponent Distillation Solution of the Problem under Various ...
- Lecture 25 - LAB 3 - Analysis of Multicomponent Distillation Presentation and Analysis of Results
- Lecture 26 - LAB 4 - Analysis of Cooling of a Solid Body in a Reservoir Problem Definition ...
- Lecture 27 - LAB 4 - Analysis of Cooling of a Solid Body in a Reservoir Theory and Solution ...
- Lecture 28 - LAB 4 - Analysis of Cooling of a Solid Body in a Reservoir Solution of the Problem ...
- Lecture 29 - LAB 4 - Analysis of Cooling of a Solid Body in a Reservoir Solution of the Problem ...

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- Lecture 30 - LAB 4 - Analysis of cooling of a solid body in a reservoir Presentation ...
- Lecture 31 - LAB 5 - Analysis of unsteady-state operation of cascade CSTR's Problem Definition ...
- Lecture 32 - LAB 5 - Analysis of unsteady-state operation of cascade CSTR's Theory and Solution ...
- Lecture 33 - LAB 5 - Analysis of unsteady-state operation of cascade CSTR's Solution of the Problem
- Lecture 34 - LAB 5 - Analysis of unsteady-state operation of cascade CSTR's Solution of the problem
- Lecture 35 - LAB 5 - Analysis of unsteady-state operation of cascade CSTR's Presentation ...
- Lecture 36 - LAB 6 - Analysis of Steady-state Heat Conduction in a 1-D rod
- Lecture 37 - LAB 6 - Analysis of Steady-state Heat Conduction in a 1-D rod
- Lecture 38 - LAB 6 - Analysis of steady-state Heat Conduction in a 1-D rod
- Lecture 39 - LAB 6 - Analysis of steady-state Heat Conduction in a 1-D rod
- Lecture 40 - LAB 6 - Analysis of steady-state Heat Conduction in a 1-D rod
- Lecture 41 - LAB 7 - Reaction-diffusion in a spherical catalyst pallet Problem definition and ...
- Lecture 42 - LAB 7 - Reaction-diffusion in a spherical catalyst pallet Theory and solution strategy
- Lecture 43 - LAB 7 - Reaction-diffusion in a spherical catalyst pallet Solution of the problem ...
- Lecture 44 - LAB 7 - Reaction-diffusion in a spherical catalyst pallet Solution of the problem ...
- Lecture 45 - LAB 7 - Reaction-diffusion in a spherical catalyst pallet Analysis and interpretation ...
- Lecture 46 - LAB 8 - Heat conduction in higher dimensions Problem definition and analysis
- Lecture 47 - LAB 8 - Heat conduction in higher dimensions Background theory and solution strategy
- Lecture 48 - LAB 8 - Heat conduction in higher dimensions Problem solution
- Lecture 49 - LAB 8 - Heat conduction in higher dimensions Problem solution (Continued...)
- Lecture 50 - LAB 8 - Heat conduction in higher dimensions Problem solution and analysis
- Lecture 51 - LAB 9 - Process economics and optimisation Problem definition and analysis
- Lecture 52 - LAB 9 - Process economics and optimisation Theory and solution strategy
- Lecture 53 - LAB 9 - Process economics and optimisation Solution of the problem
- Lecture 54 - LAB 9 - Process economics and optimisation Solution of the problem (Continued...)
- Lecture 55 - LAB 9 - Process economics and optimisation Solution of the problem and analysis of ...
- Lecture 56 - LAB 10 - Regression and curve - fitting of data Problem definition and analysis
- Lecture 57 - LAB 10 - Regression and curve - fitting of data Background theory and solution strategy
- Lecture 58 - LAB 10 - Regression and curve - fitting of data Problem solution
- Lecture 59 - LAB 10 - Regression and curve - fitting of data Problem solution (Continued...)
- Lecture 60 - Review of the course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Petroleum Technology

Subject Co-ordinator - Dr. Sonali Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Petroleum How it is stored under the earth Exploration of petroleum underground
- Lecture 2 - Concept of Seismic Reflection, Introduction to Drilling
- Lecture 3 - Drilling Mud and Mechanisms of Recovery of Petroleum
- Lecture 4 - Composition of Crude Petroleum and Evaluation of Oil Stocks
- Lecture 5 - Evaluation of Oil Stocks: Vaporization Characteristics
- Lecture 6 - Primary Processing of Crude Oil: Desalting
- Lecture 7 - Primary Processing of Crude Oil: Atmospheric Distillation Unit (ADU)
- Lecture 8 - Primary Processing of Crude Oil: Reflux Systems, Vacuum Distillation Unit (VDU)
- Lecture 9 - Products and Process Utilities in Primary Processing, Pipe Still Heater
- Lecture 10 - Refinery Units
- Lecture 11 - Secondary Processing: Decomposition of Residues: Thermal Cracking
- Lecture 12 - Coking, Gasification and Steam Cracking
- Lecture 13 - Secondary Processing: Decomposition of Residues: Hydrocracking
- Lecture 14 - Secondary Processing: Decomposition of Residues: Catalytic Cracking
- Lecture 15 - Secondary Processing: Decomposition of Residues: Process description of FCC
- Lecture 16 - Properties and Testing of Petroleum Products
- Lecture 17 - Properties and Testing of Petroleum Products (Continued...)
- Lecture 18 - Properties and Testing of Petroleum Products (Continued...)
- Lecture 19 - Properties and Testing of Petroleum Products (Continued...)
- Lecture 20 - Properties and Testing of Petroleum Products (Continued...)
- Lecture 21 - Petroleum fractions from distillation units
- Lecture 22 - Petroleum fractions from distillation units (Continued...)
- Lecture 23 - Petroleum fractions from distillation units (Continued...)
- Lecture 24 - Petroleum fractions from distillation units (Continued...)
- Lecture 25 - Petroleum fractions from distillation units (Continued...)
- Lecture 26 - Upgradation of straight run cuts from atmospheric distillation unit
- Lecture 27 - Upgradation of straight run cuts from atmospheric distillation unit (Continued...)
- Lecture 28 - Upgradation of straight run cuts from atmospheric distillation unit (Continued...)
- Lecture 29 - Upgradation of straight run cuts from atmospheric distillation unit (Continued...)

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- Lecture 30 - Upgradation of straight run cuts from distillation unit
- Lecture 31 - Purification processes
- Lecture 32 - Purification processes (Continued...)
- Lecture 33 - Bitumen preparation processes
- Lecture 34 - Grease: preparation, description and application
- Lecture 35 - Emission control and effluent treatment in refinery
- Lecture 36 - Fundamentals of thermochemistry: Combustion
- Lecture 37 - Fundamentals of thermochemistry: Flame
- Lecture 38 - Fundamentals of thermochemistry: Adiabatic flame temperature
- Lecture 39 - Fundamentals of thermochemistry: Burner
- Lecture 40 - Fundamentals of thermochemistry: Internal Combustion engine



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Rheology and Processing of Paints, Plastic and Elastomer Base

Subject Co-ordinator - Prof. Santanu Chattopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Introduction to Polymer
- Lecture 2 - Structure Process Correlation
- Lecture 3 - Basic Rheology
- Lecture 4 - Classification of Fluids
- Lecture 5 - Flow of Liquids Through Various Channels - 1
- Lecture 6 - Flow of Liquids Through Various Channels - 2
- Lecture 7 - Flow of Liquids Through Various Channels - 3
- Lecture 8 - Introduction to Viscometers and Rheometers
- Lecture 9 - Ostwald Viscometer, Brookfield Viscometer, Falling Piston Viscometers
- Lecture 10 - ODR, MDR, RPA, PPR
- Lecture 11 - DMA -In-Light of rheology
- Lecture 12 - Master Curve and its Implications
- Lecture 13 - Capillary Rheometer
- Lecture 14 - Introduction to Paints and importance of rheology in paints
- Lecture 15 - Rheology of paints - 1
- Lecture 16 - Rheology of paints - 2
- Lecture 17 - Rheology of Adhesives and Sealants
- Lecture 18 - Rheology of Fiber and Plastics
- Lecture 19 - Practical demonstration on Brookfield viscometer and Oswald viscometer
- Lecture 20 - Practical demonstration on Mooney viscometer, ODR and MDR
- Lecture 21 - Practical demonstration on RPA
- Lecture 22 - Practical demonstration on PPR and DMA
- Lecture 23 - Practical demonstration on Capillary Rheometer
- Lecture 24 - Numerical Problems related to basic rheology
- Lecture 25 - Importance of compounding and introduction to various compounding ingredients
- Lecture 26 - Properties and role of various compounding ingredients
- Lecture 27 - Surface treatment of reinforcing elements
- Lecture 28 - Rheology of Elastomers
- Lecture 29 - Importance of die swell (correlating with normal force differences)

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- Lecture 30 - Melt Fracture and other extrudate instabilities
- Lecture 31 - Introduction to plastic and rubber mixing and blending
- Lecture 32 - Various mixing equipment and their importance
- Lecture 33 - Introduction to Two-Roll Mill and Mixing on Two - Roll Mill 1
- Lecture 34 - Introduction to Two-Roll Mill and Mixing on Two - Roll Mill 2
- Lecture 35 - Introduction to Internal mixture Kneaders and Mixing using Internal mixture and Kneaders
- Lecture 36 - Practical demonstration of Rubber mixing on a two roll and using an internal mixer
- Lecture 37 - Molding Techniques
- Lecture 38 - Calendering
- Lecture 39 - Extrusion
- Lecture 40 - Rheology of Injection moulding process
- Lecture 41 - Plastic and fiber-related processing
- Lecture 42 - Numerical problems related to various processing techniques
- Lecture 43 - Wire coating, Garvey die, Profile Extrusion
- Lecture 44 - Introduction to FEA based computational fluid mechanics on extrusion - 1
- Lecture 45 - Introduction to FEA based computational fluid mechanics on extrusion - 2
- Lecture 46 - Introduction to FEA based computational fluid mechanics on extrusion - 3
- Lecture 47 - Practical demonstration on FEA
- Lecture 48 - Concluding remarks and comments on applied rheology for advanced learners

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Petroleum Formation Evaluation

Subject Co-ordinator - Dr. Neetish Kumar Maurya, Dr. Sayantan Ghosh

Co-ordinating Institute - IIT-ISM Dhanbad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Petroleum Formation Evaluation  
Lecture 2 - Mud Logging  
Lecture 3 - Mud Logging (Continued...)  
Lecture 4 - Coring Operations  
Lecture 5 - Coring Operations (Continued...)  
Lecture 6 - Wireline Logging  
Lecture 7 - Resistivity Log  
Lecture 8 - Resistivity Log (Continued...)  
Lecture 9 - Resistivity Log (Continued...)  
Lecture 10 - Resistivity Log (Continued...)  
Lecture 11 - Resistivity Log (Continued...)  
Lecture 12 - Resistivity Log (Continued...)  
Lecture 13 - Resistivity Log (Continued...)  
Lecture 14 - Resistivity Log (Continued...)  
Lecture 15 - Resistivity Log (Continued...)  
Lecture 16 - Spontaneous Potential Log  
Lecture 17 - Spontaneous Potential Log (Continued...)  
Lecture 18 - Petrophysical Model  
Lecture 19 - Petrophysical Model (Continued...)  
Lecture 20 - Gamma Ray Log  
Lecture 21 - Gamma Ray Log (Continued...)  
Lecture 22 - Gamma Ray Log (Continued...)  
Lecture 23 - Caliper Log  
Lecture 24 - Porosity Logs  
Lecture 25 - Density Porosity Log  
Lecture 26 - Density Porosity Log (Continued...)  
Lecture 27 - Density Porosity Log (Continued...)  
Lecture 28 - Density Porosity Log (Continued...)  
Lecture 29 - Density Porosity Log (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Neutron Porosity Log
- Lecture 31 - Neutron Porosity Log (Continued...)
- Lecture 32 - Neutron Porosity Log (Continued...)
- Lecture 33 - Neutron Porosity Log (Continued...)
- Lecture 34 - Neutron Porosity Log (Continued...)
- Lecture 35 - Sonic (Acoustic) Porosity Log
- Lecture 36 - Sonic Porosity Log (Continued...)
- Lecture 37 - Sonic Porosity Log (Continued...)
- Lecture 38 - Sonic Porosity Log (Continued...)
- Lecture 39 - Sonic Porosity Log (Continued...)
- Lecture 40 - NMR Log
- Lecture 41 - NMR Log (Continued...)
- Lecture 42 - Well Log interpretation
- Lecture 43 - Well Log interpretation (Continued...)
- Lecture 44 - Well Log interpretation (Continued...)
- Lecture 45 - Well Log interpretation (Continued...)
- Lecture 46 - Well Log Interpretation (Continued...)
- Lecture 47 - Well Log Interpretation (Continued...)
- Lecture 48 - Well Log Interpretation (Continued...)
- Lecture 49 - Well Log Interpretation (Continued...)
- Lecture 50 - Well Log Interpretation (Continued...)
- Lecture 51 - Formation Evaluation (well log analysis) Practical
- Lecture 52 - Formation tops and Core Data
- Lecture 53 - Formation Temperature and Shaliness
- Lecture 54 - Formation porosity and Water Saturation
- Lecture 55 - Permeability and Effective Porosity
- Lecture 56 - Determination of Archie Equation Parameters
- Lecture 57 - Lithology Determination
- Lecture 58 - Net Pay and Well Diagram
- Lecture 59 - Rock Typing
- Lecture 60 - Miscellaneous Topics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Momentum Transfer in Fluids

Subject Co-ordinator - Prof. Somenath Ganguly, Prof. Sunando DasGupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Basic Concepts  
Lecture 2 - Elementary Framework  
Lecture 3 - Elementary Framework (Continued...)  
Lecture 4 - Elementary Framework (Continued...)  
Lecture 5 - Elementary Framework (Continued...)  
Lecture 6 - Shell Momentum Balance - 1  
Lecture 7 - Shell Momentum Balance - 2  
Lecture 8 - Shell Momentum Balance - 3  
Lecture 9 - Shell Momentum Balance - 4  
Lecture 10 - Limitations and General Approach - Continuity Equation  
Lecture 11 - Elements of Inviscid Flow  
Lecture 12 - Elements of Inviscid Flow (Continued...)  
Lecture 13 - Elements of Inviscid Flow (Continued...)  
Lecture 14 - Elements of Inviscid Flow (Continued...)  
Lecture 15 - Elements of Inviscid Flow (Continued...)  
Lecture 16 - Equations of Motion - Conceptual Derivation of NS Equations  
Lecture 17 - Use of NS Equation for Solving Previous Problems  
Lecture 18 - Equations of Motion and Applications - 1  
Lecture 19 - Equations of Motion and Applications - 2  
Lecture 20 - Equations of Motion and Applications - 3  
Lecture 21 - Motion of fluid particles  
Lecture 22 - Motion of fluid particles (Continued...)  
Lecture 23 - Motion of fluid particles (Continued...)  
Lecture 24 - Stream Function and Potential Function  
Lecture 25 - Stream Function and Potential Function (Continued... )  
Lecture 26 - Equations of Motion and Applications - 4  
Lecture 27 - Equations of Motion and Applications - 5  
Lecture 28 - Basic Equations in Integral Form - 1  
Lecture 29 - Basic Equations in Integral Form - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Basic Equations in Integral Form - 3
- Lecture 31 - Complex Potential
- Lecture 32 - Complex Potential (Continued...)
- Lecture 33 - Complex Potential (Continued...)
- Lecture 34 - Complex Potential (Continued...)
- Lecture 35 - Complex Potential (Continued...)
- Lecture 36 - Basic Equations in Integral Form - 4
- Lecture 37 - Basic Equations in Integral Form - 5
- Lecture 38 - Basic Equations in Integral Form - 6
- Lecture 39 - Bernoulli's Equation Fundamentals - 1
- Lecture 40 - Bernoulli's Equation Fundamentals - 2
- Lecture 41 - Elements of Fluid Statics and Associated Problems
- Lecture 42 - Elements of Fluid Statics and Associated Problems (Continued... )
- Lecture 43 - Elements of Fluid Statics and Associated Problems (Continued... )
- Lecture 44 - Dimensional Analysis and Similitude
- Lecture 45 - Dimensional Analysis and Similitude (Continued...)
- Lecture 46 - Bernoulli's Equation Application - 1
- Lecture 47 - Bernoulli's Equation Application - 2
- Lecture 48 - Bernoulli's Equation Application - 3
- Lecture 49 - Bernoulli's Equation Application - 4
- Lecture 50 - Bernoulli's Equation Application - 5
- Lecture 51 - Bernoulli's Equation Application - 6
- Lecture 52 - Flow meters
- Lecture 53 - Pumps
- Lecture 54 - Recap of Fluid Dynamics
- Lecture 55 - Cavitation and Net Positive Suction Head
- Lecture 56 - Flow Metering and Associated Problems
- Lecture 57 - Flow Metering and Associated Problems (Continued... )
- Lecture 58 - Flow Metering and Associated Problems (Continued... )
- Lecture 59 - Turbulence
- Lecture 60 - Flow Through Porous Media

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Chemical Engineering Thermodynamics

Subject Co-ordinator - Prof. M.S. Ananth

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Thermodynamics and the Chemical Industry
- Lecture 2 - James Prescott Joule and the first law
- Lecture 3 - Sadi Carnot and the second law
- Lecture 4 - Equilibrium and Extrema in work
- Lecture 5 - Illustrative Calculations - I
- Lecture 6 - Properties of pure substances
- Lecture 7 - The p-h chart
- Lecture 8 - Work calculation
- Lecture 9 - Illustrative Calculations - II
- Lecture 10 - Heat-Work Interconversion Devices
- Lecture 11 - Refrigeration / Thermodynamics of mixtures
- Lecture 12 - The Gibbs Duhem equation
- Lecture 13 - Models for Excess Gibbs Free Energy
- Lecture 14 - Van Laar model
- Lecture 15 - Gaseous and liquid mixtures
- Lecture 16 - Separation Work / Equations of state
- Lecture 17 - Chemical potentials in gas and condensed phases
- Lecture 18 - Vapour Liquid Equilibria - I
- Lecture 19 - Vapour Liquid Equilibria - II
- Lecture 20 - Solvent-Solvent mixtures
- Lecture 21 - Solvent-Solute mixtures
- Lecture 22 - Liquid-liquid equilibria
- Lecture 23 - An industrial example
- Lecture 24 - Liquid-liquid equilibria / Reaction Equilibria
- Lecture 25 - Reaction Equilibria
- Lecture 26 - Illustrative Examples - I
- Lecture 27 - Illustrative Examples - II
- Lecture 28 - Illustrative Examples - III
- Lecture 29 - Simultaneous Relations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Thermodynamic Consistency / Reverse Osmosis
- Lecture 31 - Miscellaneous topics in phase equilibria
- Lecture 32 - Absorption Refrigeration
- Lecture 33 - Summary of Classical Thermodynamics
- Lecture 34 - Molecular basis of Thermodynamics - I
- Lecture 35 - Molecular basis of Thermodynamics - II



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Computational Fluid Dynamics

Subject Co-ordinator - Prof. Sreenivas Jayanti

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation for CFD and Introduction to the CFD approach
- Lecture 2 - Illustration of the CFD approach through a worked out example
- Lecture 3 - Eulerian approach, Conservation Equation, Derivation of Mass Conservation Equation and Statement
- Lecture 4 - Forces acting on a control volume; Stress tensor; Derivation of the momentum conservation equation
- Lecture 5 - Kinematics of deformation in fluid flow; Stress vs strain rate relation; Derivation of the Navier-Stokes equation
- Lecture 6 - Equations governing flow of incompressible flow; Initial and boundary conditions; Wellposedness of the problem
- Lecture 7 - Equations for some simple cases; Generic scalar transport equation form of the governing equation
- Lecture 8 - cut out the first 30s; Spatial discretization of a simple flow domain; Taylor's series expansion
- Lecture 9 - Finite difference approximation of pth order of accuracy for qth order derivative; cross-derivatives
- Lecture 10 - One-sided high order accurate approximations; Explicit and implicit formulations for the time derivative
- Lecture 11 - Numerical solution of the unsteady advection equation using different finite difference approximations
- Lecture 12 - Need for analysis of a discretization scheme; Concepts of consistency, stability and convergence
- Lecture 13 - Statement of the stability problem; von Neumann stability analysis of the first order wave equation
- Lecture 14 - Consistency and stability analysis of the unsteady diffusion equation; Analysis for two- and three-dimensional cases
- Lecture 15 - Interpretation of the stability condition; Stability analysis of the generic scalar equation and its extension to the vector case
- Lecture 16 - Template for the generic scalar transport equation and its extension to the solution of Navier-Stokes equations
- Lecture 17 - Illustration of application of the template using the MacCormack scheme for a three-dimensional flow
- Lecture 18 - Stability limits of MacCormack scheme; Limitations in extending compressible flow schemes to incompressible flow
- Lecture 19 - Artificial compressibility method and the streamfunction-vorticity method for the solution of NS equations
- Lecture 20 - Pressure equation method for the solution of NS equations
- Lecture 21 - Pressure-correction approach to the solution of NS equations on a staggered grid; SIMPLE and its variants
- Lecture 22 - Need for efficient solution of linear algebraic equations; Classification of approaches for the solution of linear algebraic equations
- Lecture 23 - Direct methods for linear algebraic equations; Gaussian elimination method
- Lecture 24 - Gauss-Jordan method; LU decomposition method; TDMA and Thomas algorithm
- Lecture 25 - Basic iterative methods for linear algebraic equations
- Lecture 26 - Convergence analysis of basic iterative schemes; Diagonal dominance condition for convergence; ITP
- Lecture 27 - Application to the Laplace equation
- Lecture 28 - Advanced iterative methods
- Lecture 29 - Advanced iterative methods; Strongly Implicit Procedure; Conjugate gradient method; Multigrid method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Illustration of the Multigrid method for the Laplace equation
- Lecture 31 - Overview of the approach of numerical solution of NS equations for simple domains; Introduction
- Lecture 32 - Derivation of the energy conservation equation
- Lecture 33 - Derivation of the species conservation equation; dealing with chemical reactions
- Lecture 34 - Turbulence; Characteristics of turbulent flow; Dealing with fluctuations and the concept of time
- Lecture 35 - Derivation of the Reynolds -averaged Navier -Stokes equations; identification of the closure problem
- Lecture 36 - Reynolds stresses in turbulent flow; Time and length scales of turbulence; Energy cascade; Mixing
- Lecture 37 - One-equation model for turbulent flow
- Lecture 38 - Two -equation model for turbulent flow; Numerical calculation of turbulent reacting flows
- Lecture 39 - Calculation of near-wall region in turbulent flow; wall function approach; near-wall turbulence
- Lecture 40 - Need for special methods for dealing with irregular flow geometry; Outline of the Body-fitted grid
- Lecture 41 - Transformation of the governing equations; Illustration for the Laplace equation; Appearance and
- Lecture 42 - Finite volume method for complicated flow domain; Illustration for the case of flow through a duct
- Lecture 43 - Finite volume method for the general case
- Lecture 44 - Generation of a structured grid for irregular flow domain; Algebraic methods; Elliptic grid generation
- Lecture 45 - Unstructured grid generation; Domain nodalization; Advancing front method for triangulation
- Lecture 46 - Delaunay triangulation method for unstructured grid generation
- Lecture 47 - Co -located grid approach for irregular geometries; Pressure correction equation for a co -located

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Computational Techniques

Subject Co-ordinator - Dr. Niket S. Kaisare

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Computational and Error Analysis  
Lecture 3 - Linear Equations - Part 1  
Lecture 4 - Linear Equations - Part 2  
Lecture 5 - Linear Equations - Part 3  
Lecture 6 - Linear Equations - Part 4  
Lecture 7 - Linear Equations - Part 5  
Lecture 8 - Linear Equations - Part 6  
Lecture 9 - Non Linear Algebraic Equations - Part 1  
Lecture 10 - Non Linear Algebraic Equations - Part 2  
Lecture 11 - Non Linear Algebraic Equations - Part 3  
Lecture 12 - Non Linear Algebraic Equations - Part 4  
Lecture 13 - Non Linear Algebraic Equations - Part 5  
Lecture 14 - Non Linear Algebraic Equations - Part 6  
Lecture 15 - Regression and Interpolation - Part 1  
Lecture 16 - Regression and Interpolation - Part 2  
Lecture 17 - Regression and Interpolation - Part 3  
Lecture 18 - Regression and Interpolation - Part 4  
Lecture 19 - Regression and Interpolation - Part 5  
Lecture 20 - Differentiation and Integration - Part 1  
Lecture 21 - Differentiation and Integration - Part 2  
Lecture 22 - Differentiation and Integration - Part 3  
Lecture 23 - Differentiation and Integration - Part 4  
Lecture 24 - Differentiation and Integration - Part 5  
Lecture 25 - Ordinary Differential Equations (initial value problems) - Part 1  
Lecture 26 - Ordinary Differential Equations (initial value problems) - Part 2  
Lecture 27 - Ordinary Differential Equations (initial value problems) - Part 3  
Lecture 28 - Ordinary Differential Equations (initial value problems) - Part 4  
Lecture 29 - Ordinary Differential Equations (initial value problems) - Part 5

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- Lecture 30 - Ordinary Differential Equations (initial value problems) - Part 6
- Lecture 31 - Ordinary Differential Equations (initial value problems) - Part 7
- Lecture 32 - Ordinary Differential Equations (initial value problems) - Part 8
- Lecture 33 - Ordinary Differential Equations (initial value problems) - Part 9
- Lecture 34 - Ordinary Differential Equations (boundary value problems) - Part 1
- Lecture 35 - Ordinary Differential Equations (boundary value problems) - Part 2
- Lecture 36 - Ordinary Differential Equations (boundary value problems) - Part 3
- Lecture 37 - Partial Differential Equations - Part 1
- Lecture 38 - Partial Differential Equations - Part 2
- Lecture 39 - Partial Differential Equations - Part 3
- Lecture 40 - Partial Differential Equations - Part 4

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Particle Characterization (PG)

Subject Co-ordinator - Dr. R. Nagarajan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction  
Lecture 3 - Morphological Characterization  
Lecture 4 - Morphological Characterization  
Lecture 5 - Morphological Characterization  
Lecture 6 - Morphological Characterization  
Lecture 7 - Morphological Characterization  
Lecture 8 - Morphological Characterization  
Lecture 9 - Morphological Characterization  
Lecture 10 - Morphological Characterization  
Lecture 11 - Morphological Characterization  
Lecture 12 - Morphological Characterization  
Lecture 13 - Structural Characterization  
Lecture 14 - Interfacial Characterization  
Lecture 15 - Surface Adhesion  
Lecture 16 - Surface Adhesion  
Lecture 17 - Surface Adhesion  
Lecture 18 - Particle Removal  
Lecture 19 - Particle Removal  
Lecture 20 - Particle Cohesion  
Lecture 21 - Particle Cohesion  
Lecture 22 - Transport Properties  
Lecture 23 - Transport Properties  
Lecture 24 - Transport Properties  
Lecture 25 - Transport Properties  
Lecture 26 - Chemical & Compositional Characterization  
Lecture 27 - Chemical & Compositional Characterization  
Lecture 28 - Chemical & Compositional Characterization  
Lecture 29 - Nano-particle Characterization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Nano-particle Characterization
- Lecture 31 - Nano-particle Characterization
- Lecture 32 - Nano-particle Characterization
- Lecture 33 - Practical Relevance of Particle Characterization
- Lecture 34 - Practical Relevance of Particle Characterization
- Lecture 35 - Practical Relevance of Particle Characterization
- Lecture 36 - Practical Relevance of Particle Characterization
- Lecture 37 - Practical Relevance of Particle Characterization
- Lecture 38 - Practical Relevance of Particle Characterization
- Lecture 39 - Practical Relevance of Particle Characterization
- Lecture 40 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Statistics for Experimentalists

Subject Co-ordinator - Dr. A. Kannan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Random Variables  
Lecture 3 - Discrete Probability Distributions  
Lecture 4 - Example Set - I  
Lecture 5 - Continuous probability distributions  
Lecture 6 - Normal probability distribution  
Lecture 7 - Exploratory Data Analysis - Part A  
Lecture 8 - Exploratory Data Analysis - Part B  
Lecture 9 - Example Set - II  
Lecture 10 - Example Set - III  
Lecture 11 - Random samples  
Lecture 12 - Random samples  
Lecture 13 - Point Estimation  
Lecture 14 - Sampling distributions and the Central Limit Theorem  
Lecture 15 - Example Set - IV Part A  
Lecture 16 - Estimation of Population Parameters Using Moments  
Lecture 17 - Confidence Intervals (Part A)  
Lecture 18 - Confidence Intervals (Part B)  
Lecture 19 - The T-distribution  
Lecture 20 - Chi-square distribution  
Lecture 21 - F-Distribution  
Lecture 22 - Example Set - V  
Lecture 23 - Hypothesis Testing - Part A  
Lecture 24 - Hypothesis Testing - Part B  
Lecture 25 - Hypothesis Testing - Part C  
Lecture 26 - Analysis of Experiments involving Single Factor - Part A  
Lecture 27 - Analysis of Experiments involving Single Factor - Part B  
Lecture 28 - Blocking and Randomization  
Lecture 29 - Example Set - VI - Part A

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Example Set - VI - Part B
- Lecture 31 - Factorial Design of Experiments - Part A
- Lecture 32 - Factorial Design of Experiments - Part B
- Lecture 33 - Fractional Factorial Design - Part A
- Lecture 34 - Fractional Factorial Design - Part B
- Lecture 35 - Factorial Design of Experiments
- Lecture 36 - Factorial Design of Experiments
- Lecture 37 - Factorial Design of Experiments
- Lecture 38 - Regression Analysis
- Lecture 39 - Regression Analysis
- Lecture 40 - Hypothesis Testing in Linear Regression
- Lecture 41 - Discussion on Regression Output
- Lecture 42 - Regression Analysis
- Lecture 43 - Regression Analysis
- Lecture 44 - Regression Analysis
- Lecture 45 - Orthogonal Model Fitting Concepts - Part A
- Lecture 46 - Orthogonal Model Fitting Concepts - Part B
- Lecture 47 - Experimental Design Strategies - A
- Lecture 48 - Experimental Design Strategies - B
- Lecture 49 - Experimental Design Strategies - C
- Lecture 50 - Response Surface Methodology - A
- Lecture 51 - Response Surface Methodology - B
- Lecture 52 - Optimal Designs - Part A
- Lecture 53 - Optimal Designs - Part B
- Lecture 54 - Statistics for Experimentalists - Summary Part A
- Lecture 55 - Statistics for Experimentalists - Summary Part B



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Multiphase Flows - Analytical solutions and Stability Analysis

Subject Co-ordinator - Prof. S. Pushpavanam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and overview of the course
- Lecture 2 - Stratified flow in a micro channel
- Lecture 3 - Stratified flow in a micro channel
- Lecture 4 - Flow regimes in microchannels
- Lecture 5 - Scaling Analysis
- Lecture 6 - Scaling Analysis
- Lecture 7 - Interfacial tension and its role in Multiphase flows
- Lecture 8 - Eulerian and Lagrangian approaches
- Lecture 9 - Reynolds Transport Theorem and the Equation of Continuity
- Lecture 10 - Derivation of Navier-Stokes equation
- Lecture 11 - Vector operations in general orthogonal coordinates
- Lecture 12 - Normal and shear stresses on arbitrary surfaces
- Lecture 13 - Normal and shear stresses on arbitrary surfaces
- Lecture 14 - Stresses on deforming surfaces
- Lecture 15 - Pulsatile flow
- Lecture 16 - Pulsatile flow
- Lecture 17 - Pulsatile flow
- Lecture 18 - Viscous heating
- Lecture 19 - Domain perturbation methods
- Lecture 20 - Flow between wavy walls
- Lecture 21 - Introduction to stability of dynamical systems
- Lecture 22 - Stability of distributed systems (PDEs)
- Lecture 23 - Stability of a reaction-diffusion system (Continued...)
- Lecture 24 - Rayleigh-Benard convection
- Lecture 25 - Rayleigh-Benard convection
- Lecture 26 - Rayleigh-Benard convection
- Lecture 27 - Rayleigh-Benard convection
- Lecture 28 - Rayleigh Benard convection
- Lecture 29 - Rayleigh-Taylor  $\hat{a}$  heavy over light  $\hat{a}$  instability

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- Lecture 30 - Rayleigh-Taylor instability (Continued...)
- Lecture 31 - Capillary jet instability
- Lecture 32 - Capillary jet instability
- Lecture 33 - Capillary jet instability
- Lecture 34 - Tutorial Session
- Lecture 35 - Turing patterns
- Lecture 36 - Turing patterns
- Lecture 37 - Marangoni convection
- Lecture 38 - Marangoni convection
- Lecture 39 - Flow in a circular curved channel
- Lecture 40 - Flow in a circular curved channel
- Lecture 41 - Stability of flow through curved channels
- Lecture 42 - Stability of flow through curved channels
- Lecture 43 - Viscous Fingering
- Lecture 44 - Viscous Fingering
- Lecture 45 - Shallow Cavity flows

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Introduction to Time-Frequency Analysis and Wavelet Transform

Subject Co-ordinator - Dr. Arun K.Tangirala

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Lecture 1.1 A  
Lecture 2 - Introduction - Lecture 1.1 B  
Lecture 3 - Introduction - Lecture 1.2 A  
Lecture 4 - Introduction - Lecture 1.2 B  
Lecture 5 - Basic Definitions and concepts - Lecture 2.1 (Basic Definitions and concepts - Part I)  
Lecture 6 - Basic Definitions and concepts - Lecture 2.2 (Basic Definitions and concepts - Part II)  
Lecture 7 - Basic Definitions and concepts - Lecture 2.3 (Basic Definitions and concepts - Part III)  
Lecture 8 - A review of Fourier transforms - Lecture 3.1 (Continuous time Fourier series)  
Lecture 9 - A review of Fourier transforms - Lecture 3.2 (Continuous time Fourier transform)  
Lecture 10 - A review of Fourier transforms - Lecture 3.3 (Discrete time Fourier series)  
Lecture 11 - A review of Fourier transforms - Lecture 3.4 (Discrete time Fourier transform)  
Lecture 12 - A review of Fourier transforms - Lecture 3.5 (Properties of Fourier transforms)  
Lecture 13 - A review of Fourier transforms - Lecture 3.6 (Discrete Fourier transform)  
Lecture 14 - A review of Fourier transforms - MATLAB demo of Fourier transform and periodogram  
Lecture 15 - Duration and Bandwidth - Duration and Bandwidth  
Lecture 16 - Duration and Bandwidth - Bandwidth equation and Instantaneous frequency  
Lecture 17 - Duration and Bandwidth - Instantaneous frequency and analytic signals  
Lecture 18 - Duration and Bandwidth - Duration-Bandwidth principle  
Lecture 19 - Duration and Bandwidth - Requirements of time-frequency analysis techniques  
Lecture 20 - Duration and Bandwidth - Requirements of time-frequency analysis and techniques  
Lecture 21 - Short-time Fourier transform - Short-time Fourier transform  
Lecture 22 - Short-time Fourier transform - Auxillary (MATLAB demonstration)  
Lecture 23 - Short-time Fourier transform - Properties of STFT  
Lecture 24 - Practical aspects of STFT  
Lecture 25 - Closing Remarks  
Lecture 26 - Wigner-Ville Distributions  
Lecture 27 - Properties of WVD  
Lecture 28 - Properties of WVD 2  
Lecture 29 - Discrete WVD

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- Lecture 30 - Pseudo and Smoothed WVD
- Lecture 31 - Cohens class and smoothed WVD
- Lecture 32 - Cohens class and smoothed WVD
- Lecture 33 - Cohens class and Ambiguity functions
- Lecture 34 - Affine class and closing remarks
- Lecture 35 - Continuous Wavelet Transform
- Lecture 36 - Continuous Wavelet Transforms
- Lecture 37 - Scale to Frequency
- Lecture 38 - Computational aspects of CWT
- Lecture 39 - Scalogram and MATLAB demonstration
- Lecture 40 - Scalogram and MATLAB demonstration
- Lecture 41 - Scaling function
- Lecture 42 - Scaling Function
- Lecture 43 - Wavelets
- Lecture 44 - Wavelets
- Lecture 45 - Applications of CWT
- Lecture 46 - Applications of CWT
- Lecture 47 - Discrete Wavelet Transform
- Lecture 48 - Discrete Wavelet Transform.
- Lecture 49 - Orthogonal scaling function bases and MRA
- Lecture 50 - Orthogonal scaling function bases and MRA.
- Lecture 51 - Wavelet Filters and Fast DWT Algorithm
- Lecture 52 - Wavelet Filters and Fast DWT Algorithm (Continued...)
- Lecture 53 - Wavelet Filters and Fast DWT Algorithm (Continued...)
- Lecture 54 - Wavelets for DWT
- Lecture 55 - Wavelets for DWT (Continued...)
- Lecture 56 - Wavelets for DWT (Continued...)
- Lecture 57 - DWT computation
- Lecture 58 - DWT computation (Continued...)
- Lecture 59 - DWT computation (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Chemical Engineering Principles of CVD Processes

Subject Co-ordinator - Dr. R. Nagarajan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - CVD Reactor and Process Design Fundamentals
- Lecture 3 - Overview of CVD Process Fundamentals
- Lecture 4 - Basics of Chemical Equilibrium Calculations and Flow Dynamics
- Lecture 5 - Introduction to CVD Films
- Lecture 6 - Film Structure and Properties
- Lecture 7 - Pressure Effects on CVD Processes
- Lecture 8 - CVD of Metals
- Lecture 9 - CVD of Coatings
- Lecture 10 - CVD Film Property Measurements
- Lecture 11 - CVD Film Property Measurements
- Lecture 12 - CVD in Tungsten Filament Lamps
- Lecture 13 - CVD in Tungsten Filament Lamps
- Lecture 14 - CVD in Hot Corrosion
- Lecture 15 - CVD Transport Phenomena
- Lecture 16 - CVD Transport Phenomena
- Lecture 17 - CVD Transport Phenomena
- Lecture 18 - CVD Transport Phenomena
- Lecture 19 - CVD Transport Phenomena
- Lecture 20 - CVD Applications
- Lecture 21 - CVD Applications
- Lecture 22 - CVD Applications
- Lecture 23 - CVD Applications
- Lecture 24 - CVD Applications
- Lecture 25 - CVD Overview
- Lecture 26 - Review of CVD Basics
- Lecture 27 - Review of CVD Basics
- Lecture 28 - CVD Question Bank
- Lecture 29 - Basics of Nano-Structured Material Synthesis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Basics of Nano-Structured Material Synthesis
- Lecture 31 - Undesirable CVD
- Lecture 32 - Undesirable CVD
- Lecture 33 - Undesirable CVD
- Lecture 34 - Multi-component Transport Fundamentals
- Lecture 35 - Multi-component Transport Fundamentals
- Lecture 36 - Multi-component Transport Fundamentals
- Lecture 37 - Multi-component Transport Fundamentals
- Lecture 38 - Multi-component Transport Fundamentals
- Lecture 39 - Multi-component Transport Fundamentals

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Chemical Reaction Engineering 1 (Homogeneous Reactors)

Subject Co-ordinator - Prof K. Krishnaiah

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Motivation and Introduction - Part I  
Lecture 2 - Motivation and Introduction - Part II  
Lecture 3 - What is Chemical Engineering - Part I  
Lecture 4 - What is Chemical Engineering - Part II  
Lecture 5 - What is Chemical Reaction Engineering - Part I  
Lecture 6 - What is Chemical Reaction Engineering - Part II  
Lecture 7 - Homogeneous and Heterogeneous Reactions - Part I  
Lecture 8 - Homogeneous and Heterogeneous Reactions - Part II  
Lecture 9 - Basics of Kinetics and Contacting  
Lecture 10 - Design of Batch reactors - Part I  
Lecture 11 - Design of Batch reactors - Part II  
Lecture 12 - Basics of Plug Flow Reactor - Part I  
Lecture 13 - Basics of Plug Flow Reactor - Part II  
Lecture 14 - Design of Plug Flow Reactors - Part I  
Lecture 15 - Design of Plug Flow Reactors - Part II  
Lecture 16 - Basics of Mixed Flow Reactors  
Lecture 17 - Design of Mixed Flow Reactors  
Lecture 18 - Basics of Kinetics  
Lecture 19 - Kinetics of Heterogeneous reactions - Part I  
Lecture 20 - Kinetics of Heterogeneous reactions - Part II  
Lecture 21 - Kinetics of Heterogeneous reactions - Part III  
Lecture 22 - Kinetics of Homogeneous reactions  
Lecture 23 - Reaction rate for Homogeneous reactions  
Lecture 24 - Gas Phase Homogeneous reactions  
Lecture 25 - (Continued...) And later Reactor Design of PFR  
Lecture 26 - Reactor Design for MFR and Combination of reactors  
Lecture 27 - PFR and MFR in series.  
Lecture 28 - Unsteady state MFR and PFR  
Lecture 29 - Recycle Reactors

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Recycle Reactors (Autocatalytic reactions) - Part I
- Lecture 31 - Recycle Reactors (Autocatalytic reactions) - Part II
- Lecture 32 - Multiple Reactions - Part I
- Lecture 33 - Multiple Reactions - Part II
- Lecture 34 - Multiple Reactions - Part III
- Lecture 35 - Multiple Reactions - Part IV
- Lecture 36 - Multiple Reactions - Part V
- Lecture 37 - Multiple Reactions - Part VI
- Lecture 38 - Non-Isothermal Reactors - Part I
- Lecture 39 - Non-Isothermal Reactors - Part II
- Lecture 40 - Non-Isothermal Reactors (Graphical Design)
- Lecture 41 - Non-Isothermal Reactors contd. & Adiabatic Reactors
- Lecture 42 - Non-Isothermal Reactors (Graphical Design) (Continued...)
- Lecture 43 - Non-Isothermal Batch Reactors
- Lecture 44 - Non-isothermal Plug Flow Reactors - Part I
- Lecture 45 - Non-isothermal Plug Flow Reactors - Part II
- Lecture 46 - Adiabatic Plug Flow Reactors
- Lecture 47 - Non-isothermal Mixed Flow Reactors
- Lecture 48 - Non-isothermal Mixed Flow Reactors (Continued...) (Multiple steady states) - Part I
- Lecture 49 - Non-isothermal Mixed Flow Reactors (Continued...) (Multiple steady states) - Part II
- Lecture 50 - Non-Ideal Flow and Residence Time Distributions (RTD) basics - Part I
- Lecture 51 - Non-Ideal Flow and Residence Time Distributions (RTD) basics - Part II
- Lecture 52 - RTD for various reactors (Continued...) Part I
- Lecture 53 - RTD for various reactors (Continued...) Part II
- Lecture 54 - Diagnosing the ills of equipments and Various RTD Models
- Lecture 55 - Dispersion Model
- Lecture 56 - Dispersion with reaction Model and Tanks in Series Model
- Lecture 57 - Multi-parameter model (MFR with dead space and bypass)
- Lecture 58 - Direct use of RTD to predict conversion (Macro and Micro-fluid as well as Macro & Micro-mixing C
- Lecture 59 - Direct use of RTD to predict conversion (Macro and Micro-fluid as well as Macro & Micro-mixing C
- Lecture 60 - Direct use of RTD to predict conversion (Macro and Micro-fluid as well as Macro & Micro-mixing C



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Chemical Reaction Engineering 2 (Heterogeneous Reactors)

Subject Co-ordinator - Prof K. Krishnaiah

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Kinetics (Gas solid non-catalytic reaction)
- Lecture 2 - Intro to Kinetics (Continued...) for catalytic reactions in different reactors
- Lecture 3 - Heterogeneous rate of reactions and different types of kinetic models for non-catalytic reactions
- Lecture 4 - Basics of Kinetics of type A & B reactions (Shrinking core model & Porous particle homogeneous model)
- Lecture 5 - Shrinking Core Model (Continued...)
- Lecture 6 - Shrinking Core Model (Continued...)
- Lecture 7 - (Continued...) & Proof of Pseudo steady state assumption
- Lecture 8 - Shrinking core model (Continued...) for type D reactions
- Lecture 9 - Shrinking core model (Continued...) for type D reactions (Continued...)
- Lecture 10 - Reactors, Homogeneous reaction model, Design of non-catalytic gas solid reactors
- Lecture 11 - Design of non-catalytic gas solid reactors (Continued...)
- Lecture 12 - Design of non-catalytic gas solid reactors (Continued...)
- Lecture 13 - Design equation for MF of solids, uniform gas composition, const. single particle size, Shrinking core model
- Lecture 14 - Design equation for MF of solids, mixture of particles for different sizes but unchanging size, Shrinking core model
- Lecture 15 - Design equation for MF of solids with elutriation, mixture of particles of different size, uniform gas composition
- Lecture 16 - General Performance equation for non-catalytic gas solid reactions
- Lecture 17 - Catalytic reactions (LHHW Kinetic model)
- Lecture 18 - LHHW Kinetic model (Continued...) - Part I
- Lecture 19 - LHHW Kinetic model (Continued...) - Part II
- Lecture 20 - Industrially important catalytic reaction models
- Lecture 21 - Inter and Intraphase effectiveness factor
- Lecture 22 - Interface effectiveness factor & Generalized nonisothermal effectiveness factor for external mass transfer
- Lecture 23 - Generalized nonisothermal effectiveness factor for external mass transfer step (Continued...)
- Lecture 24 - Mass transfer correlations for various reactors
- Lecture 25 - Isothermal intraphase effectiveness factor - Part I
- Lecture 26 - Isothermal intraphase effectiveness factor - Part II
- Lecture 27 - Non-isothermal intraphase effectiveness factor
- Lecture 28 - Inter and Intraphase effectiveness factor (Continued...)
- Lecture 29 - Inter and Intraphase Mass transfer

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- Lecture 30 - Packed (fixed) bed catalytic reactor design
- Lecture 31 - Graphical design of Fixed bed reactors
- Lecture 32 - Packed Bed Design (Continued...)
- Lecture 33 - Design equations for Packed bed reactor design
- Lecture 34 - Conservative Equations for Packed bed Reactor design
- Lecture 35 - Problem solving session
- Lecture 36 - Fluidized Bed Reactor Design - Part I
- Lecture 37 - Fluidized Bed Reactor Design - Part II
- Lecture 38 - Fluidized Bed Reactor Design - Part III
- Lecture 39 - Fluidized Bed Reactor Design - Part IV
- Lecture 40 - Continued... (Fluidized bed reactor Models)
- Lecture 41 - Continued... (Davidson Harrison model and Kunii Levenspiel model)
- Lecture 42 - Continued... (Kunii Levenspiel Model)
- Lecture 43 - Slurry Reactor Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:MATLAB Programming for Numerical Computation

Subject Co-ordinator - Dr. Niket S.Kaisare

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction
- Lecture 2 - Basics of Programming using MATLAB
- Lecture 3 - Array Operations in MATLAB
- Lecture 4 - Loops and Execution Control
- Lecture 5 - Tutorial
- Lecture 6 - MATLAB Files -- Scripts and Functions
- Lecture 7 - Plotting and Output
- Lecture 8 - How to submit MATLAB Assignment
- Lecture 9 - Errors in Numerical Computation
- Lecture 10 - Truncation Errors and Taylors Series
- Lecture 11 - Round-Off Errors; and Iterative Methods
- Lecture 12 - Step-wise Methods and Error Propagation
- Lecture 13 - How to get MATLAB Online access (for all enrolled students of this course)
- Lecture 14 - Differentiation in Single Variable
- Lecture 15 - Higher Order Differentiation Formulae
- Lecture 16 - Partial Differentials (Bonus)
- Lecture 17 - Numerical Integration
- Lecture 18 - Multiple Applications of Integration Formulae
- Lecture 19 - In-Build MATLAB Integration Functions
- Lecture 20 - Basics of Linear Algebra
- Lecture 21 - Gauss Elimination and Back-Substitution
- Lecture 22 - LU Decomposition and Partial Pivoting
- Lecture 23 - Gauss Siedel Method
- Lecture 24 - (Tutorial)
- Lecture 25 - Tri-Diagonal Matrix Algorithm
- Lecture 26 - Nonlinear Equations in Single Variable
- Lecture 27 - Using MATLAB command fzero
- Lecture 28 - Fixed Point Iteration in Single Variable
- Lecture 29 - Newton-Raphson (single variable)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Using MATLAB command fsolve (multi-variable)
- Lecture 31 - Newton-Raphson (multi Variable)
- Lecture 32 - Introduction
- Lecture 33 - Linear Least Squares Regression
- Lecture 34 - Nonlinear and Functional Regression
- Lecture 35 - Interpolation Functions in MATLAB
- Lecture 36 - Introduction and Euler\'s Method
- Lecture 37 - Runge-Kutta (RK-2) method
- Lecture 38 - MATLAB ode45 algorithm
- Lecture 39 - Higher order Runge-Kutta Methods
- Lecture 40 - Error Analysis
- Lecture 41 - Multi-Variable ODE
- Lecture 42 - Stiff Systems & Solution using ode15s
- Lecture 43 - Method of Lines for transient PDEs
- Lecture 44 - A Final Example
- Lecture 45 - Tutorial

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Computational Fluid Dynamics

Subject Co-ordinator - Prof. Sreenivas Jayanti

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation
- Lecture 2 - Flow in a rectangular duct
- Lecture 3 - Flow in a rectangular duct
- Lecture 4 - Tutorial 1
- Lecture 5 - Tutorial 1 (Continued...) Solution for algebraic equations using Gauss- Seidel Method
- Lecture 6 - Flow in a triangular duct
- Lecture 7 - Flow in a triangular duct
- Lecture 8 - Tutorial 2
- Lecture 9 - Tutorial 2 (Continued...) Description of FV method and solution using G-S Method
- Lecture 10 - Effect of grid spacing & upcoming course outline
- Lecture 11 - Mass conservation equations
- Lecture 12 - Momentum conservation equations
- Lecture 13 - Forces acting on control volume
- Lecture 14 - Kinematics of deformation in fluid flow
- Lecture 15 - Equations governing fluid flow in incompressible fluid
- Lecture 16 - Navier-Stokes equation for simple cases of flow
- Lecture 17 - Energy conservation equations
- Lecture 18 - Practical cases of fluid flow with heat transfer in CFD point of view
- Lecture 19 - Practical cases of fluid flow with mass transfer in CFD point of view
- Lecture 20 - Equations governing fluid flow with chemical reactions
- Lecture 21 - Concept of wellposedness of mathematical problems
- Lecture 22 - Introduction to finite difference methods
- Lecture 23 - Finite difference approximation on an uniform mesh
- Lecture 24 - Higher order and mixed derivatives
- Lecture 25 - Solution of Poisson equation in rectangular duct-Tutorial
- Lecture 26 - Discretization of time domain
- Lecture 27 - FD approx. on a non-uniform mesh and need of analysis of obtained discretization
- Lecture 28 - Need for the analysis of discretized equation
- Lecture 29 - Properties of Numerical Schemes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Properties of Numerical Schemes
- Lecture 31 - Tutorial on Stability Analysis
- Lecture 32 - Analysis of Generic 1-d scalar transport equation
- Lecture 33 - Introduction to the solution of coupled N-S equations
- Lecture 34 - N-S equation in compressible flow- Mac Cormack Scheme
- Lecture 35 - Stability limits of Mac-Cormack Scheme and the intro to Beam-Warming Scheme
- Lecture 36 - Implicit Beam-Warming Scheme
- Lecture 37 - Compressible flow to Incompressible flow
- Lecture 38 - Solution of coupled equations
- Lecture 39 - Artificial compressibility method, Stream function-vorticity method
- Lecture 40 - Pressure equation method, Staggered grid system
- Lecture 41 - Pressure Correction Method
- Lecture 42 - Tutorial on Pressure Correction Method
- Lecture 43 - Tutorial on Pressure Correction Method (Continued...)
- Lecture 44 - Introduction to the basic numerical methods
- Lecture 45 - Direct Methods
- Lecture 46 - Tri-diagonal Matrix Algorithm
- Lecture 47 - TDMA and other iterative methods
- Lecture 48 - Recap of basic iterative methods.
- Lecture 49 - Convergence analysis of basic iterative methods
- Lecture 50 - Successive Over Relaxation (SOR) method
- Lecture 51 - Alternating Direction Implicit (ADI) method
- Lecture 52 - Strongly Implicit Procedure (ILU) method
- Lecture 53 - Multigrid method
- Lecture 54 - Body Fitted Grid Approach
- Lecture 55 - Formulation Of Finite Volume Method
- Lecture 56 - Methods For Unstructured Grid Generation
- Lecture 57 - Triangulation
- Lecture 58 - The Advancing Front Method continuation
- Lecture 59 - Time and length scale of turbulence
- Lecture 60 - The turbulent closure problem
- Lecture 61 - The generic formulation for turbulence
- Lecture 62 - More generic formulation and summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Introduction to Statistical Hypothesis Testing

Subject Co-ordinator - Dr. Arun K.Tangirala

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation
- Lecture 2 - Probability and statistics
- Lecture 3 - Probability and Statistics
- Lecture 4 - R Tutorial 1
- Lecture 5 - Statistics for Hypothesis Testing - Part 1
- Lecture 6 - Statistics for Hypothesis Testing - Part 2
- Lecture 7 - Statistics for sample mean
- Lecture 8 - Statistics for Variance and Proportion
- Lecture 9 - Type I and Type II errors
- Lecture 10 - p value
- Lecture 11 - Hypothesis testing of means
- Lecture 12 - Hypothesis testing of variance and proportions
- Lecture 13 - Confidence interval construction
- Lecture 14 - Hypothesis testing using confidence interval
- Lecture 15 - Hypothesis testing of correlation
- Lecture 16 - Statistic for linear regression
- Lecture 17 - Hypothesis testing in linear regression
- Lecture 18 - Power of hypothesis test
- Lecture 19 - Factors affecting hypothesis test

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Applied Time-Series Analysis

Subject Co-ordinator - Dr. Arun K.Tangirala

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1 - Part 1 - Motivation and Overview 1  
Lecture 2 - Lecture 1 - Part 2 - Motivation and Overview 2  
Lecture 3 - Lecture 2 - Part 1 - Motivation and Overview 3  
Lecture 4 - Lecture 2 - Part 2 - Motivation and Overview 4  
Lecture 5 - Lecture 3 - Part 1 - Motivation and Overview 5  
Lecture 6 - Lecture 3 - Part 2 - Motivation and Overview 6  
Lecture 7 - Lecture 4 - Part 1 - Probability and Statistics Review 1A  
Lecture 8 - Lecture 4 - Part 2 - Probability and Statistics Review 1B  
Lecture 9 - Lecture 5 - Part 1 - Probability and Statistics Review 1C  
Lecture 10 - Lecture 5 - Part 2 - Probability and Statistics Review 1D  
Lecture 11 - Lecture 6 - Part 1 - Probability and Statistics Review 2A  
Lecture 12 - Lecture 6 - Part 2 - Probability and Statistics Review 2B  
Lecture 13 - Lecture 6 - Part 3 - Probability and Statistics Review 2C  
Lecture 14 - Lecture 7 - Part 1 - Probability and Statistics Review 2D  
Lecture 15 - Lecture 7 - Part 2 - Probability and Statistics Review 2E  
Lecture 16 - Lecture 7 - Part 3 - Probability and Statistics Review 2F  
Lecture 17 - Lecture 8 - Part 1 - Probability and Statistics Review 2G (with R Demonstration)  
Lecture 18 - Lecture 8 - Part 2 - Probability and Statistics Review 2H (with R Demonstration)  
Lecture 19 - Lecture 9 - Part 1 - Probability and Statistics Review 2I  
Lecture 20 - Lecture 9 - Part 2 - Probability and Statistics Review 2J  
Lecture 21 - Lecture 9 - Part 3 - Introduction to Random Processes 1  
Lecture 22 - Lecture 10 - Part 1 - Introduction to Random Processes 2  
Lecture 23 - Lecture 10 - Part 2 - Introduction to Random Processes 3  
Lecture 24 - Lecture 11 - Part 1 - Introduction to Random Processes 4  
Lecture 25 - Lecture 11 - Part 2 - Introduction to Random Processes 5  
Lecture 26 - Lecture 11 - Part 3 - Autocovariance & Autocorrelation Functions 1  
Lecture 27 - Lecture 12 - Part 1 - Autocovariance & Autocorrelation Functions 2  
Lecture 28 - Lecture 12 - Part 2 - Autocovariance & Autocorrelation Functions 3  
Lecture 29 - Lecture 13 - Part 1 - Autocovariance & Autocorrelation Functions 4

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Lecture 30	-	Lecture 13	-	Part 2	-	Autocovariance & Autocorrelation Functions	5
Lecture 31	-	Lecture 13	-	Part 3	-	Autocovariance & Autocorrelation Functions	6
Lecture 32	-	Lecture 14	-	Part 1	-	Autocovariance & Autocorrelation Functions	7
Lecture 33	-	Lecture 14	-	Part 2	-	Autocovariance & Autocorrelation Functions	8
Lecture 34	-	Lecture 15	-	Part 1	-	Autocovariance & Autocorrelation Functions	9
Lecture 35	-	Lecture 15	-	Part 2	-	Partial Autocorrelation Functions	
Lecture 36	-	Lecture 16	-	Part 1	-	Autocorrelation and Partial-autocorrelation Functions (with R Demonstrations)	
Lecture 37	-	Lecture 16	-	Part 2	-	Models for Linear Stationary Processes	1
Lecture 38	-	Lecture 17	-	Part 1	-	Models for Linear Stationary Processes	2
Lecture 39	-	Lecture 17	-	Part 2	-	Models for Linear Stationary Processes	3
Lecture 40	-	Lecture 18	-	Part 1	-	Models for Linear Stationary Processes	4
Lecture 41	-	Lecture 18	-	Part 2	-	Models for Linear Stationary Processes	5
Lecture 42	-	Lecture 18	-	Part 3	-	Models for Linear Stationary Processes	6
Lecture 43	-	Lecture 19	-	Part 1	-	Models for Linear Stationary Processes	7
Lecture 44	-	Lecture 19	-	Part 2	-	Models for Linear Stationary Processes	8
Lecture 45	-	Lecture 19	-	Part 3	-	Models for Linear Stationary Processes	9
Lecture 46	-	Lecture 20	-	Part 1	-	Models for Linear Stationary Processes	10
Lecture 47	-	Lecture 20	-	Part 2	-	Models for Linear Stationary Processes	11
Lecture 48	-	Lecture 21	-	Part 1	-	Models for Linear Stationary Processes	12
Lecture 49	-	Lecture 21	-	Part 2	-	Models for Linear Stationary Processes	13
Lecture 50	-	Lecture 22	-	Part 1	-	Models for Linear Stationary Processes	14 (with R Demonstrations)
Lecture 51	-	Lecture 22	-	Part 2	-	Models for Linear Stationary Processes	15 (with R Demonstrations)
Lecture 52	-	Lecture 22	-	Part 3	-	Models for Linear Stationary Processes	16 (with R Demonstrations)
Lecture 53	-	Lecture 23	-	Part 1	-	Models for Linear Non-stationary Processes	1
Lecture 54	-	Lecture 23	-	Part 2	-	Models for Linear Non-stationary Processes	2 (with R Demonstrations)
Lecture 55	-	Lecture 24	-	Part 1	-	Models for Linear Non-stationary Processes	3 (with R Demonstrations)
Lecture 56	-	Lecture 24	-	Part 2	-	Models for Linear Non-stationary Processes	4
Lecture 57	-	Lecture 25	-	Part 1	-	Models for Linear Non-stationary Processes	5
Lecture 58	-	Lecture 25	-	Part 2	-	Models for Linear Non-stationary Processes	6 (with R Demonstrations)
Lecture 59	-	Lecture 26	-	Part 1	-	Fourier Transforms for Deterministic Signals	1
Lecture 60	-	Lecture 26	-	Part 2	-	Fourier Transforms for Deterministic Signals	2
Lecture 61	-	Lecture 27	-	Part 1	-	Fourier Transforms for Deterministic Signals	3
Lecture 62	-	Lecture 27	-	Part 2	-	Fourier Transforms for Deterministic Signals	4
Lecture 63	-	Lecture 28	-	Part 1	-	Fourier Transforms for Deterministic Signals	5
Lecture 64	-	Lecture 28	-	Part 2	-	Fourier Transforms for Deterministic Signals	6
Lecture 65	-	Lecture 29	-	Part 1	-	Fourier Transforms for Deterministic Signals	7
Lecture 66	-	Lecture 29	-	Part 2	-	Fourier Transforms for Deterministic Signals	8
Lecture 67	-	Lecture 30	-	Part 1	-	Fourier Transforms for Deterministic Signals	9
Lecture 68	-	Lecture 30	-	Part 2	-	DFT and Periodogram	1

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Lecture 69 - Lecture 31 - Part 1 - DFT and Periodogram 2  
Lecture 70 - Lecture 31 - Part 2 - DFT and Periodogram 3 (with R Demonstrations)  
Lecture 71 - Lecture 32 - Part 1 - Spectral Representations of Random Processes 1  
Lecture 72 - Lecture 32 - Part 2 - Spectral Representations of Random Processes 2  
Lecture 73 - Lecture 33 - Part 1 - Spectral Representations of Random Processes 3  
Lecture 74 - Lecture 33 - Part 2 - Spectral Representations of Random Processes 4  
Lecture 75 - Lecture 33 - Part 3 - Spectral Representations of Random Processes 5  
Lecture 76 - Lecture 34 - Part 1 - Spectral Representations of Random Processes 6  
Lecture 77 - Lecture 34 - Part 2 - Spectral Representations of Random Processes 7  
Lecture 78 - Lecture 35 - Part 1 - Introduction to Estimation Theory 1  
Lecture 79 - Lecture 35 - Part 2 - Introduction to Estimation Theory 2  
Lecture 80 - Lecture 35 - Part 3 - Introduction to Estimation Theory 3  
Lecture 81 - Lecture 36A - Introduction to Estimation Theory -4  
Lecture 82 - Lecture 36B - Goodness of Estimators 1 - 1  
Lecture 83 - Lecture 37A - Goodness of Estimators 1 - 2  
Lecture 84 - Lecture 37B - Goodness of Estimators 1 - 3  
Lecture 85 - Lecture 37C - Goodness of Estimators 1 - 4  
Lecture 86 - Lecture 38A - Goodness of Estimators 2 - 1  
Lecture 87 - Lecture 38B - Goodness of Estimators 2 - 2  
Lecture 88 - Lecture 38C - Goodness of Estimators 2 - 3  
Lecture 89 - Lecture 39A - Goodness of Estimators 2 - 4  
Lecture 90 - Lecture 39B - Goodness of Estimators 2 - 5 (with R demonstrations)  
Lecture 91 - Lecture 39C - Goodness of Estimators 2 - 6  
Lecture 92 - Lecture 40A - Goodness of Estimators 2 - 7  
Lecture 93 - Lecture 40B - Goodness of Estimators 2 - 8  
Lecture 94 - Lecture 41A - Estimation Methods 1 - 1  
Lecture 95 - Lecture 41B - Estimation Methods 1 - 2  
Lecture 96 - Lecture 42A - Estimation Methods 1 - 3  
Lecture 97 - Lecture 42B - Estimation Methods 1 - 4  
Lecture 98 - Lecture 42C - Estimation Methods 1 - 5  
Lecture 99 - Lecture 43A - Estimation Methods 1 - 6 (with R demonstrations)  
Lecture 100 - Lecture 43B - Estimation Methods 1 - 7 (with R demonstrations)  
Lecture 101 - Lecture 44A - Estimation Methods 1 - 8  
Lecture 102 - Lecture 44B - Estimation Methods 1 - 9  
Lecture 103 - Lecture 44C - Estimation Methods 2 - 1  
Lecture 104 - Lecture 45A - Estimation Methods 2 - 2  
Lecture 105 - Lecture 45B - Estimation Methods 2 - 3  
Lecture 106 - Lecture 46A - MLE and Bayesian Estimation - 1  
Lecture 107 - Lecture 46B - MLE and Bayesian Estimation - 2

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Lecture 108 - Lecture 47A - MLE and Bayesian Estimation - 3  
Lecture 109 - Lecture 47B - MLE and Bayesian Estimation - 4  
Lecture 110 - Lecture 48A - Estimation of Time Domain Statistics - 1  
Lecture 111 - Lecture 48B - Estimation of Time Domain Statistics - 2  
Lecture 112 - Lecture 49 - Periodogram as PSD Estimator

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Rheology of Complex Materials

Subject Co-ordinator - Dr. Abhijit P. Deshpande

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Flow phenomena in complex materials and Microstructure - 1  
Lecture 2 - Flow phenomena in complex materials and Microstructure - 2  
Lecture 3 - Applications of rheology  
Lecture 4 - Applications of rheology  
Lecture 5 - Applications of rheology  
Lecture 6 - Applications of rheology  
Lecture 7 - Stress and strain rate - 1  
Lecture 8 - Stress and strain rate - 2  
Lecture 9 - Velocity gradient and strain rate - 1  
Lecture 10 - Velocity gradient and strain rate 1 Stress and strain rate - 3  
Lecture 11 - Kinematics for simple flows - 1  
Lecture 12 - Kinematics for simple flows - 2  
Lecture 13 - Introduction to tensors  
Lecture 14 - Rheometric flows  
Lecture 15 - Viscous response - 1  
Lecture 16 - Viscous response - 2  
Lecture 17 - Viscoelasticity - Relaxation process  
Lecture 18 - Viscoelasticity - Maxwell model  
Lecture 19 - Linear viscoelasticity - oscillatory shear - 1  
Lecture 20 - Linear viscoelasticity - oscillatory shear - 2  
Lecture 21 - Introduction to tensors - 2  
Lecture 22 - Introduction to tensors - 3  
Lecture 23 - Rheometers - 1  
Lecture 24 - Rheometers - 2  
Lecture 25 - Rheometers - 3  
Lecture 26 - Rheometers - 4  
Lecture 27 - Rheometers - 5  
Lecture 28 - Governing equations for rheology - 1  
Lecture 29 - Governing equations for rheology - 2

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- Lecture 30 - Relaxation time spectrum - 1
- Lecture 31 - Relaxation time spectrum - 2
- Lecture 32 - Linear viscoelasticity
- Lecture 33 - Time temperature superposition
- Lecture 34 - Linear viscoelasticity
- Lecture 35 - General linear viscoelasticity
- Lecture 36 - Rotational rheometry
- Lecture 37 - Review of material functions - 1
- Lecture 38 - Review of material functions - 2
- Lecture 39 - Survey of material functions for polymers - 1
- Lecture 40 - Survey of material functions for polymers - 2
- Lecture 41 - Survey of material functions for polymers - 3
- Lecture 42 - Survey of material functions for polymers - 4
- Lecture 43 - Survey of material functions for multiphase systems - 1
- Lecture 44 - Strain and convected rate - 1
- Lecture 45 - Strain and convected rate - 2
- Lecture 46 - Strain and convected rate - 3
- Lecture 47 - Strain and convected rate - 4
- Lecture 48 - Normal stresses - 1
- Lecture 49 - Normal stresses - 2
- Lecture 50 - Structured materials - yield stress
- Lecture 51 - Yield stress and thixotropic materials
- Lecture 52 - Normal stresses and stress growth
- Lecture 53 - Rheometer demonstration
- Lecture 54 - Review of material functions - 3
- Lecture 55 - Survey of material functions for multiphase macromolecular systems
- Lecture 56 - Problems during rheometry - example of cone and plate - 1
- Lecture 57 - Problems during rheometry - example of cone and plate - 2
- Lecture 58 - Strain, convected derivatives, non-linear models - 1
- Lecture 59 - Strain, convected derivatives, non-linear models - 2
- Lecture 60 - Rheometer demonstration
- Lecture 61 - Microscopic modeling of rheology - 1
- Lecture 62 - Microscopic modeling of rheology - 2
- Lecture 63 - Live Session

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Process Control - Design, Analysis and Assessment

Subject Co-ordinator - Prof. Ragunathan Rengasamy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introductory Concepts  
Lecture 3 - Introduction to Modeling  
Lecture 4 - Introduction to Control Structures  
Lecture 5 - Process Modelling  
Lecture 6 - State Space Modeling  
Lecture 7 - State Space Solution  
Lecture 8 - Laplace Transforms - Part 1  
Lecture 9 - Laplace Transforms - Part 2  
Lecture 10 - Analysis of transfer function models - Part 1  
Lecture 11 - Analysis of transfer function models - Part 2  
Lecture 12 - Stability  
Lecture 13 - MATLAB Tutorial 1  
Lecture 14 - MATLAB Tutorial 2  
Lecture 15 - Controller Equations  
Lecture 16 - Controllers and analysis of closed loop transfer functions  
Lecture 17 - P, PI and PID Controllers  
Lecture 18 - Stability analysis of closed loop systems  
Lecture 19 - Controller design and tuning - Part 1  
Lecture 20 - Controller design and tuning - Part 2  
Lecture 21 - Traditional Advanced Control - Part 1  
Lecture 22 - Traditional Advanced Control - Part 2  
Lecture 23 - Frequency Response Analysis - Part 1  
Lecture 24 - Frequency Response Analysis - Part 2  
Lecture 25 - Traditional Advanced Control - Part 3  
Lecture 26 - Traditional Advanced Control - Part 4  
Lecture 27 - Traditional Advanced Control - Part 5  
Lecture 28 - Understanding PID Gains  
Lecture 29 - Nyquist Stability Criterion - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Nyquist Stability Criterion - Part 2
- Lecture 31 - Nyquist Stability Criterion - Part 3
- Lecture 32 - Controllers for Unstable Systems
- Lecture 33 - Traditional Advanced Control - Part 6
- Lecture 34 - Traditional Advanced Control - Part 7
- Lecture 35 - Multivariable Control - Part 1
- Lecture 36 - Multivariable Control - Part 2
- Lecture 37 - Model Predictive Control - Part 1
- Lecture 38 - Model Predictive Control - Part 2
- Lecture 39 - Model Predictive Control-Mathematical Formulation - Part 1
- Lecture 40 - Model Predictive Control-Mathematical Formulation - Part 2
- Lecture 41 - Model Predictive Control - Discrete Model
- Lecture 42 - Model Predictive Control - Putting all these together
- Lecture 43 - Stability Analysis-VariouS methods - Part 1
- Lecture 44 - Stability Analysis-VariouS methods - Part 2
- Lecture 45 - Stability Analysis-VariouS methods - Part 3
- Lecture 46 - PID Tuning
- Lecture 47 - MATLAB Tutorial-Controller Tuning - Part 1
- Lecture 48 - MATLAB Tutorial-Controller Tuning - Part 2
- Lecture 49 - MATLAB Tutorial - Controller Design - Part 1
- Lecture 50 - MATLAB Tutorial - Controller Design - Part 2
- Lecture 51 - MATLAB Tutorial - Controller Design - Part 3
- Lecture 52 - Conclusion Lecture

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - System Identification

Subject Co-ordinator - Dr. Arun K.Tangirala

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Motivation and Overview 1  
Lecture 2 - Motivation and Overview 2  
Lecture 3 - Motivation and Overview 3  
Lecture 4 - Motivation and Overview 4  
Lecture 5 - Journey into Identification 1  
Lecture 6 - Journey into Identification 2  
Lecture 7 - Journey into Identification 3  
Lecture 8 - Journey into Identification (Case Studies) 4  
Lecture 9 - Journey into Identification (Case Studies) 5  
Lecture 10 - Journey into Identification (Case Studies) 6  
Lecture 11 - Journey into Identification (Case Studies) 7  
Lecture 12 - Journey into Identification (Case Studies) 8  
Lecture 13 - Journey into Identification (Case Studies) 9  
Lecture 14 - Journey into Identification (Case Studies) 10  
Lecture 15 - Journey into Identification (Case Studies) 11  
Lecture 16 - Journey into Identification (Case Studies) 12  
Lecture 17 - Journey into Identification (Case Studies) 13  
Lecture 18 - Journey into Identification (Case Studies) 14  
Lecture 19 - Journey into Identification (Case Studies) 15  
Lecture 20 - Journey into Identification (Case Studies) 16  
Lecture 21 - Journey into Identification 17  
Lecture 22 - Journey into Identification 18  
Lecture 23 - Response-based Description 1  
Lecture 24 - Response-based Description 2  
Lecture 25 - Response-based Description 3  
Lecture 26 - Response-based Description 4  
Lecture 27 - Response-based Description 5  
Lecture 28 - Response-based Description 6  
Lecture 29 - Response-based Description 7

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30	- Response-based Description	8
Lecture 31	- Response-based Description	9
Lecture 32	- Response-based Description	10
Lecture 33	- Response-based Description	11
Lecture 34	- Response-based Description	12
Lecture 35	- Response-based Description	13
Lecture 36	- Discrete time LTI system	1
Lecture 37	- Discrete time LTI system	2
Lecture 38	- z-Domain Descriptions	1
Lecture 39	- z-Domain Descriptions	2
Lecture 40	- z-Domain Descriptions	3
Lecture 41	- z-Domain Descriptions	4
Lecture 42	- z-Domain Descriptions	5
Lecture 43	- z-Domain Descriptions	6
Lecture 44	- State Space Representation	1
Lecture 45	- State Space Representation	2
Lecture 46	- State Space Representation	3
Lecture 47	- State Space Representation	4
Lecture 48	- Sampled - Data Systems	1
Lecture 49	- Sampled - Data Systems	2
Lecture 50	- Sampled - Data Systems	3
Lecture 51	- Sampled - Data Systems	4
Lecture 52	- Sampled - Data Systems	5
Lecture 53	- Sampled - Data Systems	6
Lecture 54	- Sampled - Data Systems	7
Lecture 55	- Sampled - Data Systems	8
Lecture 56	- Probability_Random variables and moments	- Review 1
Lecture 57	- Probability_Random variables and moments	- Review 2
Lecture 58	- Probability_Random variables and moments	- Review 3
Lecture 59	- Probability_Random variables and moments	- Review 4
Lecture 60	- Probability_Random variables and moments	- Review 5
Lecture 61	- Probability_Random variables and moments	- Review 6
Lecture 62	- Random Processes	- Review 1
Lecture 63	- Random Processes	- Review 2
Lecture 64	- Random Processes	- Review 3
Lecture 65	- Random Processes	- Review 4
Lecture 66	- Random Processes	- Review 5
Lecture 67	- Random Processes	- Review 6 (MATLAB)
Lecture 68	- Random Processes	- Review 7

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- Lecture 69 - Random Processes - Review 8
- Lecture 70 - Spectral Representation 1
- Lecture 71 - Spectral Representation 2
- Lecture 72 - Spectral Representation 3
- Lecture 73 - Models for Identification 1
- Lecture 74 - Models for Identification 2
- Lecture 75 - Models for Identification 3
- Lecture 76 - Models for Identification 4
- Lecture 77 - One step and multi-step ahead prediction 1
- Lecture 78 - One step and multi-step ahead prediction 2
- Lecture 79 - One step and multi-step ahead prediction 3
- Lecture 80 - One step and multi-step ahead prediction 4
- Lecture 81 - One step and multi-step ahead prediction 5
- Lecture 82 - Introduction to estimation theory 1
- Lecture 83 - Introduction to estimation theory 2
- Lecture 84 - Fisher's information and properties of estimators 1
- Lecture 85 - Fisher's information and properties of estimators 2
- Lecture 86 - Fisher's information and properties of estimators 3
- Lecture 87 - Fisher's information and properties of estimators 4
- Lecture 88 - Fisher's information and properties of estimators 5
- Lecture 89 - Fisher's information and properties of estimators 6
- Lecture 90 - Fisher's information and properties of estimators 7
- Lecture 91 - Fisher's information and properties of estimators 8
- Lecture 92 - Fisher's information and properties of estimators 9
- Lecture 93 - Fisher's information and properties of estimators 10
- Lecture 94 - Fisher's information and properties of estimators 11
- Lecture 95 - Fisher's information and properties of estimators 12
- Lecture 96 - Fisher's information and properties of estimators 13
- Lecture 97 - Fisher's information and properties of estimators 14
- Lecture 98 - Fisher's information and properties of estimators 15
- Lecture 99 - Estimation of non-parametric model 1
- Lecture 100 - Estimation of non-parametric model 2
- Lecture 101 - Estimation of non-parametric model 3
- Lecture 102 - Estimation of non-parametric model 4
- Lecture 103 - Estimation of non-parametric model 5
- Lecture 104 - Estimation of non-parametric model 3
- Lecture 105 - Estimation of non-parametric model 4
- Lecture 106 - Estimation of non-parametric model 5
- Lecture 107 - Estimation of parametric model 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Estimation of parametric model 2
- Lecture 109 - Estimation of parametric model 3
- Lecture 110 - Estimation of parametric model 4
- Lecture 111 - State-Space/Subspace identification 1
- Lecture 112 - State-Space/Subspace identification 2
- Lecture 113 - State-Space/Subspace identification 3
- Lecture 114 - State-Space/Subspace identification 4
- Lecture 115 - State-Space/Subspace identification 5
- Lecture 116 - State-Space/Subspace identification 6
- Lecture 117 - State-Space/Subspace identification 7
- Lecture 118 - State-Space/Subspace identification 8
- Lecture 119 - Input for Identification
- Lecture 120 - Input for Identification
- Lecture 121 - Input for Identification

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Fluid and Particle Mechanics

Subject Co-ordinator - Prof. Basavaraju

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Fluid Statics  
Lecture 3 - Newton Law of Viscosity  
Lecture 4 - Equation of Continuity Differential  
Lecture 5 - Equation of Linear Momentum - 1  
Lecture 6 - Equation of Linear Momentum - 2  
Lecture 7 - Bernoulli's Equation  
Lecture 8 - Solution of Navier Stokes - 1  
Lecture 9 - Solution of Navier Stokes - 1  
Lecture 10 - Introduction to cylindrical coordinate systems  
Lecture 11 - Continuity equation in cylindrical coordinates  
Lecture 12 - Solution of Navier Stokes in the Cylindrical co-ordinate system - 1  
Lecture 13 - Solution of Navier Stokes in the Cylindrical co-ordinate system - 2  
Lecture 14 - Circular poiseuille flow  
Lecture 15 - Shear Stress Distribution  
Lecture 16 - Flow between two concentric cylinder  
Lecture 17 - Taylor couette flow  
Lecture 18 - Viscosity and Momentum Transfer  
Lecture 19 - Device For Measuring Fluid Viscosity  
Lecture 20 - Fluid Properties And its Behaviour  
Lecture 21 - Tutorial 4  
Lecture 22 - Choice of Scaling Parameter  
Lecture 23 - Non Dimensional analysis  
Lecture 24 - Non-dimensional analysis - 2  
Lecture 25 - Non-dimensional analysis - 3 (Buckingham Pi Theorem)  
Lecture 26 - Non-dimensional analysis - 4 (Trinity test)  
Lecture 27 - Non-dimensional analysis - 5 (Concept of similarity)  
Lecture 28 - Characterization Of Particles - 1  
Lecture 29 - Characterization Of Particles - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Motion of a Particle in a fluid
- Lecture 31 - Brownian motion and electrophoresis
- Lecture 32 - Sedimentation and Separation
- Lecture 33 - Settling velocity - Stoke's regime and Newton's regime
- Lecture 34 - Applications of settling - I
- Lecture 35 - Applications of settling - II
- Lecture 36 - Colloidal aggregates - Introduction
- Lecture 37 - Settling of colloidal aggregates
- Lecture 38 - Tutorial 5
- Lecture 39 - Settling of colloidal aggregates - free settling
- Lecture 40 - Settling in Multiple Particles System
- Lecture 41 - Flow Through Packed Bed
- Lecture 42 - Pressure Drop Through Packed Bed
- Lecture 43 - Tutorial 6
- Lecture 44 - Pressure Drop Through Packed bed Continue
- Lecture 45 - Fluidized Bed - 1
- Lecture 46 - Fluidized Bed - 2
- Lecture 47 - Filtration - 1
- Lecture 48 - Filtration - 2
- Lecture 49 - Tutorial 7
- Lecture 50 - Laminar and Turbulent Flows - 1
- Lecture 51 - Laminar and Turbulent Flows - 2
- Lecture 52 - Laminar and Turbulent Flows - 3
- Lecture 53 - Turbulent Stress and Turbulent Shear Layer
- Lecture 54 - Turbulent Flow near a wall and in a pipe
- Lecture 55 - Effect of rough Walls
- Lecture 56 - Roughness in Turbulent Pipe Flow
- Lecture 57 - Pipes of non-circular cross section
- Lecture 58 - Minor Losses, Sudden Expansion and Contraction
- Lecture 59 - Friction Losses in Sudden Expansion
- Lecture 60 - Tutorial 8
- Lecture 61 - Momentum and Kinetic Energy Correction Factor
- Lecture 62 - pressure drop in pipes which connected in series
- Lecture 63 - Pressure Drop in Pipes Which Connected in Parallel
- Lecture 64 - Pressure Drop in Pipes Which Connected at Junction
- Lecture 65 - Boundary Layer
- Lecture 66 - Boundary Layer - Momentum Integral Analysis - 1
- Lecture 67 - Boundary Layer - Momentum Integral Analysis - 2
- Lecture 68 - Boundary Layer - Differential Approach

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Laminar and Turbulent Boundary Layer  
Lecture 70 - Tutorial 9

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Continuum Mechanics and Transport Phenomena

Subject Co-ordinator - Prof. T. Renganathan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Measurement and Prediction - Part 1  
Lecture 2 - Measurement and Prediction - Part 2  
Lecture 3 - Overview of Transport Phenomena  
Lecture 4 - Scope of Course  
Lecture 5 - Continuum Hypothesis  
Lecture 6 - Lagrangian and Eulerian Descriptions - Part 1  
Lecture 7 - Lagrangian and Eulerian Descriptions - Part 2  
Lecture 8 - Substantial Derivative - Part 1  
Lecture 9 - Substantial Derivative - Part 2  
Lecture 10 - Substantial Derivative Example - 1  
Lecture 11 - Substantial Derivative Example - 2  
Lecture 12 - Visualization of Flow Patterns: Streamline, Pathline  
Lecture 13 - Visualization of Flow Patterns: Streakline  
Lecture 14 - Streamline, Pathline: Steady Flow Example  
Lecture 15 - Streamline, Pathline, Streakline: Unsteady Flow Example  
Lecture 16 - System and Control Volume  
Lecture 17 - Reynolds transport theorem : Introduction  
Lecture 18 - Reynolds transport theorem : Simplified form  
Lecture 19 - Reynolds transport theorem : General form - Part 1  
Lecture 20 - Reynolds transport theorem : General form - Part 2  
Lecture 21 - Integral and differential balances  
Lecture 22 - Integral total mass balance  
Lecture 23 - Integral total mass balance : Simplification  
Lecture 24 - Integral total mass balance : Examples  
Lecture 25 - Differential total mass balance - Part 1  
Lecture 26 - Differential total mass balance - Part 2  
Lecture 27 - Differential total mass balance : Examples - Part 1  
Lecture 28 - Differential total mass balance : Examples - Part 2  
Lecture 29 - Integral linear momentum balance - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Integral linear momentum balance - Part 2
- Lecture 31 - Integral linear momentum balance : Examples - Part 1
- Lecture 32 - Integral linear momentum balance : Examples - Part 2
- Lecture 33 - Integral linear momentum balance : Examples - Part 3
- Lecture 34 - Differential linear momentum balance : Introduction
- Lecture 35 - Differential linear momentum balance : Transient, convection and body force terms
- Lecture 36 - Stress vector - Part 1
- Lecture 37 - Stress vector - Part 2
- Lecture 38 - Stress tensor - Part 1
- Lecture 39 - Stress tensor - Part 2
- Lecture 40 - Cauchy's formula
- Lecture 41 - Components of Stress Vector : Example
- Lecture 42 - Properties of stress tensor - Part 1
- Lecture 43 - Properties of stress tensor - Part 2
- Lecture 44 - Total stress tensor for fluids
- Lecture 45 - Comparison of solids and fluids
- Lecture 46 - Fluids at rest
- Lecture 47 - Differential linear momentum balance : Surface force terms
- Lecture 48 - Differential linear momentum balance : All terms
- Lecture 49 - Convective momentum flux tensor
- Lecture 50 - Differential linear momentum balance : Closure problem
- Lecture 51 - Normal Strain and Shear Strain - Part 1
- Lecture 52 - Normal Strain and Shear Strain - Part 2
- Lecture 53 - Displacement Field and Displacement Gradient - Part 1
- Lecture 54 - Displacement Field and Displacement Gradient - Part 2
- Lecture 55 - Strain Displacement Gradient Relation : Example
- Lecture 56 - Strain Displacement Gradient Relation : Normal and shear strain
- Lecture 57 - Strain Displacement Gradient Relation : Rotation and volumetric strain
- Lecture 58 - Strain Displacement Gradient Relation : Examples
- Lecture 59 - Displacement Gradient Tensor
- Lecture 60 - Components of Total Displacement - Part 1
- Lecture 61 - Components of Total Displacement - Part 2
- Lecture 62 - Strain Tensor and Rotation Tensor - Part 1
- Lecture 63 - Components of Total Displacement : Example
- Lecture 64 - Normal and Shear Strain Rate
- Lecture 65 - Strain Rate Velocity Gradient Relation
- Lecture 66 - Volumetric Strain Rate
- Lecture 67 - Velocity Gradient Tensor
- Lecture 68 - Strain Rate : Example 1

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- Lecture 69 - Strain Rate : Example 2
- Lecture 70 - Stress Strain Relation : Introduction
- Lecture 71 - Material Properties
- Lecture 72 - Hooke's Law - Strain-stress Relation
- Lecture 73 - Relation Between Material Properties
- Lecture 74 - Hooke's Law - Stress-strain Relation
- Lecture 75 - Hooke's Law : Examples
- Lecture 76 - Stress Strain Rate Relation : Introduction
- Lecture 77 - Newton's Law of Viscosity : 1D Form
- Lecture 78 - Newton's Law of Viscosity : 3D Form
- Lecture 79 - Navier Stokes Equation
- Lecture 80 - Fluid at Rest : Pressure Distribution
- Lecture 81 - Hydrostatic Pressure Distribution in Liquid
- Lecture 82 - Hydrostatic Pressure Distribution in Gas
- Lecture 83 - Fluid in Rigid Body Motion : Pressure Distribution
- Lecture 84 - Flow Regimes : Laminar and Turbulent flow
- Lecture 85 - Euler Equation
- Lecture 86 - Bernoulli Equation : Inviscid Flow
- Lecture 87 - Bernoulli Equation : Example 1
- Lecture 88 - Bernoulli Equation : Irrotational Flow
- Lecture 89 - Bernoulli Equation : Example 2
- Lecture 90 - Planar Couette Flow - Governing Equations
- Lecture 91 - Planar Couette Flow - Velocity and Pressure Distribution
- Lecture 92 - Planar Couette Flow - Shear Force
- Lecture 93 - Planar Poiseuille Flow : Governing Equations
- Lecture 94 - Planar Poiseuille Flow : Velocity and Pressure Distribution
- Lecture 95 - Planar Poiseuille Flow : Shear force
- Lecture 96 - Planar Poiseuille Flow : Shear Stress Distribution
- Lecture 97 - Viscous Stress vs. Molecular Momentum Flux - Part 1
- Lecture 98 - Viscous Stress vs. Molecular Momentum Flux - Part 2
- Lecture 99 - Linear Momentum Balance : Fluid Mechanics vs. Momentum Transport - Part 1
- Lecture 100 - Linear Momentum Balance : Fluid Mechanics vs. Momentum Transport - Part 2
- Lecture 101 - Viscous Stress vs. Molecular Momentum Flux - Part 3
- Lecture 102 - Integral Energy Balance - Part 1
- Lecture 103 - Integral Energy Balance - Part 2
- Lecture 104 - Simplification of Integral Energy Balance
- Lecture 105 - Integral Energy Balance : Examples
- Lecture 106 - Differential Energy Balance : Introduction
- Lecture 107 - Differential Total Energy Balance - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Differential Total Energy Balance - Part 2
- Lecture 109 - Differential Energy Balance - Part 1
- Lecture 110 - Differential Energy Balance - Part 2
- Lecture 111 - Differential Energy Balance - Part 3
- Lecture 112 - Fourier's Law of Heat Conduction
- Lecture 113 - Simplifications of Differential Energy Balance
- Lecture 114 - Heat Conduction in Slab
- Lecture 115 - Heat Conduction in Furnace Wall
- Lecture 116 - Non Isothermal Planar Couette Flow

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Environmental Quality Monitoring and Analysis

Subject Co-ordinator - Dr. R. Ravi Krishna

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Chemicals of Concern
- Lecture 3 - Water Quality Screening Parameters
- Lecture 4 - Water Quality Parameters
- Lecture 5 - Air quality parameters; Sustainability
- Lecture 6 - PM - Particulate Matter
- Lecture 7 - Physical/Chemical properties of interest
- Lecture 8 - Partition Constants
- Lecture 9 - Soil-air partition constants
- Lecture 10 - Application/Example of Equilibrium Partitioning
- Lecture 11 - Introduction to Environmental Monitoring and Sampling
- Lecture 12 - Environmental Sampling
- Lecture 13 - Environmental Analysis
- Lecture 14 - Environmental Analysis
- Lecture 15 - Environmental Analysis of Organics in Water
- Lecture 16 - Environmental Analysis
- Lecture 17 - Tutorial
- Lecture 18 - Tutorial (Continued...)
- Lecture 19 - Analysis Methods - Introduction and Water Quality Parameters
- Lecture 20 - Analysis Methods - Water Quality Parameters
- Lecture 21 - Analysis Methods - Review of Standard Methods
- Lecture 22 - Analysis Methods - Organics in water
- Lecture 23 - Analysis Methods - Overall Methodology for Organics
- Lecture 24 - Analysis Methods - Chromatography Fundamentals
- Lecture 25 - Analysis Methods - Gas Chromatography
- Lecture 26 - Analysis Methods - Gas Chromatography (Mass Spectrometry)
- Lecture 27 - Analysis Methods - Liquid Chromatography
- Lecture 28 - Monitoring methods for Air - PM - Part 1
- Lecture 29 - Monitoring methods for Air - PM - Part 2

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- Lecture 30 - Monitoring methods for Air - Vapor - Part 1
- Lecture 31 - Monitoring methods for Air - Vapor - Part 2
- Lecture 32 - Monitoring methods for Air - Vapor - Part 3
- Lecture 33 - Monitoring and Measurement of Microorganisms
- Lecture 34 - Transport of Pollutants - Introduction
- Lecture 35 - Transport of Pollutants - Box Models in Water
- Lecture 36 - Transport of Pollutants - Box Models in Air
- Lecture 37 - Transport of Pollutants - Dispersion
- Lecture 38 - Transport of Pollutants - Gaussian Dispersion Model
- Lecture 39 - Dispersion Model - Parameters - Part 1
- Lecture 40 - Dispersion Model - Parameters - Part 2
- Lecture 41 - Gaussian Dispersion Model
- Lecture 42 - Gaussian Dispersion Model - Example, Additional topics
- Lecture 43 - Regulatory Models
- Lecture 44 - Introduction to Interphase Mass Transfer
- Lecture 45 - Interphase mass transfer - Application to Environmental Interfaces
- Lecture 46 - Interphase mass transfer - Flux and mass transfer resistance
- Lecture 47 - Interphase mass transfer - Boundary Layer and Mass Transfer Coefficient
- Lecture 48 - Interphase mass transfer - Individual and Overall Mass Transfer Coefficients
- Lecture 49 - Overall Mass Transfer Coefficient
- Lecture 50 - Estimation of the Mass Transfer Coefficients
- Lecture 51 - Air-Water Exchange
- Lecture 52 - Evaporation from different surfaces
- Lecture 53 - Sediment-Water exchange
- Lecture 54 - Application of Interphase mass transfer
- Lecture 55 - Contamination of Sediments
- Lecture 56 - Release from Sediments
- Lecture 57 - Unsteady state release from sediments
- Lecture 58 - Other mechanisms of chemical release from sediments - Part 1
- Lecture 59 - Other mechanisms of chemical release from sediments - Part 2
- Lecture 60 - Soil - Air Transfer
- Lecture 61 - Remediation of contaminated sediments - Application of transport models

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Synthetic and Natural Supramolecular Architectures: An Approach To

Subject Co-ordinator - Prof. Chebrolu Pulla Rao

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Impetus
- Lecture 2 - Introduction to Supramolecular Science and Technology
- Lecture 3 - Introduction to Supramolecular Science and Technology
- Lecture 4 - A quickwalk - through the Supramolecular Architectures
- Lecture 5 - A quickwalk - through the Supramolecular Architectures
- Lecture 6 - A quickwalk - through the Supramolecular Architectures
- Lecture 7 - Weak intermolecular forces : What, Where, When and How?
- Lecture 8 - Weak intermolecular forces : What, Where, When and How?
- Lecture 9 - Weak intermolecular forces : What, Where, When and How?
- Lecture 10 - Weak intermolecular forces : What, Where, When and How?
- Lecture 11 - Weak intermolecular forces : What, Where, When and How?
- Lecture 12 - Weak intermolecular forces : What, Where, When and How?
- Lecture 13 - Chemistry concepts of Immediate relevance - Part 1
- Lecture 14 - Chemistry concepts of Immediate relevance - Part 2
- Lecture 15 - Chemistry concepts of Immediate relevance - Part 3
- Lecture 16 - Chemistry concepts of Immediate relevance - Part 4
- Lecture 17 - Chemistry concepts of Immediate relevance - Part 5
- Lecture 18 - Chemistry concepts of Immediate relevance - Part 6
- Lecture 19 - Chemistry concepts of Immediate relevance - Part 7
- Lecture 20 - Molecular recognition - Part 1
- Lecture 21 - Molecular recognition - Part 2
- Lecture 22 - Molecular recognition - Part 3
- Lecture 23 - Molecular recognition - Part 4
- Lecture 24 - Molecular recognition - Part 5
- Lecture 25 - Molecular recognition - Part 6
- Lecture 26 - Molecular recognition - Part 7
- Lecture 27 - Molecular recognition - Part 8
- Lecture 28 - Molecular recognition - Part 9
- Lecture 29 - Molecular recognition - Part 10

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- Lecture 30 - Property driven functions of Supramolecular assembly
- Lecture 31
- Lecture 32
- Lecture 33 - Metal coordinated architectures
- Lecture 34 - Engineering Supramolecular devices : Sensors,Switches,Devices and Molecules - Part 1
- Lecture 35 - Engineering Supramolecular devices : Sensors,Switches,Devices and Molecules - Part 2
- Lecture 36 - Engineering Supramolecular devices : Sensors,Switches,Devices and Molecules - Part 3
- Lecture 37 - Engineering Supramolecular devices : Sensors,Switches,Devices and Molecules - Part 4
- Lecture 38 - Engineering Supramolecular devices : Sensors,Switches,Devices and Molecules - Part 5
- Lecture 39 - Engineering Supramolecular devices : Sensors,Switches,Devices and Molecules - Part 6
- Lecture 40 - From molecules to machines : A glimpse at the travel

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Artificial Lift

Subject Co-ordinator - Prof. Abdus Samad

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to oil and gas
- Lecture 2 - Drilling and Completion
- Lecture 3 - Well completion
- Lecture 4 - Oil and gas production systems
- Lecture 5 - Pumps, compressors and flow through pipes
- Lecture 6 - Reservoir fluid
- Lecture 7 - Fluid properties and Phase diagram - Part 1
- Lecture 8 - Fluid properties and Phase diagram - Part 2
- Lecture 9 - Nodal analysis
- Lecture 10 - Reservoir deliverability - Single phase flow
- Lecture 11 - Reservoir deliverability - Two phase flow
- Lecture 12 - Flow over a flat surface or flow through pipe - Part 1
- Lecture 13 - Flow over a flat surface or flow through pipe - Part 2
- Lecture 14 - Single-Phase, Multi-Phase-Emulsion
- Lecture 15 - Emulsification and demulsification
- Lecture 16 - Single and Multi Phase flow-flow regimes
- Lecture 17 - Multi phase flow-flow models
- Lecture 18 - Choke Performance
- Lecture 19 - Pump classifications
- Lecture 20 - Classification of artificial lifts - Part 1
- Lecture 21 - Classification of artificial lifts - Part 2
- Lecture 22 - Sucker rod pump (SRP) - Part 1
- Lecture 23 - Sucker rod pump (SRP) - Part 2
- Lecture 24 - Sucker rod pump (SRP) - Part 3
- Lecture 25 - Sucker rod pump (SRP) - Part 4
- Lecture 26 - Sucker rod pump (SRP) - Part 5
- Lecture 27 - Sucker rod pump (SRP) - Part 6
- Lecture 28 - SRP-Pump performance analysis - Part 1
- Lecture 29 - SRP-Pump performance analysis - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - SRP-Pump performance analysis - Part 3
- Lecture 31 - Introduction to progressive cavity pump
- Lecture 32 - Progressive cavity Pump - Part 1
- Lecture 33 - Progressive cavity Pump - Part 2
- Lecture 34 - Progressive cavity Pump - Part 3
- Lecture 35 - Progressive cavity Pump - Part 4
- Lecture 36 - Progressive cavity Pump - Part 5
- Lecture 37 - Electric submersible pump - Part 1
- Lecture 38 - Electric submersible pump - Part 2
- Lecture 39 - Electric submersible pump - Part 3
- Lecture 40 - ESP- basic electrical systems - Part 1
- Lecture 41 - ESP- basic electrical systems - Part 2
- Lecture 42 - ESP- basic electrical systems - Part 3
- Lecture 43 - ESP- numerical problems - Part 1
- Lecture 44 - ESP- numerical problems - Part 2
- Lecture 45 - ESP- numerical problems - Part 3
- Lecture 46 - ESP- numerical problems - Part 1
- Lecture 47 - ESP- numerical problems - Part 2
- Lecture 48 - Gas lift basics - Part 1
- Lecture 49 - Gas lift basics - Part 2
- Lecture 50 - Gas lift valves and installation - Part 1
- Lecture 51 - Gas lift valves and installation - Part 2
- Lecture 52 - Plunger lift and design
- Lecture 53 - Hydraulic jet pump fundamentals - Part 1
- Lecture 54 - Hydraulic jet pump fundamentals - Part 2
- Lecture 55 - Hydraulic engine pumps and design - Part 1
- Lecture 56 - Hydraulic engine pumps and design - Part 2
- Lecture 57 - Surface pump units for jet pump - Part 1
- Lecture 58 - Surface pump units for jet pump - Part 2
- Lecture 59 - Surface pump units for jet pump - Part 3
- Lecture 60 - Surface compressor for gas lift - Part 1
- Lecture 61 - Surface compressor for gas lift - Part 2
- Lecture 62 - Surface compressor for gas lift - Part 3



## NPTel Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTel Video Course - Chemical Engineering - Chemical Technology - I

Subject Co-ordinator - Dr. I.D. Mall

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Chemical process Industries

Lecture 2 - Raw material for Organic Chemical Industries

Lecture 3 - Unit processes and unit operations in organic chemical Industries

Lecture 4 - Coal and coal as chemicals feed stock

Lecture 5 - Coal carbonization and Coke oven plant

Lecture 6 - Gasification of Coal, Petrocoke and Biomass

Lecture 7 - Introduction to Pulp and paper Industry, Raw material for paper industry and Technological developments

Lecture 8 - Pulping and Bleaching

Lecture 9 - Recovery of Chemicals

Lecture 10 - Stock preparation and paper making

Lecture 11 - Introduction to Soap and detergent, Soap making and Recovery of Glycerine

Lecture 12 - Synthetic detergent and Linear alkyl benzene

Lecture 13 - Sugar and Fermentation industry

Lecture 14 - Ethanol as Biofuel and Chemical feed stock

Lecture 15 - Introduction

Lecture 16 - Evaluation of Crude oil, Petroleum Products and Petrochemicals

Lecture 17 - Crude oil Distillation

Lecture 18 - Thermal Cracking

Lecture 19 - Catalytic cracking

Lecture 20 - Catalytic reforming

Lecture 21 - Alkylation, Isomerisation and Polymerisation

Lecture 22 - Desulphurisation Processes and Recovery of Sulphur

Lecture 23 - Profile of petrochemical Industry and its structure

Lecture 24 - Naphtha and gas cracking for production of olefins

Lecture 25 - Recovery of chemicals from FCC and steam cracking

Lecture 26 - Synthesis gas and its derivatives

Lecture 27 - Ethylene derivatives

Lecture 28 - Propylene, Propylene oxide and Isopropanol

Lecture 29 - Aromatics Production

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Aromatics product profile, Ethyl benzene & Styrene, Cumene and phenol, Bisphenol, Aniline
- Lecture 31 - Introduction to polymer, Elastomer and Synthetic Fibre, Polymerisation
- Lecture 32 - Polymers
- Lecture 33 - Polyvinylchloride, polycarbonate, thermoset resin
- Lecture 34 - Elastomers
- Lecture 35 - Polyamides or Nylons(PA)
- Lecture 36 - DMT and Terephthalic Acid, Polyester, PET resin, PTB resin
- Lecture 37 - Acrylic Fibre, Modified Acrylic Fibre, Acrylonitrile, Acrolein, Propylene Fibre, Polyurethane
- Lecture 38 - Viscose Rayon and Acetate rayon
- Lecture 39 - Pesticide
- Lecture 40 - Dye and Intermediates

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Process Integration

Subject Co-ordinator - Dr. B. Mohanty

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Process integration, methods and area of application
- Lecture 2 - Fundamental concepts related to heat integration - Part 1
- Lecture 3 - Fundamental concepts related to heat integration - Part 2
- Lecture 4 - Data extraction
- Lecture 5 - Hot composite curves
- Lecture 6 - Cold composite curves
- Lecture 7 - Hot and cold composite curves and the pinch
- Lecture 8 - Threshold problems
- Lecture 9 - Energy targeting procedure
- Lecture 10 - Problem Table Algorithm - Part 1
- Lecture 11 - Grand composite curve
- Lecture 12 - Problem Table Algorithm - Part 2
- Lecture 13 - Number of units target
- Lecture 14 - Shell targeting - Part 1
- Lecture 15 - Area targeting - Part 1
- Lecture 16 - Area targeting - Part 2
- Lecture 17 - Coast targeting - Part 1
- Lecture 18 - Coast targeting - Part 2
- Lecture 19 - Supertargeting- optimization of  $\hat{I} \ t \ min$
- Lecture 20 - Global & stream specific  $\hat{I} \ t \ min$  and its relevance
- Lecture 21 - Topology Trap
- Lecture 22 - Rules for Pinch Design Method (PDM) - Part 1
- Lecture 23 - Rules for Pinch Design Method (PDM) - Part 2
- Lecture 24 - Application of PDM for MER Hen Synthesis
- Lecture 25 - Design for threshold problems
- Lecture 26 - Design for single pinch problems
- Lecture 27 - Design for multi pinch problems
- Lecture 28 - HEN optimization
- Lecture 29 - Remaining problem analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Driving Force Plot
- Lecture 31 - Low Temperature process Design - Part 1
- Lecture 32 - Low Temperature process Design - Part 2
- Lecture 33 - Integration of Gas turbine with process - Part 1
- Lecture 34 - Integration of Gas turbine with process - Part 2
- Lecture 35 - Placement and Integration of Distillation Column
- Lecture 36 - Heat Integration of evaporators
- Lecture 37 - Integration of heat pump
- Lecture 38 - Placement of Heat Engine, Heat pump and Reactors
- Lecture 39 - Integration of Furnace
- Lecture 40 - Problem solving using HINT Software - Part 1
- Lecture 41 - Problem solving using HINT Software - Part 2
- Lecture 42 - Problem solving using HINT Software - Part 3
- Lecture 43 - Problem solving using HINT Software - Part 4

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Mechanical Operations

Subject Co-ordinator - Prof. Shabina Khanam

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Characterization of a single particle - 1
- Lecture 3 - Characterization of a single particle - 2
- Lecture 4 - Characterization of collection of particles - 1
- Lecture 5 - Characterization of collection of particles - 2
- Lecture 6 - Fine grain size distribution
- Lecture 7 - Effectiveness of screen - 1
- Lecture 8 - Effectiveness of screen - 2
- Lecture 9 - Industrial screening equipment
- Lecture 10 - Size reduction
- Lecture 11 - Laws of comminution
- Lecture 12 - Examples of Laws of comminution - 1
- Lecture 13 - Examples of Laws of comminution - 2
- Lecture 14 - Size reduction equipment - 1
- Lecture 15 - Size reduction equipment - 2
- Lecture 16 - Particle dynamics - 1
- Lecture 17 - Particle dynamics - 2
- Lecture 18 - Particle dynamics-Examples
- Lecture 19 - Classification and Jigging - 1
- Lecture 20 - Classification and Jigging - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Waste to Energy Conversion

Subject Co-ordinator - Prof. P. Mondal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - 1  
Lecture 2 - Introduction - 2  
Lecture 3 - Characterization of wastes - 1  
Lecture 4 - Characterization of wastes - 2  
Lecture 5 - Characterization of wastes - 3  
Lecture 6 - Tutorial on Characterization of wastes  
Lecture 7 - Energy production from wastes through incineration - 1  
Lecture 8 - Energy production from wastes through incineration - 2  
Lecture 9 - Tutorial on incineration  
Lecture 10 - Energy production from wastes through gasification - 1  
Lecture 11 - Energy production from wastes through gasification - 2  
Lecture 12 - Syngas utilization - 1  
Lecture 13 - Syngas utilization - 2  
Lecture 14 - Energy production from wastes through pyrolysis - 1  
Lecture 15 - Energy production from wastes through pyrolysis - 2  
Lecture 16 - Tutorial on gasification  
Lecture 17 - Tutorial on Pyrolysis  
Lecture 18 - Densification of solids - 1  
Lecture 19 - Densification of solids - 2  
Lecture 20 - Efficiency improvement of power plant - 1  
Lecture 21 - Efficiency improvement of power plant - 2  
Lecture 22 - Energy production from waste plastics - 1  
Lecture 23 - Energy production from waste plastics - 2  
Lecture 24 - Gas clean up - 1  
Lecture 25 - Gas clean up - 2  
Lecture 26 - Energy production from organic wastes through anaerobic digestion - 1  
Lecture 27 - Energy production from organic wastes through anaerobic digestion - 2  
Lecture 28 - Design of anaerobic digester  
Lecture 29 - Introduction to Microbial fuel cells

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Energy production from organic wastes through fermentation - 1
- Lecture 31 - Energy production from organic wastes through fermentation - 2
- Lecture 32 - Tutorial on anaerobic digestion
- Lecture 33 - Tutorial on fermentation
- Lecture 34 - Energy production from wastes through transesterification - 1
- Lecture 35 - Energy production from wastes through transesterification - 2
- Lecture 36 - Tutorial on transesterification
- Lecture 37 - Cultivation of algal biomass and treatment of waste water - 1
- Lecture 38 - Cultivation of algal biomass and treatment of waste water - 2
- Lecture 39 - Energy production form algal biomass - 1
- Lecture 40 - Energy production form algal biomass - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Unit Operations of Particulate Matter

Subject Co-ordinator - Prof. Shabina Khanam

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Sedimentation and Batch Sedimentation Test - 1  
Lecture 3 - Sedimentation and Batch Sedimentation Test - 2  
Lecture 4 - Centrifugal Sedimentation and Equipment - 1  
Lecture 5 - Centrifugal Sedimentation and Equipment - 2  
Lecture 6 - Filtration - 1  
Lecture 7 - Filtration - 2  
Lecture 8 - Filtration - 3  
Lecture 9 - Continuous Filtration - 1  
Lecture 10 - Continuous Filtration - 2  
Lecture 11 - Fluidisation - 1  
Lecture 12 - Fluidisation - 2  
Lecture 13 - Liquid Fluidisation  
Lecture 14 - Gas Fluidisation - 1  
Lecture 15 - Gas Fluidisation - 2  
Lecture 16 - Flotation - 1  
Lecture 17 - Flotation - 2  
Lecture 18 - Transportaion of solids - 1  
Lecture 19 - Transportaion of solids - 2  
Lecture 20 - Transportaion of solids - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Introduction to Polymer Physics (IIT-R)

Subject Co-ordinator - Prof. Prateek Kumar Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course, Macromolecules and Life, Molecular flexibility
- Lecture 2 - Classification of polymers, Types of polymerization, Average molecular weights and polydispersity
- Lecture 3 - Motivation to study polymer physics
- Lecture 4 - Random Walk Models of Single Chain I
- Lecture 5 - Random Walk Models of Single Chain II
- Lecture 6 - Random Walk Models of Single Chain III
- Lecture 7 - Models of semiflexible chains (Kratky Porod Model) - Part I
- Lecture 8 - Models of semiflexible chains (Kratky Porod Model) - Part II
- Lecture 9 - Probability density of an ideal chain - Part I
- Lecture 10 - Probability density of an ideal chain - Part II
- Lecture 11 - Entropic Elasticity, Bead-Spring Model, Simulations of random walk models
- Lecture 12 - Derivation of Diffusion equation, Einstein notation
- Lecture 13 - Definition of Radius of gyration
- Lecture 14 - Radius of gyration for an ideal chain, concept of ideality
- Lecture 15 - Nonbonded interactions, hydrophobic and hydrophilic behaviour
- Lecture 16 - Definition of excluded volume; good, bad, and theta solvent
- Lecture 17 - Virial expansion, Flory theory for good solvent
- Lecture 18 - Flory theory for bad solvent, self-similarity and fractal nature of polymers
- Lecture 19 - Derivation of fractal dimension, concentration regimes and overlap concentration
- Lecture 20 - Size, shape, and structure. Gyration tensor and measures of asphericity.
- Lecture 21 - Order-disorder transition
- Lecture 22 - Scattering experiments, Pair correlation function
- Lecture 23 - Structure of polymer chain, Introduction to Monte Carlo simulations of polymer chains
- Lecture 24 - Monte Carlo algorithm
- Lecture 25 - Practical aspects of Monte Carlo simulation
- Lecture 26 - Molecular Dynamics Simulations, Review of Thermodynamics
- Lecture 27 - Solution Thermodynamics - I
- Lecture 28 - Solution Thermodynamics - II
- Lecture 29 - Solution Thermodynamics - III

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Solution Thermodynamics - IV
- Lecture 31 - Phase separation regime, Introduction to lattice model of solutions
- Lecture 32 - Lattice Model of Solutions - I
- Lecture 33 - Lattice Model of Solutions - II
- Lecture 34 - Phase behaviour of liquid solutions
- Lecture 35 - Lattice models of polymeric systems
- Lecture 36 - Brownian motion - I
- Lecture 37 - Brownian motion - II
- Lecture 38 - Brownian motion - III
- Lecture 39 - Brownian motion - IV
- Lecture 40 - Brownian motion - V
- Lecture 41 - Rouse Model - I
- Lecture 42 - Rouse Model - II
- Lecture 43 - Rouse Model - III
- Lecture 44 - Rouse Model - IV
- Lecture 45 - Problems in Rouse Model, Hydrodynamic Interactions
- Lecture 46 - Zimm Model - I
- Lecture 47 - Zimm Model - II
- Lecture 48 - Continuum Mechanics - I
- Lecture 49 - Continuum Mechanics - II
- Lecture 50 - Kuhn's Theory of Rubber Elasticity
- Lecture 51 - Elasticity of polymer network
- Lecture 52 - Microscopic definition of stress tensor - I
- Lecture 53 - Microscopic definition of stress tensor - II, Dumbbell model, introduction to Rouse model
- Lecture 54 - Models for entangled polymeric systems - I
- Lecture 55 - Models for entangled polymeric systems - II
- Lecture 56 - Rheology of complex fluids
- Lecture 57 - Rheometers and rheological tests - I
- Lecture 58 - Rheometers and rheological tests - II
- Lecture 59 - Maxwell model - I
- Lecture 60 - Maxwell model - II, Closing notes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Equipment Design: Mechanical Aspects

Subject Co-ordinator - Prof. Shabina Khanam

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Stress and Strain Relationship - 1  
Lecture 3 - Stress and Strain Relationship - 2  
Lecture 4 - Terminologies  
Lecture 5 - Design of shell  
Lecture 6 - Design of heads - 1  
Lecture 7 - Design of heads - 2  
Lecture 8 - Design of heads - 3  
Lecture 9 - Compensation for Opening - 1  
Lecture 10 - Compensation for Opening - 2  
Lecture 11 - L D ratio  
Lecture 12 - Design of Flanges - 1.1  
Lecture 13 - Design of Flanges - 1.2  
Lecture 14 - Design of Flanges - 2.1  
Lecture 15 - Design of Flanges - 2.2  
Lecture 16 - Design of support - 1  
Lecture 17 - Design of support - 2  
Lecture 18 - Vessel under external pressure - 1  
Lecture 19 - Vessel under external pressure - 2  
Lecture 20 - Vessel under very high pressure

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Chemical Process Safety

Subject Co-ordinator - Dr. Shishir Sinha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Safety and Accident Loss Statistics
- Lecture 2 - Risk Management and Hazardous Substance Rules
- Lecture 3 - Nature of Accident and major disasters
- Lecture 4 - Fundamental Principles
- Lecture 5 - Problems related to Safety and Accident Loss Statistics
- Lecture 6 - Toxicology
- Lecture 7 - Toxicology
- Lecture 8 - Dose Response Relationship
- Lecture 9 - Dose Response and Threshold Dose
- Lecture 10 - Industrial Hygiene
- Lecture 11 - Material Safety Data Sheet - I
- Lecture 12 - Material Safety Data Sheet - II
- Lecture 13 - Industrial Hygiene
- Lecture 14 - Noise, vibration and Radiation
- Lecture 15 - Industrial Hygiene
- Lecture 16 - Problems related to Industrial Hygiene
- Lecture 17 - Introduction to Source Models
- Lecture 18 - Source Models for Gas
- Lecture 19 - Source Models for Pool Boiling
- Lecture 20 - Source Model Problems
- Lecture 21 - Fire and Explosions
- Lecture 22 - Fire and Explosions
- Lecture 23 - Explosion and its Classification - I
- Lecture 24 - Explosion and its Classification - II
- Lecture 25 - Fire Extinguishers - I
- Lecture 26 - Fire Extinguishers - II
- Lecture 27 - Problems related to Fire and Explosion
- Lecture 28 - Designs to prevent Fire and Explosion
- Lecture 29 - Designs to prevent Fire and Explosion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - General Design Methods to prevent Fire
- Lecture 31 - Sprinklers - I
- Lecture 32 - Sprinklers - II
- Lecture 33 - Introduction to Reliefs
- Lecture 34 - Type of Reliefs
- Lecture 35 - Relief Scenario
- Lecture 36 - Relief Sizing
- Lecture 37 - Hazard and Hazard Identification
- Lecture 38 - Hazard Identification Methods and HAZOP
- Lecture 39 - Safety Reviews and Risk Assessment - I
- Lecture 40 - Risk Assessment - II
- Lecture 41 - Review of Probability Theory
- Lecture 42 - Event Trees
- Lecture 43 - Fault Trees
- Lecture 44 - Cause Consequence Analysis and Layer of Protection Analysis
- Lecture 45 - Bow-Tie Analysis
- Lecture 46 - Accident Research
- Lecture 47 - Accident Causation Theories
- Lecture 48 - Accident Investigation Procedure - I
- Lecture 49 - Accident Investigation Procedure - II
- Lecture 50 - Jaipur Terminal Fire, India
- Lecture 51 - The Flixborough UK, Cyclohexane Disaster
- Lecture 52 - Seveso Accident
- Lecture 53 - The Chernobyl Nuclear Disaster
- Lecture 54 - Bhopal Gas Tragedy
- Lecture 55 - Bhopal Gas Tragedy
- Lecture 56 - Nuclear Radiation
- Lecture 57 - Process Safety Management
- Lecture 58 - Personal Protective Equipments
- Lecture 59 - Safety
- Lecture 60 - Nuclear Disaster

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Technologies for Clean and Renewable Energy Production

Subject Co-ordinator - Prof. P. Mondal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Coal as a Source of Energy
- Lecture 3 - Characterization of Coal
- Lecture 4 - Conventional Route for Energy Production from Coal
- Lecture 5 - Tutorial 1
- Lecture 6 - Cleaner Route for Energy Production from Coal
- Lecture 7 - Gasification of Coal - 1
- Lecture 8 - Gasification of Coal - 2
- Lecture 9 - Direct Liquefaction of Coal
- Lecture 10 - Tutorial 2
- Lecture 11 - Petroleum as a Source of Energy
- Lecture 12 - Characteristics of Crude Oil and Petroleum Products
- Lecture 13 - Refining of Crude Oil for Liquid Fuels Production
- Lecture 14 - Conversion of Intermediate Products
- Lecture 15 - Tutorial 3
- Lecture 16 - Impurities Removal from Liquid Fuels
- Lecture 17 - Residue Upgradation - 1
- Lecture 18 - Residue Upgradation - 2
- Lecture 19 - Heavy Crude Oil Processing
- Lecture 20 - Tutorial 4
- Lecture 21 - Properties and Routes for Energy Production
- Lecture 22 - Syn Gas Production from Natural Gas
- Lecture 23 - Syn Gas to Liquid Fuel Production
- Lecture 24 - Hydrogen Production from Natural Gas
- Lecture 25 - Tutorial 5
- Lecture 26 - Solar Energy - 1
- Lecture 27 - Solar Energy - 2
- Lecture 28 - Wind Energy - 1
- Lecture 29 - Wind Energy - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial 6
- Lecture 31 - Hydro Energy - 1
- Lecture 32 - Hydro Energy - 2
- Lecture 33 - Geothermal Energy
- Lecture 34 - Tidal Energy
- Lecture 35 - Tutorial 7
- Lecture 36 - Energy from Biomass and Wastes 1 (Biological Route)
- Lecture 37 - Energy from Biomass and Wastes 2 (Chemical Route)
- Lecture 38 - Energy from Biomass and Wastes 3 (Physical Route)
- Lecture 39 - Energy Conversations
- Lecture 40 - Tutorial 8

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Polymer Reaction Engineering

Subject Co-ordinator - Prof. Shishir Sinha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Polymerization Process - I
- Lecture 2 - Introduction to polymerization process - II
- Lecture 3 - A Short History of polymerization process, monomers and its distribution
- Lecture 4 - Gradient and graft copolymer, polymer and its compositions, isomerism in polymers - I
- Lecture 5 - Gradient and graft copolymer, polymer and its compositions, isomerism in polymers - II
- Lecture 6 - Bonding forces in polymers
- Lecture 7 - Molecular weight and its distribution
- Lecture 8 - Control on Polymer Synthesis - I
- Lecture 9 - Control on Polymer Synthesis - II
- Lecture 10 - Control on Polymer Synthesis - III
- Lecture 11 - Morphology of polymers
- Lecture 12 - Introduction to reactor design - I
- Lecture 13 - Introduction to reactor design - II
- Lecture 14 - Temperature dependent term and Interpretation of batch reactor data - I
- Lecture 15 - Temperature dependent term and Interpretation of batch reactor data - II
- Lecture 16 - Interpretation of batch reactor data - III
- Lecture 17 - Interpretation of batch reactor data - IV
- Lecture 18 - Design equation for ideal reactors
- Lecture 19 - Design Equation for Single Reaction System
- Lecture 20 - Multiple reactor system
- Lecture 21 - Recycle reactor and autocatalytic reaction
- Lecture 22 - Multiple reactions system - I
- Lecture 23 - Multiple reactions system - II
- Lecture 24 - Multiple reactions system - III
- Lecture 25 - Problem Solving - I
- Lecture 26 - Problem Solving - II
- Lecture 27 - Problem Solving - III
- Lecture 28 - Step-growth polymerization - I
- Lecture 29 - Step Growth Polymerization - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Step Growth Polymerization - III
- Lecture 31 - Step Growth Polymerization - IV
- Lecture 32 - Radical Chain Polymerization Introduction
- Lecture 33 - Radical Chain Polymerization Comparison with Ionic Chain Polymerization
- Lecture 34 - Radical Chain Polymerization Mode of Propagation
- Lecture 35 - Radical Chain Polymerization Rate of Polymerization
- Lecture 36 - Radical Chain Polymerization Rate Expression
- Lecture 37 - Radical Chain Polymerization Process Analysis - I
- Lecture 38 - Radical Chain Polymerization Process Analysis - II
- Lecture 39 - Radical Chain Polymerization Half-life, Propagation and Termination - I
- Lecture 40 - Radical Chain Polymerization Half-life, Propagation and Termination - II
- Lecture 41 - Radical Chain Polymerization Redox Initiation
- Lecture 42 - Radical Chain Polymerization Photochemical and Ionization Initiation
- Lecture 43 - Radical Chain Polymerization Other Initiation Techniques - I
- Lecture 44 - Radical Chain Polymerization Other Initiation Techniques - II
- Lecture 45 - Heterogeneous Polymerization Introduction - I
- Lecture 46 - Heterogeneous Polymerization Introduction - II
- Lecture 47 - Population Balance Modeling Other Techniques - I
- Lecture 48 - Population Balance Modeling Other Techniques - II
- Lecture 49 - Emulsion Polymerization Batch Polymerization
- Lecture 50 - Emulsion Polymerization Semi-continuous polymerization
- Lecture 51 - Emulsion Polymerization Nucleation, Morphology and Reactor Types - I
- Lecture 52 - Emulsion Polymerization Nucleation, Morphology and Reactor Types - II
- Lecture 53 - Emulsion Polymerization PSD and Implementation of the Process - I
- Lecture 54 - Emulsion Polymerization PSD and Implementation of the Process - II
- Lecture 55 - Living and dormant Polymerization
- Lecture 56 - Ionic Polymerization - I
- Lecture 57 - Ionic Polymerization - II
- Lecture 58 - Ionic Polymerization - III
- Lecture 59 - Ionic Polymerization - IV
- Lecture 60 - Ionic Polymerization - V

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Process Equipment Design

Subject Co-ordinator - Prof. Shabina Khanam

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Classification of exchangers - 1  
Lecture 3 - Classification of exchangers - 2  
Lecture 4 - Basic Design Parameters - 1  
Lecture 5 - Basic Design Parameters - 2  
Lecture 6 - Double Pipe Heat Exchanger - 1  
Lecture 7 - Double Pipe Heat Exchanger - 2  
Lecture 8 - Double Pipe Heat Exchanger - 3  
Lecture 9 - Types of Shell and Tube exchangers  
Lecture 10 - Exchanger Tubes  
Lecture 11 - Exchanger Shell  
Lecture 12 - STE design - Kernâ s method - 1  
Lecture 13 - STE design - Kernâ s method - 2  
Lecture 14 - STE design - Kernâ s method - 3  
Lecture 15 - STE design - Kernâ s method: Example - 4  
Lecture 16 - STE design - Kernâ s method: Example - 5  
Lecture 17 - STE design - Bellâ s method - 1  
Lecture 18 - STE design - Bellâ s method - 2  
Lecture 19 - STE design - Bellâ s method - 3  
Lecture 20 - STE design - Bellâ s method: Example - 4  
Lecture 21 - STE design - Bellâ s method: Example - 5  
Lecture 22 - Design of Condenser - 1  
Lecture 23 - Design of Condenser - 2  
Lecture 24 - Design of Condenser - 3  
Lecture 25 - Design of Condenser - 4  
Lecture 26 - Design of Condenser - 5  
Lecture 27 - Design of Reboiler - 1  
Lecture 28 - Design of Reboiler - 2  
Lecture 29 - Design of Reboiler - 3

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Lecture 30	- Design of Reboiler	- 4
Lecture 31	- Design of Reboiler	- 5
Lecture 32	- Design of Reboiler	- 6
Lecture 33	- Design of Reboiler	- 7
Lecture 34	- Design of Evaporator	- 1
Lecture 35	- Design of Evaporator	- 2
Lecture 36	- Design of Evaporator	- 3
Lecture 37	- Design of Evaporator	- 4
Lecture 38	- Design of Evaporator	- 5
Lecture 39	- Design of Crystallizer	- 1
Lecture 40	- Design of Crystallizer	- 2
Lecture 41	- Design of Crystallizer	- Examples
Lecture 42	- Design of Crystallizer	- Types
Lecture 43	- Design of Packed Column	- 1
Lecture 44	- Design of Packed Column	- 2
Lecture 45	- Design of Packed Column	- 3
Lecture 46	- Design of Packed Column	- 4
Lecture 47	- Design of Packed Column	- 5
Lecture 48	- Distillation Column	- 1
Lecture 49	- Distillation Column	- 2
Lecture 50	- Distillation Column	- 3
Lecture 51	- Distillation Column	- 4
Lecture 52	- Distillation Column	- 5
Lecture 53	- Distillation Column	- 6
Lecture 54	- Distillation Column	- 7
Lecture 55	- Distillation Column	- 8
Lecture 56	- Distillation Column - Mechanical Design	- 1
Lecture 57	- Distillation Column - Mechanical Design	- 2
Lecture 58	- Distillation Column - Mechanical Design	- 3
Lecture 59	- Distillation Column - Mechanical Design	- 4
Lecture 60	- Distillation Column - Mechanical Design	- 5

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Advanced Thermodynamics and Molecular Simulations

Subject Co-ordinator - Prof. Prateek Kumar Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Molecular basis of energy and entropy
- Lecture 3 - Probability and probability distributions
- Lecture 4 - Probability distributions and thermodynamic equilibrium
- Lecture 5 - Energy distribution in molecular systems
- Lecture 6 - First and second law of thermodynamics
- Lecture 7 - Reversible and irreversible processes; third law of thermodynamics; legendre transformation; thermodynamic potentials
- Lecture 8 - Thermodynamic functions for multi-component systems; chemical potential; why do we minimize thermodynamic potentials
- Lecture 9 - Extensive and intensive variables; gibbs duhem relation; euler theorem; maxwell relations
- Lecture 10 - Discrete and continuous probabilities; stirling approximation
- Lecture 11 - Binomial distribution approaches Gaussian distribution for large n; definition of drunkard walk
- Lecture 12 - Solution of drunkard walk; Lagrange multipliers
- Lecture 13 - Energy distribution in molecular system revisited; introduction to thermodynamic ensembles
- Lecture 14 - Canonical ensemble: most probable distribution, partition function
- Lecture 15 - Definition of temperature; third law of thermodynamics
- Lecture 16 - Canonical ensemble: Helmholtz free energy, averages and fluctuations, specific heat, deriving identities
- Lecture 17 - Partition function of a dense gas; grand canonical ensemble: partition function, most probable distribution
- Lecture 18 - Computing properties in grand canonical ensemble
- Lecture 19 - Isothermal isobaric ensemble
- Lecture 20 - Summary of thermodynamic ensembles; partition function of an ideal gas
- Lecture 21 - Mixing and phase separation, phase equilibrium of a multiphase multicomponent system, Gibbs phase rule
- Lecture 22 - Pure component phase diagram; solution thermodynamics: Helmholtz free energy density
- Lecture 23 - Characterizing mixing and phase separation using Helmholtz free energy density
- Lecture 24 - Common tangent construction, definition of binodal, spinodal, and critical point
- Lecture 25 - Osmotic pressure and chemical potential
- Lecture 26 - Lattice model of liquid solutions - I
- Lecture 27 - Lattice model of liquid solutions - II
- Lecture 28 - Lattice model of liquid solutions - III
- Lecture 29 - Critical review of Lattice model, theoretical basis of molecular dynamics simulation

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Theoretical basis of molecular dynamics simulation
- Lecture 31 - Interaction energy and force field
- Lecture 32 - Liouville theorem; theoretical basis of Monte Carlo simulation
- Lecture 33 - Introduction to Monte Carlo simulation method
- Lecture 34 - Markov chain algorithm, condition for equilibrium and detailed balance
- Lecture 35 - Metropolis algorithm, periodic boundary condition
- Lecture 36 - Numerical implementation of Monte Carlo simulation: Python Examples - I
- Lecture 37 - Numerical implementation of Monte Carlo simulation: Python Examples - II
- Lecture 38 - Numerical implementation of Monte Carlo simulation: Python Examples - III
- Lecture 39 - Numerical implementation of Monte Carlo simulation: Python Examples - IV
- Lecture 40 - Numerical implementation of Monte Carlo simulation: Python Examples - V
- Lecture 41 - Particle simulations: comparison with quantum chemical and continuum simulations; bridging length
- Lecture 42 - Pair potentials
- Lecture 43 - Saving CPU time: short range and long range interactions
- Lecture 44 - Bonded and non-bonded interactions, force fields
- Lecture 45 - Practical aspects of molecular simulations
- Lecture 46 - Numerical implementation of MD; thermostat and barostat
- Lecture 47 - MD simulations - efficiency and parallelization, sampling and averaging, analysis of simulation
- Lecture 48 - MD simulations - analysis of simulation trajectories (continued), Case Studies - I
- Lecture 49 - MD simulations - Case Studies - II
- Lecture 50 - MD simulations - Case Studies - III
- Lecture 51 - Free energies and phase behavior; extension of canonical ensemble Monte Carlo to other ensembles
- Lecture 52 - Extension of canonical ensemble Monte Carlo to other ensembles (Continued...)
- Lecture 53 - Monte Carlo in Gibbs ensemble and semi-grand canonical ensemble, thermodynamic integration
- Lecture 54 - Thermodynamic integration (continued); Widom's particle insertion; overlapping distribution method
- Lecture 55 - Multiple histogram method; umbrella sampling; thermodynamic cycle; potential of mean force; pull
- Lecture 56 - Tackling time scale issues (continued); nonequilibrium molecular dynamics; mesoscale simulations
- Lecture 57 - Multiparticle collision dynamics; lattice Boltzmann method; coarse-graining
- Lecture 58 - Case studies
- Lecture 59 - Simulations of chemical reactions using Kinetic Monte Carlo simulations
- Lecture 60 - Reactive force fields; Ab initio molecular dynamics and other advanced methods; molecular simulation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Chemical Process Utilities

Subject Co-ordinator - Prof. Shishir Sinha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Chemical Process Utilities  
Lecture 2 - Energy Perspective to the Utilities  
Lecture 3 - Power Cycle  
Lecture 4 - Fuel Analysis  
Lecture 5 - Practice problems related to power cycle and fuel analysis  
Lecture 6 - Heat Transfer Utilities - I  
Lecture 7 - Heat Transfer Utilities - II  
Lecture 8 - Plate and Frame Heat Exchangers Types  
Lecture 9 - Solar Energy - I  
Lecture 10 - Solar Energy - II  
Lecture 11 - Heat Transfer Media and Solar energy  
Lecture 12 - Water  
Lecture 13 - Water Chemistry  
Lecture 14 - Inhibition and Water Treatment  
Lecture 15 - Boiler Water treatment  
Lecture 16 - Water Governance  
Lecture 17 - Water Quality standards - I  
Lecture 18 - Water Quality Standards - II  
Lecture 19 - Steam  
Lecture 20 - Boilers  
Lecture 21 - Industrial Boiler Types  
Lecture 22 - Boilers  
Lecture 23 - Boilers- Question Practice  
Lecture 24 - Steam Generation Unit  
Lecture 25 - Steam Generation Unit-Heaters  
Lecture 26 - Attemperator and Steam Drum  
Lecture 27 - Steam Traps, Centralization, and Fuel Selection  
Lecture 28 - Economizer, Super heaters, and Safety devices  
Lecture 29

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- Lecture 30 - Insulation of Steam Generators
- Lecture 31 - Air
- Lecture 32 - Air Filtration and Pneumatic Conveying
- Lecture 33 - Introduction to Pneumatic Conveying System
- Lecture 34 - Conveying System Types
- Lecture 35 - Material Properties and Pipeline Feeding Devices
- Lecture 36 - Feeding devices
- Lecture 37 - Gas-solid flows
- Lecture 38 - Design of Pipelines Elements of Pipeline Design
- Lecture 39 - Natural Gas Transmission - I
- Lecture 40 - Natural Gas Transmission - II
- Lecture 41 - Natural Gas Transmission - III
- Lecture 42 - Pipeline Mechanical design - Natural Gas Transmission - IV
- Lecture 43 - Cooling Tower; Theory and Some Basic Calculations
- Lecture 44 - Concept of Heat Transfer in Cooling Tower and its Components
- Lecture 45 - Types and Components of Cooling Tower
- Lecture 46 - Components and Materials of Construction and Applications of Cooling Tower
- Lecture 47 - Control and Maintenance in cooling towers
- Lecture 48 - Pressure Levels and Terminology - I
- Lecture 49 - Pressure Levels and Terminology - II
- Lecture 50 - Gauges for Pressure Measurement
- Lecture 51 - Refrigerants and Refrigeration
- Lecture 52 - Introduction to Refrigeration
- Lecture 53 - Refrigeration System Components
- Lecture 54 - Refrigeration System Components and Refrigeration Cycle
- Lecture 55 - Refrigeration Systems
- Lecture 56 - Refractories
- Lecture 57 - Thermodynamic Principles and Corrosion in Refractories
- Lecture 58 - Slag Attack and Kinds of Refractories in Uses
- Lecture 59 - Brief history of Insulations and its fundamental principles
- Lecture 60 - Heat transfer in Insulations materials

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Physico-Chemical Processes for Waste Water Treatment

Subject Co-ordinator - Prof. Vimal Chandra Srivastava

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Water Pollution and Control
- Lecture 2 - Environmental Acts and Standards
- Lecture 3 - Water Quality Monitoring: Physical Parameters
- Lecture 4 - Water Quality Monitoring: Physical and Chemical Parameters
- Lecture 5 - Water Quality Monitoring: Chemical Parameters - I
- Lecture 6 - Water Quality Monitoring: Chemical Parameters - II
- Lecture 7 - Water Quality Monitoring: Biological/Biochemical Parameters - I
- Lecture 8 - Water Quality Monitoring: Biological/Biochemical Parameters - II
- Lecture 9 - Water Quality Monitoring: Bacteriological Parameters
- Lecture 10 - Treatment of Water and Wastewater
- Lecture 11 - Flow Equalization
- Lecture 12 - Aeration - I
- Lecture 13 - Aeration - II
- Lecture 14 - Aeration - III
- Lecture 15 - Aeration - IV
- Lecture 16 - Aeration - V
- Lecture 17 - Aeration - VI
- Lecture 18 - Coagulation and Flocculation - I
- Lecture 19 - Coagulation and Flocculation - II
- Lecture 20 - Coagulation and Flocculation - III
- Lecture 21 - Coagulation and Flocculation - IV
- Lecture 22 - Settling and Sedimentation - I
- Lecture 23 - Settling and Sedimentation - II
- Lecture 24 - Settling and Sedimentation - III
- Lecture 25 - Settling and Sedimentation - IV
- Lecture 26 - Settling and Sedimentation - V
- Lecture 27 - Settling and Sedimentation - VI
- Lecture 28 - Filtration - I
- Lecture 29 - Filtration - II

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- Lecture 30 - Filtration - III
- Lecture 31 - Adsorption - I
- Lecture 32 - Adsorption - II
- Lecture 33 - Adsorption - III
- Lecture 34 - Adsorption - IV
- Lecture 35 - Adsorption - V
- Lecture 36 - Adsorption - VI
- Lecture 37 - Ion-exchange - I
- Lecture 38 - Ion-exchange - II
- Lecture 39 - Ion-exchange - III
- Lecture 40 - Ion-exchange - IV
- Lecture 41 - Wastewater treatment by membrane processes - I
- Lecture 42 - Wastewater treatment by membrane processes - II
- Lecture 43 - Wastewater treatment by membrane processes - III
- Lecture 44 - Wastewater treatment by membrane processes - IV
- Lecture 45 - Wastewater treatment by membrane processes - V
- Lecture 46 - Advanced Oxidation Processes (AOP) - Introduction
- Lecture 47 - AOP - Photocatalytic wastewater treatment
- Lecture 48 - AOP - Fenton, ozone and catalytic treatment
- Lecture 49 - AOP - Electrochemical wastewater treatment - I
- Lecture 50 - AOP - Electrochemical wastewater treatment - II
- Lecture 51 - AOP - Sono-hybrid wastewater treatment
- Lecture 52 - Disinfection - I
- Lecture 53 - Disinfection - II
- Lecture 54 - Disinfection - III
- Lecture 55 - Case Study - Wastewater treatment in sugar industry
- Lecture 56 - Case Study - Wastewater treatment in distillery
- Lecture 57 - Case Study - Wastewater treatment in fertilizer industry
- Lecture 58 - Case Study - Wastewater treatment in petroleum refining industry
- Lecture 59 - Case Study - Common effluent treatment plant (CETP)
- Lecture 60 - Choice of technology and summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Basic Environmental Engineering and Pollution Abatement

Subject Co-ordinator - Prof. P. Mondal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Ecology, Environment and Biodiversity  
Lecture 3 - Ecosystem services and its risks - 1  
Lecture 4 - Ecosystem services and its risks - 2  
Lecture 5 - Tutorial-1  
Lecture 6 - Pollution types and sources  
Lecture 7 - Pollution: Impacts/Consequences  
Lecture 8 - Transmission of pollutants in environment - 1  
Lecture 9 - Transmission of pollutants in environment - 2  
Lecture 10 - Tutorial-2  
Lecture 11 - Environmental quality and standards - 1  
Lecture 12 - Environmental quality and standards - 2  
Lecture 13 - Instrumental techniques of environmental analysis - 1  
Lecture 14 - Instrumental techniques of environmental analysis - 2  
Lecture 15 - Tutorial-3  
Lecture 16 - Sampling and characterization - 1 (Gas, air ,emission)  
Lecture 17 - Sampling and characterization - 2 (water, wastewater, effluents)  
Lecture 18 - Sampling and characterization - 3 (solid waste and soil)  
Lecture 19 - Environmental laws and regulatory framework  
Lecture 20 - Tutorial-4  
Lecture 21 - Air pollution control - 1  
Lecture 22 - Air pollution control - 2  
Lecture 23 - Air pollution control - 3  
Lecture 24 - Air pollution control - 4  
Lecture 25 - Tutorial-5  
Lecture 26 - Treatment of surface and ground water for drinking water generation  
Lecture 27 - Treatment of domestic and industrial wastewater: Schemes  
Lecture 28 - Primary treatment equipment  
Lecture 29 - Secondary treatment processes

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- Lecture 30 - Tutorial-6
- Lecture 31 - Secondary treatment equipment - 1
- Lecture 32 - Secondary treatment equipment - 2
- Lecture 33 - Advanced secondary processes - 1
- Lecture 34 - Advanced secondary processes - 2
- Lecture 35 - Tutorial-7
- Lecture 36 - Advanced secondary processes - 3
- Lecture 37 - Tertiary treatment - 1
- Lecture 38 - Tertiary treatment - 2
- Lecture 39 - Tertiary treatment - 3
- Lecture 40 - Tutorial-8
- Lecture 41 - Sludge management - 1
- Lecture 42 - Sludge management - 2
- Lecture 43 - Sludge management - 3
- Lecture 44 - Industrial Pollution Control in GPI - 1 (General aspect and pollution control in sugar industry)
- Lecture 45 - Tutorial-9
- Lecture 46 - Industrial Pollution Control in GPI - 2 (Pollution control in Distillery)
- Lecture 47 - Industrial Pollution Control in GPI - 3 (Pollution control in Tannery)
- Lecture 48 - Pollution control in Petroleum refinery and petrochemicals industry
- Lecture 49 - Industrial Pollution Control in GPI - 4
- Lecture 50 - Tutorial 10
- Lecture 51 - Solid waste and hazardous waste management - 1
- Lecture 52 - Solid waste and hazardous waste management - 2
- Lecture 53 - Solid waste and hazardous waste management - 3
- Lecture 54 - Solid waste and hazardous waste management - 4
- Lecture 55 - Tutorial-11
- Lecture 56 - Air Pollution Management, Air quality survey, NAAQI - 1
- Lecture 57 - Air Pollution Management, Air quality survey, NAAQI - 2
- Lecture 58 - Management of special category wastes - 1
- Lecture 59 - Management of special category wastes - 2
- Lecture 60 - Tutorial-12

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Biological Process Design for Wastewater Treatment

Subject Co-ordinator - Prof. Vimal Chandra Srivastava

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Biological Process Design for Wastewater Treatment  
Lecture 2 - Microorganisms in Biological Wastewater Treatment  
Lecture 3 - Fundamentals of Biochemical Operations  
Lecture 4 - Wastewater Characterization - I  
Lecture 5 - Wastewater Characterization - II  
Lecture 6 - Wastewater Characterization - III  
Lecture 7 - Wastewater Characterization - IV  
Lecture 8 - Wastewater Characterization - V  
Lecture 9 - Stoichiometry of Microbial Growth - I  
Lecture 10 - Stoichiometry of Microbial Growth - II  
Lecture 11 - Stoichiometry of Microbial Growth - III  
Lecture 12 - Reaction Kinetics  
Lecture 13 - Bacterial Growth Kinetics - I  
Lecture 14 - Bacterial Growth Kinetics - II  
Lecture 15 - Reactor Hydraulics - I  
Lecture 16 - Reactor Hydraulics - II  
Lecture 17 - Treatment of Water and Wastewater - I  
Lecture 18 - Treatment of Water and Wastewater - II  
Lecture 19 - Coagulation, Flocculation, and Sedimentation - I  
Lecture 20 - Coagulation, Flocculation, and Sedimentation - II  
Lecture 21 - Lagoon  
Lecture 22 - Activated Sludge Process  
Lecture 23 - Sequential Batch Reactor  
Lecture 24 - Trickling Filter  
Lecture 25 - Rotating Disc Reactor  
Lecture 26 - Up-flow Anaerobic Sludge Blanket (UASB) reactor  
Lecture 27 - UASB and Biotower  
Lecture 28 - Advanced Biological Wastewater Treatment: Fluidized Bed Bioreactors  
Lecture 29 - Advanced Biological Wastewater Treatment: Membrane Bioreactors

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Advanced Biological Wastewater Treatment: Moving Bed Biofilm Reactor (MBBR)
- Lecture 31 - Sludge Management - I
- Lecture 32 - Sludge Management - II
- Lecture 33 - Sludge Management - III
- Lecture 34 - Sludge Management - IV
- Lecture 35 - Sludge Management - V
- Lecture 36 - Sludge Management - VI
- Lecture 37 - Sustainable Development and Environmental Impact Assessment
- Lecture 38 - Management of Wastewater from Dairy Industry
- Lecture 39 - Management of Wastewater from Slaughterhouse
- Lecture 40 - Common Effluent Treatment Plant (CETP)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Advanced Reaction Engineering

Subject Co-ordinator - Prof. Taraknath Das

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction\_Various Reactors\_BR
- Lecture 3 - Design Equation\_Continuous reactor (CSTR\_PFR\_PBR)
- Lecture 4 - Design Equation\_Continuous reactor (CSTR\_PFR\_PBR)\_Sizing
- Lecture 5 - Reaction Rate with Conversion, Temperature, and pressure (Batch/Flow system)
- Lecture 6 - Space time Space velocity and CSTRs in series/parallel
- Lecture 7 - Effect of Pressure Drop on reactor design (PBR)\_(X vs W) and (P vs W)
- Lecture 8 - Effect of Pressure Drop on Reactor design (PBR)\_(X vs W)\_ (P vs W)
- Lecture 9 - Effect of Pressure Drop in PBR reactor\_Analytical solution of Differential equation
- Lecture 10 - Effect of Pressure Drop in PBR reactor\_Analytical solution for Reaction With Pressure drop
- Lecture 11 - Effect of Pressure Drop in PBR reactor\_Example
- Lecture 12 - Differential Reactor\_rate of reaction\_catalyst deactivation
- Lecture 13 - Catalyst deactivation
- Lecture 14 - Catalyst Deactivation\_Temperature (T) - Time (t) trajectories
- Lecture 15 - Moving Bed Reactor\_Catalyst deactivation
- Lecture 16 - STTR\_Catalyst deactivation
- Lecture 17 - Multi phase reactors-1: Slurry reactor - 1
- Lecture 18 - Multi phase reactors-1: Slurry reactor - 2
- Lecture 19 - Multi phase reactors-1: Slurry reactor - 3
- Lecture 20 - Multi phase reactors-2: Trickle bed reactor - 1
- Lecture 21 - Multi phase reactors-2: Trickle bed reactor - 2
- Lecture 22 - Multi phase reactors-2: Trickle bed reactor - 3
- Lecture 23 - Bioreactor\_Cell Growth and Rate laws
- Lecture 24 - Bioreactors\_Stoichiometry\_Yield coefficients\_rate of substrate consumption
- Lecture 25 - Bioreactors\_Example\_Yield coefficients and rate law parameters estimation
- Lecture 26 - Bioreactors\_Mass Balances (Cell, Substrate, Product)
- Lecture 27 - Bioreactors\_Chemostats
- Lecture 28 - Steady State Non Isothermal reactor design\_EB equation
- Lecture 29 - Steady State Non Isothermal reactor design\_Example

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- Lecture 30 - SS Non Isothermal reactor design\_Reaction with Heat Exchange
- Lecture 31 - SS Non Isothermal reactor design\_Heat Exchange\_ T-profile for a few cases
- Lecture 32 - SS Non Isothermal reactor design\_Equilibrium conversion
- Lecture 33 - SS Non Isothermal reactor design\_Optimum feed temperature
- Lecture 34 - SS Non Isothermal reactor design\_Multiple Steady States
- Lecture 35 - SS Non Isothermal reactor design\_Ignition Extinction Curves
- Lecture 36 - SS Non Isothermal reactor design\_Runaway reaction in a CSTR
- Lecture 37 - SS Non Isothermal reactor design\_Energy Balance:Multiple rxn in a CSTR/PFR (Examples)
- Lecture 38 - Non-ideal flow - 1
- Lecture 39 - Basics of Non-ideal flow - 2
- Lecture 40 - Basics of Non-ideal flow - 3
- Lecture 41 - Non-ideal flow-Segregation model
- Lecture 42 - One parameter Model-Tank in Series model (TIS)
- Lecture 43 - Non-ideal flow-Dispersion model - Part 1
- Lecture 44 - Non-ideal flow-Dispersion model - Part 2
- Lecture 45 - Non-ideal flow-Dispersion model - Part 3
- Lecture 46 - Two parameter Models-Modeling real reactors with Combinations of Ideal Reactors
- Lecture 47 - Solid Catalyzed Reaction: Reaction and Diffusion - Part 1
- Lecture 48 - Solid Catalyzed Reaction: Reaction and Diffusion - Part 2
- Lecture 49 - Solid Catalyzed Reaction: Reaction and Diffusion - Part 3
- Lecture 50 - Catalysis and Catalytic Reactors - Part 1
- Lecture 51 - Catalysis and Catalytic Reactors - Part 2
- Lecture 52 - Catalysis and Catalytic Reactors - Part 3
- Lecture 53 - Collection and Analysis of Rate - Part 1
- Lecture 54 - Collection and Analysis of Rate - Part 2
- Lecture 55 - Collection and Analysis of Rate - Part 3
- Lecture 56 - Polymath and ODE solver
- Lecture 57 - Catalyst Synthesis - Part 1
- Lecture 58 - Catalyst Synthesis - Part 2
- Lecture 59 - Catalyst Characterization Techniques: BET, Pore size, Pore volume
- Lecture 60 - Catalyst Characterization Techniques

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Polymer Process Engineering

Subject Co-ordinator - Prof. Shishir Sinha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Polymers
- Lecture 2 - Polymers and Polymerization Techniques
- Lecture 3 - Characteristics of Polymers - I
- Lecture 4 - Characteristics of Polymers - II
- Lecture 5 - Applications of Polymers
- Lecture 6 - Thermodynamics of Polymer Systems - I
- Lecture 7 - Thermodynamics of Polymer Systems - II
- Lecture 8 - Thermodynamics of Polymer Systems - III
- Lecture 9 - Thermodynamics of Polymer Systems - IV
- Lecture 10 - Thermodynamics of Polymer Systems - V
- Lecture 11 - Applied polymer rheology: Fluid behavior
- Lecture 12 - Applied polymer rheology: Structure and properties of deforming polymer
- Lecture 13 - Applied polymer rheology: Flow of polymers with supermolecular structure
- Lecture 14 - Applied polymer rheology: Transport phenomena
- Lecture 15 - Applied polymer rheology: Rheometry
- Lecture 16 - Heat Transfer Phenomenon in polymer systems: Introduction
- Lecture 17 - Heat Transfer Phenomenon in polymer systems: Thermal properties
- Lecture 18 - Heat Transfer Phenomenon in polymer systems: Thermal properties and conduction
- Lecture 19 - Heat Transfer Phenomenon in polymer systems: Conduction and Convection
- Lecture 20 - Heat Transfer Phenomenon in polymer systems: Convection and Radiation
- Lecture 21 - Mass Transfer Phenomenon in Polymers: Introduction
- Lecture 22 - Steady State Diffusion in Polymers
- Lecture 23 - Mass transfer coefficient and dimensionless numbers
- Lecture 24 - Mass transfer phenomenon in polymers: Laminar flow and boundary layer conditions
- Lecture 25 - Mass transfer phenomenon in polymers: Diffusivity and solubility of gases
- Lecture 26 - Chemical reaction engineering in polymers: Introduction
- Lecture 27 - Chemical reaction engineering in polymers: Condensation (Step-growth) polymerization
- Lecture 28 - Chemical reaction engineering in polymers: Addition (Chain-Growth) Polymerization - I
- Lecture 29 - Chemical reaction engineering in polymers: Addition (Chain-Growth) Polymerization - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Chemical reaction engineering in polymers: Addition (Chain-Growth) Polymerization - III
- Lecture 31 - Injection Moulding - 1
- Lecture 32 - Injection Moulding - 2
- Lecture 33 - Extrusion
- Lecture 34 - Blow moulding
- Lecture 35 - Calendaring and Fiber spinning
- Lecture 36 - Polymer Testing - 1
- Lecture 37 - Polymer testing - 2 (Standardization, Sample preparation)
- Lecture 38 - Polymer testing - 3
- Lecture 39 - Polymer testing - 4 (Measuring of rheological properties)
- Lecture 40 - Polymer testing - 5 (Mechanical properties; Hardness, tensile and compression)
- Lecture 41 - Polymer testing - 6
- Lecture 42 - Polymer Testing - 7
- Lecture 43 - Polymer Testing - 8
- Lecture 44 - Polymer Testing - 9
- Lecture 45 - Polymer Testing - 10
- Lecture 46 - Polymeric Materials Used in Electronics
- Lecture 47 - Polymers in Electronics: Epoxies
- Lecture 48 - Epoxies, Phenoxies, and Silicones
- Lecture 49 - Polyimides
- Lecture 50 - Fluorocarbons, Polyxylyenes, and Polyesters
- Lecture 51 - Polymer Materials in Electronics
- Lecture 52 - Functions of Coatings - I
- Lecture 53 - Functions of Coatings - II
- Lecture 54 - Natural fibers reinforced composites - I
- Lecture 55 - Natural fibers reinforced composites - II
- Lecture 56 - NFRCs and Polymer Applications
- Lecture 57 - Polymer Applications in Building Materials
- Lecture 58 - Polymer applications in different fields: Polymer in textile
- Lecture 59 - Polymer applications in different fields: Polymer in cosmetics
- Lecture 60 - Polymer applications in different fields: Polymer and food packaging

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Chemical Reaction Engineering

Subject Co-ordinator - Prof. Jayant M Modak

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction & Overview
- Lecture 2 - Basic concepts
- Lecture 3 - Thermodynamics of Chemical Reactions - Part I
- Lecture 4 - Thermodynamics of Chemical Reactions - Part II
- Lecture 5 - Chemical Reaction Kinetics - Overview
- Lecture 6 - Chemical Reaction Kinetics & Reactor Design
- Lecture 7 - Chemical Reactor Design
- Lecture 8 - Problem Solving
- Lecture 9 - Complex Reactions - Introduction
- Lecture 10 - Complex Reactions - Yield & Selectivity
- Lecture 11 - Complex Reactions - Quasi Steady State and Quasi Equilibrium Approximations
- Lecture 12 - Complex Reactions - Kinetics of Chain Reactions & polymerization
- Lecture 13 - Catalytic reactions - Introduction
- Lecture 14 - Catalytic reactions - Adsorption & Desorption
- Lecture 15 - Catalytic reactions - Kinetics
- Lecture 16 - Monomolecular Reaction Network & Lumping Analysis
- Lecture 17 - Problem solving
- Lecture 18 - Gas-solid Catalytic Reactions - External diffusion
- Lecture 19 - Gas-solid Catalytic Reactions - Transport in Catalyst Pellet
- Lecture 20 - Gas-solid Catalytic Reactions - Diffusion & Reaction - I
- Lecture 21 - Gas-solid Catalytic Reactions - Diffusion & Reaction - II
- Lecture 22 - Gas-solid Catalytic Reactions - Diffusion & Reaction - III
- Lecture 23 - Gas-solid Catalytic Reactions - Nonisothermal effects
- Lecture 24 - Gas-solid Noncatalytic Reactions
- Lecture 25 - Gas-Liquid Reactions
- Lecture 26 - Problem solving
- Lecture 27 - Chemical Reactor Design
- Lecture 28 - Chemical Reactor Design
- Lecture 29 - Nonisothermal Reactor Operation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Case Study - Ethane dehydrogenation
- Lecture 31 - Case Study - Hydrogenation of Oil
- Lecture 32 - Case Study - Ammonia Synthesis
- Lecture 33 - Autothermal reactors
- Lecture 34 - Parametric Sensitivity
- Lecture 35 - CSTR - multiple steady states
- Lecture 36 - Stability Analysis - Basics
- Lecture 37 - Stability Analysis - Examples
- Lecture 38 - Nonideal flow and reactor performance - I
- Lecture 39 - Nonideal flow and reactor performance - II
- Lecture 40 - Problem solving

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Fundamentals of Transport Processes

Subject Co-ordinator - Prof. V. Kumaran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Dimensional Analysis
- Lecture 3 - Dimensional Analysis (Continued...)
- Lecture 4 - Dimensionless Groups
- Lecture 5 - Continuum description
- Lecture 6 - Mechanisms of diffusion - I
- Lecture 7 - Mechanisms of diffusion - II
- Lecture 8 - Unidirectional Transport Cartesian Coordinates - I
- Lecture 9 - Unidirectional Transport Cartesian Coordinates - II Similarity Solutions
- Lecture 10 - Unidirectional Transport Cartesian Coordinates - III Similarity Solutions
- Lecture 11 - Unidirectional Transport Cartesian Coordinates - IV Separation of Variables
- Lecture 12 - Unidirectional Transport Cartesian Coordinates - V Separation of Variables
- Lecture 13 - Unidirectional Transport Cartesian Coordinates - VI Oscillatory Flows
- Lecture 14 - Unidirectional Transport Cartesian Coordinates - VII Momentum Source in the Flow
- Lecture 15 - Unidirectional Transport Cartesian Coordinates - VIII Heat & Mass Sources
- Lecture 16 - Unidirectional Transport Cylindrical Coordinates - I Conservation Equations
- Lecture 17 - Unidirectional Transport Cylindrical Coordinates - II Similarity Solutions
- Lecture 18 - Unidirectional Transport Cylindrical Coordinates - III Separation of Variables
- Lecture 19 - Unidirectional Transport Cylindrical Coordinates - IV Steady flow in a pipe
- Lecture 20 - Unidirectional Transport Cylindrical Coordinates - V Oscillatory flow in a pipe
- Lecture 21 - Unidirectional Transport Cylindrical Coordinates - VI Oscillatory flow in a pipe Regular Perturbation
- Lecture 22 - Unidirectional Transport Cylindrical Coordinates - VII Oscillatory flow in a pipe Singular Perturbation
- Lecture 23 - Unidirectional Transport Spherical Coordinates - I Balance Equation
- Lecture 24 - Unidirectional Transport Spherical Coordinates - II Separation of Variables
- Lecture 25 - Mass & Energy Conservation Cartesian Coordinates
- Lecture 26 - Mass & Energy Conservation Cartesian Coordinates Heat Conduction in a Cube
- Lecture 27 - Mass & Energy Conservation Spherical Coordinates Balance Laws
- Lecture 28 - Mass & Energy Conservation Cylindrical Coordinates
- Lecture 29 - Diffusion Equation Spherical Co-ordinates Separation of Variables

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diffusion Equation Spherical Co-ordinates Separation of Variables (Continued...)
- Lecture 31 - Diffusion Equation Spherical Co-ordinates Effective Conductivity of a Composite
- Lecture 32 - Diffusion Equation Spherical Harmonics
- Lecture 33 - Diffusion Equation Delta Functions
- Lecture 34 - Diffusion Equation Multipole Expansions
- Lecture 35 - Diffusion Equation Greens Function Formulations
- Lecture 36 - High Peclet Number Transport Flow Past a Flat Plate
- Lecture 37 - High Peclet Number Transport Heat Transfer from a Spherical Particle - I
- Lecture 38 - High Peclet Number Transport Heat Transfer from a Spherical Particle - II
- Lecture 39 - High Peclet Number Transport Heat Transfer from a Gas Bubble
- Lecture 40 - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Fundamentals of Transport Processes - II

Subject Co-ordinator - Prof. V. Kumaran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Review of Fundamentals of Transport Processes I

Lecture 2 - Introduction

Lecture 3 - Vectors and Tensors

Lecture 4 - Vector calculus

Lecture 5 - Vector calculus

Lecture 6 - Curvilinear co-ordinates

Lecture 7 - Kinematics

Lecture 8 - Rate of deformation tensor

Lecture 9 - Mass conservation equation

Lecture 10 - Momentum conservation equation

Lecture 11 - Angular momentum conservation equation

Lecture 12 - Boundary conditions

Lecture 13 - Mechanical energy conservation

Lecture 14 - Unidirectional flow

Lecture 15 - Viscous flows

Lecture 16 - Viscous flows

Lecture 17 - Flow around a sphere

Lecture 18 - Force on moving sphere

Lecture 19 - Torque on rotating sphere

Lecture 20 - Effective viscosity of a suspension

Lecture 21 - Flow in a corner

Lecture 22 - Lubrication flow

Lecture 23 - Lubrication flow

Lecture 24 - Inertia of a low Reynolds number

Lecture 25 - Potential flow

Lecture 26 - Potential flow around a sphere

Lecture 27 - Two-dimensional potential flow

Lecture 28 - Two-dimensional potential flow

Lecture 29 - Flow around a cylinder

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Conformal transforms in potential flow
- Lecture 31 - Boundary layer theory
- Lecture 32 - Boundary layer past a flat plate
- Lecture 33 - Stagnation point flow
- Lecture 34 - Falkner-Skan Boundary Layer Solutions
- Lecture 35 - Falkner-Skan Boundary Layer Solutions
- Lecture 36 - Vorticity Dynamics
- Lecture 37 - Vorticity Dynamics
- Lecture 38 - Turbulence
- Lecture 39 - Turbulence
- Lecture 40 - Turbulent flow in a channel

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - Modern Instrumental Methods of Analysis

Subject Co-ordinator - Dr. J.R. Mudakavi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Modern Instrumental Methods of Analysis
- Lecture 2 - Atomic Structure
- Lecture 3 - Physical Properties of Electromagnetic Radiation
- Lecture 4 - Interaction of Matter with Radiation
- Lecture 5 - Ultraviolet and Visible Spectrophotometry-1 (i. Theoretical Aspects)
- Lecture 6 - Ultraviolet and Visible Spectrophotometry-2 (ii. Theoretical Aspects)
- Lecture 7 - Ultraviolet and Visible Spectrophotometry-3 (iii. Theoretical Aspects)
- Lecture 8 - Ultraviolet and Visible Spectrophotometry-4 (iv. Instrumentation)
- Lecture 9 - Ultraviolet and Visible Spectrophotometry-5 (v. Instrumentation)
- Lecture 10 - Ultraviolet and Visible Spectrophotometry-6 (vi. Applications)
- Lecture 11 - Fluorescence and Phosphorescence Spectrophotometry-1 (i. Theoretical Aspects)
- Lecture 12 - Fluorescence and Phosphorescence Spectrophotometry-2 (ii. Instrumentation)
- Lecture 13 - Fluorescence and Phosphorescence Spectrophotometry-3 (iii. Application)
- Lecture 14 - Atomic Fluorescence (i. Theoretical aspects)
- Lecture 15 - X- Ray Analytical Techniques-1 (ii. Instrumentation)
- Lecture 16 - X- Ray Analytical Techniques-2 (iii. Applications)
- Lecture 17 - Atomic Absorption Spectrometry-1 (i. Theoretical Aspects)
- Lecture 18 - Atomic Absorption Spectrometry-2 (ii. Theoretical Aspects)
- Lecture 19 - Atomic Absorption Spectrometry-3 (iii. Instrumentation)
- Lecture 20 - Atomic Absorption Spectrometry-4 (iv. Instrumentation)
- Lecture 21 - Atomic Absorption Spectrometry-5 (v. Instrumentation)
- Lecture 22 - Atomic Absorption Spectrometry-6 (vi. Signal handling)
- Lecture 23 - Atomic Absorption Spectrometry-7 (vii. Interferences)
- Lecture 24 - Atomic Absorption Spectrometry-8 (viii. Hydride Generation AAS)
- Lecture 25 - Atomic Absorption Spectrometry-9 (ix. Cold Vapour Mercury AAS)
- Lecture 26 - Electrothermal Atomic Absorption Spectrometry-10 (x. Electrothermal Aspects)
- Lecture 27 - Electrothermal Atomic Absorption Spectrometry-11 (xi. Practical Aspects)
- Lecture 28 - Inductively Coupled Plasma Atomic Emission Spectrometry-1 (i. Theoretical Aspects)
- Lecture 29 - Inductively Coupled Plasma Atomic Emission Spectrometry-2 (ii. Instrumentation)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Inductively Coupled Plasma Atomic Emission Spectrometry-3 (iii. Comparison of ICP & AAS)
- Lecture 31 - Infrared Spectroscopy-1 (i. Theoretical Aspects)
- Lecture 32 - Infrared Spectroscopy-2 (ii. Practical Aspects)
- Lecture 33 - Infrared Spectroscopy-3 (iii. Nondispersive IR, Mass spectrometer)
- Lecture 34 - Introduction to Mass Spectrometry
- Lecture 35 - Introduction to Nuclear Magnetic Resonance Spectroscopy
- Lecture 36 - Fundamentals of Electrochemical Techniques-1 (i. Introduction)
- Lecture 37 - Fundamentals of Electrochemical Techniques-2 (ii. Introduction) (Continued...)
- Lecture 38 - Polarography-1 (i. Introduction)
- Lecture 39 - Polarography-2 (ii. Applications)
- Lecture 40 - Chromatography-1 (i. Introduction)
- Lecture 41 - Gas chromatography-1 (i. Instrumentation)
- Lecture 42 - Gas chromatography-2 (ii. Applications)
- Lecture 43 - Gas chromatography-3 (iii. Applications)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Transport Processes I: Heat and Mass Transfer

Subject Co-ordinator - Prof. V. Kumaran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Transport by convection and diffusion

Lecture 2 - Non-dimensional analysis of beams

Lecture 3 - Dimensional analysis: Force on a particle settling in a fluid

Lecture 4 - Dimensional analysis: Heat transfer in a heat exchanger

Lecture 5 - Dimensional analysis: Mass transfer from a particle suspended in a fluid

Lecture 6 - Dimensional analysis: Power of an impeller

Lecture 7 - Dimensional analysis: Scaling up of an impeller

Lecture 8 - Dimensional analysis: Convection and diffusion

Lecture 9 - Dimensional analysis: Physical interpretation of dimensionless groups

Lecture 10 - Dimensional analysis: Correlations for dimensionless groups

Lecture 11 - Dimensional analysis: Natural and forced convection

Lecture 12 - Continuum description of fluids

Lecture 13 - Conservation equations and constitutive relations

Lecture 14 - Diffusion: Mechanism of mass diffusion in gases

Lecture 15 - Diffusion: Estimation of mass diffusion coefficient

Lecture 16 - Diffusion: Momentum diffusion coefficient

Lecture 17 - Diffusion: Thermal diffusion coefficient

Lecture 18 - Unidirectional transport: Conservation equation for heat and mass transfer

Lecture 19 - Unidirectional transport: Conservation equation for momentum transfer

Lecture 20 - Unidirectional transport: Similarity solution for infinite domain

Lecture 21 - Unidirectional transport: Similarity solution for infinite domain (Continued...)

Lecture 22 - Unidirectional transport: Similarity solution for mass transfer into a falling film

Lecture 23 - Unidirectional transport: Similarity solution for decay of a pulse

Lecture 24 - Unidirectional transport: Similarity solution for decay of a pulse (Continued...)

Lecture 25 - Unidirectional transport: Separation of variables for transport in a finite domain

Lecture 26 - Unidirectional transport: Separation of variables for transport in a finite domain (Continued...)

Lecture 27 - Unidirectional transport: Separation of variables for transport in a finite domain (Continued...)

Lecture 28 - Unidirectional transport: Separation of variables for transport in a finite domain (Continued...)

Lecture 29 - Unidirectional transport: Balance laws in cylindrical co-ordinates. Heat transfer across the wall

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Unidirectional transport: Balance laws in cylindrical co-ordinates. Unsteady heat conduction from a cylinder
- Lecture 31 - Unidirectional transport: Balance laws in cylindrical co-ordinates. Unsteady heat conduction from a cylinder
- Lecture 32 - Unidirectional transport: Balance laws in cylindrical co-ordinates. Unsteady heat conduction from a cylinder
- Lecture 33 - Unidirectional transport: Balance laws in cylindrical co-ordinates. Similarity solution for heat conduction from a cylinder
- Lecture 34 - Unidirectional transport: Effect of body force in momentum transfer. Falling film
- Lecture 35 - Unidirectional transport: Effect of pressure in momentum transfer. Flow in a pipe
- Lecture 36 - Unidirectional transport: Friction factor for flow in a pipe
- Lecture 37 - Unidirectional transport: Laminar and turbulent flow in a pipe
- Lecture 38 - Unidirectional transport: Laminar and turbulent flow in a pipe
- Lecture 39 - Unidirectional transport: Oscillatory flow in a pipe. Solution using complex variables
- Lecture 40 - Unidirectional transport: Oscillatory flow in a pipe. Solution using complex variables
- Lecture 41 - Unidirectional transport: Oscillatory flow in a pipe. Solution using complex variables (Continued...)
- Lecture 42 - Unidirectional transport: Oscillatory flow in a pipe. Low and high Reynolds number solutions
- Lecture 43 - Unidirectional transport: Spherical co-ordinates. Heat conduction from a sphere
- Lecture 44 - Mass and energy balance equations in Cartesian co-ordinates
- Lecture 45 - Mass and energy balance equations in Cartesian co-ordinates
- Lecture 46 - Mass and energy balance equations in spherical co-ordinates
- Lecture 47 - Mass and energy balance equations in spherical co-ordinates
- Lecture 48 - Momentum balance: Incompressible Navier-Stokes equations
- Lecture 49 - Balance equation: Convection and diffusion dominated regimes
- Lecture 50 - Diffusion equation: Heat conduction in a rectangular solid
- Lecture 51 - Diffusion equation: Heat conduction in a rectangular solid (Continued...)
- Lecture 52 - Diffusion equation: Heat conduction around a spherical inclusion
- Lecture 53 - Diffusion equation: Heat conduction around a spherical inclusion
- Lecture 54 - Diffusion equation: Effective conductivity of a composite
- Lecture 55 - Diffusion equation: Spherical harmonic solutions
- Lecture 56 - Diffusion equation: Conduction from a point source
- Lecture 57 - Diffusion equation: Method of Green's functions
- Lecture 58 - Diffusion equation: Method of images
- Lecture 59 - Diffusion equation: Equivalence of spherical harmonics and multipole expansion
- Lecture 60 - High Peclet number forced convection: Boundary layer in flow past a heated plate
- Lecture 61 - High Peclet number forced convection: Boundary layer in flow past a heated plate (Continued...)
- Lecture 62 - High Peclet number forced convection: Flow past a heated sphere
- Lecture 63 - High Peclet number forced convection: Flow past a heated sphere (Continued...)
- Lecture 64 - High Peclet number forced convection: Transport to a falling film
- Lecture 65 - High Peclet number forced convection: Transport to a spherical bubble
- Lecture 66 - High Peclet number forced convection: Solutions for an arbitrary geometry
- Lecture 67 - High Peclet number forced convection: Taylor dispersion
- Lecture 68 - Natural convection: Boussinesq equations for heat transfer

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Natural convection: Boundary layer equations
- Lecture 70 - Natural convection: Boundary layer equations convection
- Lecture 71 - Natural convection: Heat transfer correlations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Atomic and Molecular Absorption Spectrometry for Pollution Mo

Subject Co-ordinator - Dr. J.R. Mudakavi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Introduction

Lecture 2 - Atomic structure

Lecture 3 - Interaction of EM radiation with matter

Lecture 4 - Atomic and molecular orbitals

Lecture 5 - Interaction of EM radiation with matter - I

Lecture 6 - Interaction of EM radiation with matter - II

Lecture 7 - Interaction of interaction of EM radiation with matter - III

Lecture 8 - Emission and absorption spectra

Lecture 9 - MO theory

Lecture 10 - Structure & property relationship of organic compounds

Lecture 11 - Woodward Fieser rules, structure & property relationship

Lecture 12 - Beer-Lamberts law

Lecture 13 - Deviations from Beer-Lamberts law, relative concentration error, instrumentation - I

Lecture 14 - UV-Visible spectrophotometry, instrumentation - II

Lecture 15 - UV-Visible spectrophotometry, instrumentation - III

Lecture 16 - UV-Visible spectrophotometry, instrumentation - IV

Lecture 17 - Quantitative analysis & I

Lecture 18 - Quantitative analysis & II

Lecture 19 - Quantitative analysis & III

Lecture 20 - Quantitative analysis & IV

Lecture 21 - Fluorescence spectrophotometry & I

Lecture 22 - Fluorescence spectrophotometry - II

Lecture 23 - Fluorescence spectrophotometry - III

Lecture 24 - Instrumentation

Lecture 25 - Chemical analysis, applications

Lecture 26 - Chemiluminescence, principles

Lecture 27 - Status of spectrophotometry vis a vis environment

Lecture 28 - Separations methods

Lecture 29 - Method development

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- Lecture 30 - Boron, chloride
- Lecture 31 - Fluoride
- Lecture 32 - Phenols
- Lecture 33 - Arsenic, Free chlorine
- Lecture 34 - Magnesium
- Lecture 35 - Nonionic surfactants, iron, phosphate
- Lecture 36 - Nitrite , manganese
- Lecture 37 - Cadmium, copper, lead
- Lecture 38 - Total hardness, zinc
- Lecture 39 - Nitrate, chromium
- Lecture 40 - Determination of aluminum, cyanide, sulphate
- Lecture 41 - Sulphate, ammonia, Conclusions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Trace and Ultra-trace Analysis of Metals using Atomic Absorption Spectrometry

Subject Co-ordinator - Dr. J.R. Mudakavi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction
- Lecture 2 - Atomic structure - I
- Lecture 3 - Atomic structure - II
- Lecture 4 - Electronic arrangement in the Elements - I
- Lecture 5 - Electronic arrangement in the Elements - II
- Lecture 6 - Interaction of EM radiation with matter - I
- Lecture 7 - Interaction of EM radiation with matter - II
- Lecture 8 - Interaction of EM radiation with matter - III
- Lecture 9 - Interaction of EM radiation with matter - IV
- Lecture 10 - Theoretical basis of AAS - I
- Lecture 11 - Theoretical basis of AAS - II
- Lecture 12 - Theoretical basis of AAS - III
- Lecture 13 - Theoretical basis of AAS - IV
- Lecture 14 - Instrumentation in AAS - I
- Lecture 15 - Instrumentation in AAS - I (Continued...) Radiation Sources
- Lecture 16 - Instrumentation in AAS Radiation Sources
- Lecture 17 - Instrumentation in AAS - III
- Lecture 18 - Instrumentation in AAS - IV
- Lecture 19 - Instrumentation in AAS - V
- Lecture 20 - Instrumentation in AAS - VI
- Lecture 21 - Instrumentation in AAS - VII
- Lecture 22 - Interferences in AAS
- Lecture 23 - Background correction on flame AAS - I
- Lecture 24 - Interferences in AAS - II
- Lecture 25 - Interferences in AAS - III
- Lecture 26 - Hydride Generation AAS - I
- Lecture 27 - Hydride Generation AAS and Cold Vapour Hg AAS
- Lecture 28 - Cold vapor Hg AAS Flame Emission
- Lecture 29 - Mercury cold vapour technique, FAES and Electrothermal AAS

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Electrothermal AAS - II
- Lecture 31 - GF AAS Interferences - I
- Lecture 32 - GF AAS Interferences - II
- Lecture 33 - Interference in ETAAS GF AAS
- Lecture 34 - Individual Elements AAS
- Lecture 35 - Methods, Nomenclature and techniques
- Lecture 36 - Technology and Applications - I
- Lecture 37 - Technology and Applications - II
- Lecture 38 - Conclusions



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Inductive Couple Plasma Atomic Emmission Spectrometry for Pol

Subject Co-ordinator - Dr. J.R. Mudakavi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course introduction and atomic structure - I
- Lecture 2 - Course introduction and atomic structure - II
- Lecture 3 - Course introduction and atomic structure - III
- Lecture 4 - Course introduction and atomic structure - IV
- Lecture 5 - Course introduction and atomic structure - V
- Lecture 6 - Course introduction and atomic structure - VI
- Lecture 7 - Nature of electromagnetic radiation
- Lecture 8 - Interaction of EM radiation with matter - I
- Lecture 9 - Interaction of EM radiation with matter - II
- Lecture 10 - Instrumentation for ICP AES - I
- Lecture 11 - Instrumentation for ICP AES - II
- Lecture 12 - Instrumentation for ICP AES - III
- Lecture 13 - Instrumentation for ICP AES - IV - Optical mountings
- Lecture 14 - Instrumentation for ICP AES - V - Detectors
- Lecture 15 - Instrumentation for ICP AES - VI - ICP Torches
- Lecture 16 - Instrumentation for ICP AES - VII - Plasma characteristics
- Lecture 17 - Instrumentation for ICP AES - VIII - Instruments
- Lecture 18 - Practice and Applications of ICP AES - I - Nebulizers
- Lecture 19 - Practice and Applications of ICP AES - II - Sample handling
- Lecture 20 - Practice and Applications of ICP AES - III - Chemical analysis
- Lecture 21 - Practice and Applications of ICP AES - IV - Chemical analysis
- Lecture 22 - Practice and Applications of ICP AES - V - Chemical analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Infrared Spectroscopy for Pollution Monitoring

Subject Co-ordinator - Dr. J.R. Mudakavi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Analytical Science and Infrared Spectroscopy
- Lecture 2 - Environmental Analytical Science
- Lecture 3 - Techniques of Elemental Analysis
- Lecture 4 - Atomic Structure - I
- Lecture 5 - Atomic Structure - II
- Lecture 6 - Atomic Structure - III
- Lecture 7 - Atomic Structure - IV
- Lecture 8 - Interaction of electromagnetic radiation with matter - I
- Lecture 9 - Interaction of electromagnetic radiation with matter - II
- Lecture 10 - Interaction of electromagnetic radiation with matter - III
- Lecture 11 - Interaction of electromagnetic radiation with matter - IV
- Lecture 12 - Interaction of electromagnetic radiation with matter - V
- Lecture 13 - Interaction of electromagnetic radiation with matter - VI
- Lecture 14 - Infrared spectroscopy - Introduction
- Lecture 15 - Infra Red Instrumentation
- Lecture 16 - Fourier Transform Infrared Spectroscopy
- Lecture 17 - Sample Handling in IR
- Lecture 18 - Instrumentation in IR
- Lecture 19 - Applications of IR
- Lecture 20 - IR Spectra Interpretation
- Lecture 21 - IR Gas Analysers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Electrochemical Technology in Pollution Control

Subject Co-ordinator - Prof. J. R. Mudakavi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Electrochemical technology in Pollution Control

Lecture 2 - Atomic structure - 1

Lecture 3 - Atomic structure - 2

Lecture 4 - Properties of solution - 1

Lecture 5 - Properties of solution - 2

Lecture 6 - Properties of solution - 3

Lecture 7 - Electrogravimetry

Lecture 8 - Conductometry - 1

Lecture 9 - Conductometry - 2

Lecture 10 - Potentiometry - Electrolytic cells - 1

Lecture 11 - Potentiometry - Types of electrode - 2

Lecture 12 - Potentiometry - 3

Lecture 13 - Potentiometry - 4

Lecture 14 - Potentiometry - 5

Lecture 15 - Potentiometry - 6

Lecture 16 - Voltametry and Polarography - 1

Lecture 17 - Voltametry and Polarography - 2

Lecture 18 - Voltametry and Polarography - 3

Lecture 19 - Voltametry and Polarography - 4

Lecture 20 - Karl-Fisher titration - 1, Ion selective electrodes - 1

Lecture 21 - Ion selective electrodes - 2

Lecture 22 - Ion selective electrodes - 3

Lecture 23 - Electrochemical sensors - 1

Lecture 24 - Electrochemical sensors - 2

Lecture 25 - Process waste handling - 1

Lecture 26 - Process waste handling - 2

Lecture 27 - Process waste handling - 3

Lecture 28 - Electroplating - 1

Lecture 29 - Electroplating - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Electroplating - 3
- Lecture 31 - Electroplating - 4
- Lecture 32 - Batteries and fuel cells - 1
- Lecture 33 - Batteries and fuel cells - 2
- Lecture 34 - Batteries and fuel cells - 3
- Lecture 35 - Zero liquid discharge

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Transport Processes

Subject Co-ordinator - Prof. V Kumaran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Dimensions and units
- Lecture 2 - Dimensions and units, dimension of an equation
- Lecture 3 - Dimensional analysis, settling sphere
- Lecture 4 - Dimensional analysis, Brownian diffusivity, torque on a particle
- Lecture 5 - Mass transfer to suspended particles
- Lecture 6 - Heat transfer in a heat exchanger
- Lecture 7 - Momentum transfer, flow in a pipe, friction factor
- Lecture 8 - Dimensionless groups - ratio of convection and diffusion
- Lecture 9 - Dimensionless fluxes, other dimensionless groups
- Lecture 10 - Laminar and turbulent flow in a pipe
- Lecture 11 - Flow past flat plate
- Lecture 12 - Correlations for drag coefficient
- Lecture 13 - Correlations for drag coefficient
- Lecture 14 - Flow through packed column
- Lecture 15 - Unit operations for mixing
- Lecture 16 - Droplet breakup
- Lecture 17 - Heat and mass transfer, Colburn and Reynolds analogy
- Lecture 18 - Low Peclet number heat/mass transfer, high Peclet number laminar flow
- Lecture 19 - High Peclet number laminar/turbulent flows. Flow in pipe, flow past flat plate
- Lecture 20 - High Peclet number laminar/turbulent flows. Flow past particle
- Lecture 21 - Flow past mobile interfaces, flow in packed column
- Lecture 22 - Natural convection
- Lecture 23 - Mass diffusion in gases
- Lecture 24 - Mass diffusion in gases
- Lecture 25 - Mass diffusion in liquids
- Lecture 26 - Thermal diffusion
- Lecture 27 - Momentum diffusion
- Lecture 28 - Dispersion
- Lecture 29 - Turbulent dispersion, dispersion in packed column, Taylor dispersion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Unidirectional transport. Shell balance
- Lecture 31 - Unidirectional transport. Common form of transport equations
- Lecture 32 - Steady solutions, constant diffusivity, parallel and series conduction
- Lecture 33 - Steady solutions, internal source, viscous heating
- Lecture 34 - Steady solutions, flow down inclined plane
- Lecture 35 - Steady solutions, internal source, electrokinetic flow
- Lecture 36 - Steady solutions, internal source, electrokinetic flow
- Lecture 37 - Steady solutions, internal source, diffusion-reaction
- Lecture 38 - Binary diffusion
- Lecture 39 - Binary diffusion
- Lecture 40 - Correlations in balance equations. Transport by diffusion
- Lecture 41 - Correlations in balance equations. Transport by diffusion
- Lecture 42 - Correlations in balance equations. Forced convection
- Lecture 43 - Correlations in balance equations. Forced convection
- Lecture 44 - Correlations in balance equations. Natural convection
- Lecture 45 - Correlations in balance equations. Packed column
- Lecture 46 - Cylindrical co-ordinates. Balance equation
- Lecture 47 - Cylindrical co-ordinates. Steady conduction
- Lecture 48 - Cylindrical co-ordinates. Heat transfer resistance
- Lecture 49 - Cylindrical co-ordinates. Examples
- Lecture 50 - Spherical co-ordinates. Balance equation
- Lecture 51 - Spherical co-ordinates. Heat transfer resistance
- Lecture 52 - Laminar flow in a pipe. Momentum balance
- Lecture 53 - Laminar flow in a pipe. Velocity profile. Friction factor
- Lecture 54 - Laminar flow in a pipe. Friction factor correlation
- Lecture 55 - Laminar flow in a pipe. Examples
- Lecture 56 - Laminar flow in a pipe. Examples
- Lecture 57 - Turbulence. Instability and transition
- Lecture 58 - Turbulent flow in a pipe. Dissipation rate, turbulence scales
- Lecture 59 - Turbulent flow in a pipe. Turbulence cascade
- Lecture 60 - Turbulent flow in a pipe. Structure of turbulence

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Organo Metallic Chemistry

Subject Co-ordinator - Prof.Debabrata Maiti

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction of Organometallic Chemistry

Lecture 2 - Counting of Electrons

Lecture 3 - Ligand Substitution Reactions

Lecture 4 - Oxidative Addition [1. Concerted Mechanism]

Lecture 5 - Oxidative Addition [2. SN2 Mechanism]

Lecture 6 - Oxidative Addition [3. Radical Mechanism]

Lecture 7 - Reductive Elimination

Lecture 8 - Migratory Insertion and Elimination Reactions

Lecture 9 - Migration and Insertion Reactions

Lecture 10 - Alpha-Migratory Insertion and alpha-Elimination Reactions

Lecture 11 - Beta-Migratory Insertion

Lecture 12 - Beta-Elimination Reaction

Lecture 13 - Alpha-Abstraction and beta-Abstraction

Lecture 14 - 4-Center Reactions; [2+2] Reactions

Lecture 15 - External Attack by a Ligand and Reductive Coupling

Lecture 16 - Hydrogenation Reaction

Lecture 17 - Hydrogenation Reaction [Dihydride Catalyst]

Lecture 18 - Stereoselective Hydrogenation Reaction

Lecture 19 - Carbonylation Reaction [1. Monsanto Acetic Acid Process 2. Hydroformylation 3. Hydrocarboxylation]

Lecture 20 - Carbonylation Reaction [1. Hydroformylation 2. Hydrocarboxylation 3. Hydrocyanation]

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemical and Biological Thermodynamics: Principles to A

Subject Co-ordinator - Prof. Nand Kishore

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Fundamentals of Chemical thermodynamics

Lecture 2 - Work

Lecture 3 - Tutorial-1

Lecture 4 - First Law of Thermodynamics

Lecture 5 - Tutorial-2

Lecture 6 - Adiabatic processes

Lecture 7 - Entropy

Lecture 8 - Entropy and Second Law

Lecture 9 - Entropy and Second Law

Lecture 10 - Third Law of Thermodynamics

Lecture 11 - Discussion on Helmholtz energy

Lecture 12 - Discussion on Gibbs Energy

Lecture 13 - Maxwell relations, Properties of Gibbs energy

Lecture 14 - Further discussion on properties of Gibbs energy

Lecture 15 - Fugacity

Lecture 16 - Tutorial session

Lecture 17 - Tutorial session

Lecture 18 - Chemical potential of a substance in mixture

Lecture 19 - Chemical potential of Liquids, Raoult's Law, Henry's Law

Lecture 20 - Thermodynamics of mixing, Excess functions

Lecture 21 - Partial molar volume

Lecture 22 - Activities (Accounting for deviations from Ideal behaviour)

Lecture 23 - Tutorial on thermodynamics of mixing and deviations from ideality

Lecture 24 - Further discussion on relation between  $C_p$  and  $C_v$

Lecture 25 - Chemical Equilibrium

Lecture 26 - Perfect gas equilibria

Lecture 27 - Equilibrium constant

Lecture 28 - Effect of pressure on equilibrium constant and equilibrium composition

Lecture 29 - Effect of temperature on equilibria

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Biological standard states and pH
- Lecture 31 - Tutorial 1 - Equilibrium constant
- Lecture 32 - Tutorial 2 - Equilibrium constant
- Lecture 33 - Acids and bases and Equilibrium concepts
- Lecture 34 - pH Scale Strong and weak acids and bases
- Lecture 35 - Strong and weak acids and bases
- Lecture 36 - Acid-base titrations
- Lecture 37 - pH curve for titration of weak acid with strong base Buffers and indicators
- Lecture 38 - Thermodynamics in systems of biological interest
- Lecture 39 - Calorimetry
- Lecture 40 - Differential scanning calorimetry (DSC)
- Lecture 41 - Further discussion on Differential Scanning Calorimetry (DSC)
- Lecture 42 - Explaining Differential Scanning Calorimetric Profiles (DSC Profiles)
- Lecture 43 - Applications of DSC in thermal unfolding of proteins and protein-solvent interactions
- Lecture 44 - Further discussion on applications of DSC in thermal unfolding of proteins and protein-solvent i
- Lecture 45 - Isothermal Titration calorimetry (ITC)
- Lecture 46 - Further discussion on Isothermal Titration calorimetry (ITC)
- Lecture 47 - ITC Experimental Design and Isothermal Titration Calorimetry (ITC) in Drug Design
- Lecture 48 - Isothermal Titration Calorimetry (ITC) in Drug Design
- Lecture 49 - Isothermal Titration Calorimetry (ITC) in Engineering Binding Affinity
- Lecture 50 - Calorimetry in identifying partially folded states of proteins (Molten Globule State)
- Lecture 51 - Thermodynamic Characterization of Partially Folded States of Proteins
- Lecture 52 - Quantitative Thermodynamic Characterization of Partially Folded States of Proteins
- Lecture 53 - ITC in Drug-Protein Interactions
- Lecture 54 - Identifying sites for Drug-Protein Interactions by ITC
- Lecture 55 - Identifying sites for Drug-Protein Interactions, DSC of Protein-Ligand Complexes. Enthalpy-Entro
- Lecture 56 - Estimation of Binding Constants in Strong to Ultratight Protein-Ligand, Interactions Using Diffe
- Lecture 57 - Continuation of discussion on... Estimation of Binding Constants in Strong to UltratightProtein-
- Lecture 58 - Thermal unfolding of protein by non-calorimetric methods, Addressing thermodynamics of the proce
- Lecture 59 - Titration Calorimetry as a tool to determine thermodynamic and Kinetic parameters of enzymes
- Lecture 60 - Summary of the course on

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemistry of Main Group Elements

Subject Co-ordinator - Prof. M. S. Balakrishna

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Classification of Elements and Periodic Properties
- Lecture 2 - Periodic Properties, Periodic Trends and Classification of Main Group Compounds
- Lecture 3 - Classification of Main Group Compounds
- Lecture 4 - Effective Nuclear Charge
- Lecture 5 - Structure and Bonding Aspects
- Lecture 6 - Structure and Bonding Aspects
- Lecture 7 - Structure and Bonding Aspects
- Lecture 8 - Structure and Bonding Aspects
- Lecture 9 - Structure and Bonding Aspects
- Lecture 10 - Structure and Bonding Aspects
- Lecture 11 - Structure and Bonding Aspects
- Lecture 12 - Structure and Bonding Aspects
- Lecture 13 - Chemistry of Hydrogen
- Lecture 14 - Chemistry of Hydrogen
- Lecture 15 - Chemistry of Hydrogen, Hydrides and Hydrogen Bonding
- Lecture 16 - Chemistry of Group 1 Elements
- Lecture 17 - Chemistry of Group 1 Elements
- Lecture 18 - Chemistry of Group 1 Elements
- Lecture 19 - Chemistry of Group 1 Elements
- Lecture 20 - Chemistry of Group 2 Elements
- Lecture 21 - Chemistry of Group 2 Elements
- Lecture 22 - Chemistry of Group 2 Elements
- Lecture 23 - Chemistry of Group 2 Elements
- Lecture 24 - Chemistry of Group 2 Elements
- Lecture 25 - Chemistry of Group 13 Elements
- Lecture 26 - Chemistry of Group 13 Elements
- Lecture 27 - Chemistry of Group 13 Elements
- Lecture 28 - Chemistry of Group 13 Elements
- Lecture 29 - Chemistry of Group 13 Elements

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Wades Rules
- Lecture 31 - Chemistry of Group 13 Elements
- Lecture 32 - Chemistry of Group 14 Elements
- Lecture 33 - Chemistry of Group 14 Elements
- Lecture 34 - Chemistry of Group 14 Elements
- Lecture 35 - Chemistry of Group 14 Elements
- Lecture 36 - Chemistry of Group 14 Elements
- Lecture 37 - Chemistry of Group 14 Elements
- Lecture 38 - Chemistry of Group 14 Elements
- Lecture 39 - Chemistry of Group 15 Elements
- Lecture 40 - Chemistry of Group 15 Elements
- Lecture 41 - Chemistry of Group 15 Elements
- Lecture 42 - Chemistry of Group 15 Elements
- Lecture 43 - Chemistry of Group 15 Elements
- Lecture 44 - Chemistry of Group 15 Elements
- Lecture 45 - Chemistry of Group 15 Elements
- Lecture 46 - Chemistry of Group 15 Elements
- Lecture 47 - Chemistry of Group 16 Elements
- Lecture 48 - Chemistry of Group 16 Elements
- Lecture 49 - Chemistry of Group 16 Elements
- Lecture 50 - Chemistry of Group 16 Elements
- Lecture 51 - Chemistry of Group 16 Elements
- Lecture 52 - Chemistry of Group 17 Elements
- Lecture 53 - Chemistry of Group 17 Elements
- Lecture 54 - Chemistry of Group 18 Elements
- Lecture 55 - Chemistry of Group 12 Elements
- Lecture 56 - Organometallic Compounds of Main Group Elements
- Lecture 57 - Organometallic Compounds of Main Group Elements
- Lecture 58 - Organometallic Compounds of Main Group Elements
- Lecture 59 - Organometallic Compounds of Main Group Elements
- Lecture 60 - Overall Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Transition Metal Organometallic Chemistry - Principles

Subject Co-ordinator - Prof. P. Ghosh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - History of Organometallic Compounds
- Lecture 2 - Polarity and Reactivity of M-C bonds
- Lecture 3 - Reactivity of Organometallic Compounds
- Lecture 4 - Reactivity of Organometallic Compounds
- Lecture 5 - 18 Valence Electron Rule and Classification
- Lecture 6 - 18 Valence Electron Rule and Classification
- Lecture 7 - Reactivity and types of Organometallic compounds
- Lecture 8 - Sigma-Donor Ligands
- Lecture 9 - Preparation of Sigma-Alkyl Compounds
- Lecture 10 - Preparation and Properties of Sigma-Alkyl Compounds
- Lecture 11 - Properties of Sigma-Alkyl Compounds
- Lecture 12 -  $\beta$  elimination in Sigma-Alkyl Compounds
- Lecture 13 -  $\beta$  elimination in Detail
- Lecture 14 - TM Sigma-Alkyl Complexes and its Application
- Lecture 15 - TM Sigma-Alkyl Complexes and its Application
- Lecture 16 - C-H Activation
- Lecture 17 - C-H Activation in Details
- Lecture 18 - C-H Activation in Details
- Lecture 19 - Characterization of C-H Activation
- Lecture 20 - Bonding in C-H Activation
- Lecture 21 - C-C Bond Activation
- Lecture 22 - C-C Bond Activation
- Lecture 23 - C-C Bond Activation in Details
- Lecture 24 - Transition Metal Perfluoroalkyl (RF-TM) Complexes
- Lecture 25 - Preparation of Transition Metal Perfluoroalkyl (RF-TM) Complexes
- Lecture 26 - C-F Activation
- Lecture 27 - Transition Metal Alkenyl/Aryl Complexes
- Lecture 28 - Transition Metal Aryl Complexes
- Lecture 29 - Transition Metal Aryl/Alkyne Complexes

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- Lecture 30 - Transition Metal Alkyne/Carbene Complexes
- Lecture 31 - Transition Metal Carbene Complexes
- Lecture 32 - Transition Metal Carbene Complexes
- Lecture 33 - Transition Metal Carbene Complexes
- Lecture 34 - Transition Metal Carbene Complexes
- Lecture 35 - Transition Metal Carbene Complexes
- Lecture 36 - Transition Metal Carbene Complexes
- Lecture 37 - Reactivity of Schrock type Carbene Complexes and Transition Metal Carbynes
- Lecture 38 - Transition Metal Carbynes
- Lecture 39 - Transition Metal Carbynes
- Lecture 40 - Transition Metal Carbynes
- Lecture 41 - Properties of Transition Metal Carbynes And Transition Metal Carbonyls
- Lecture 42 - Transition Metal Carbonyls
- Lecture 43 - Transition Metal Carbonyls
- Lecture 44 - Transition Metal Carbonyls
- Lecture 45 - Transition Metal Carbonyls
- Lecture 46 - Transition Metal Carbonyls
- Lecture 47 - Transition Metal Carbonyls
- Lecture 48 - Transition Metal Carbonyl Hydrides
- Lecture 49 - Application of Carbonyl Metallates and Metal Halides
- Lecture 50 - Application of Metal Halides and Metal Alkenes
- Lecture 51 - Transition Metal Olefin Complexes
- Lecture 52 - Transition Metal Olefin Complexes
- Lecture 53 - Transition Metal Olefin Complexes
- Lecture 54 - Bonding Properties in Olefin Complexes
- Lecture 55 - Transition Metal Diolefin Complexes
- Lecture 56 - Transition Metal Diolefin and Alkyne Complexes
- Lecture 57 - Transition Metal Alkyne Complexes
- Lecture 58 - Transition Metal Alkyne Complexes
- Lecture 59 - Transition Metal Alkyne Complexes
- Lecture 60 - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC: Metal Mediated Synthesis-I

Subject Co-ordinator - Prof. Debabrata Maiti

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Asymmetric Hydrogenation

Lecture 2 - Transition Metal Carbenes Fischer and Schrock Carbenes

Lecture 3 - Olefin Metathesis

Lecture 4 - Alkyne Metathesis

Lecture 5 - Cyclopropanation Reaction

Lecture 6 - Catalytic Cyclopropanation Reaction and Introduction to Cross Coupling Reaction

Lecture 7 - Kumada Coupling Reaction

Lecture 8 - Suzuki Coupling Reaction

Lecture 9 - Stille Coupling Reaction

Lecture 10 - Asymmetric Suzuki Coupling Reaction

Lecture 11 - Sonogashira Coupling Reaction

Lecture 12 - Heck Coupling Reaction

Lecture 13 - Asymmetric Heck Reaction Introduction to Buchwald-Hartwig Coupling Reaction

Lecture 14 - Buchwald-Hartwig Coupling Reaction

Lecture 15 - Role of Ligands its Influence in Buchwald-Hartwig Coupling Reaction

Lecture 16 - Oxidative Cyclization Process

Lecture 17 - Application of Oxidative Cyclization in Natural Product Synthesis

Lecture 18 - Synthesis of Reactive Metallacycle Intermediate Via-Beta-Abstraction and their Applications

Lecture 19 - Kulinkovich Reaction and its Mechanism

Lecture 20 - Pauson-Khand Reaction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Inorganic Chemistry of Life: Principles and Perspective

Subject Co-ordinator - Prof. C.P. Rao

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview of inorganic chemistry of life

Lecture 2 - Elements in biology and or life

Lecture 3 - Selection and criteria for elements

Lecture 4 - Biomolecules

Lecture 5 - Coordination in enzymes

Lecture 6 - Amino acids, peptides and proteins - An introduction

Lecture 7 - Nucleoside, nucleotide and nucleic acids and DNA

Lecture 8 - General introduction of metalloproteins

Lecture 9 - Coordination chemistry aspects - An introduction

Lecture 10 - Stability and lability

Lecture 11 - Techniques used inorganic chemistry life

Lecture 12 - Techniques used inorganic chemistry life (Continued...)

Lecture 13 - Techniques used inorganic chemistry life (Continued...)

Lecture 14 - Techniques used inorganic chemistry life (Continued...)

Lecture 15 - Recap on metalloenzymes

Lecture 16 - Role of Alkali, Alkaline earth elements in life

Lecture 17 - Role of Alkali, Alkaline earth elements in life (Continued...)

Lecture 18 - Role of Alkali, Alkaline earth elements in life (Continued...) Ion transport and ionophores

Lecture 19 - Role of Alkali, Alkaline earth elements in life (Continued...) Ion transport and ionophores

Lecture 20 - Functioning of ATPases and nucleases [Na,K]ATPase

Lecture 21 - Role of vanadium in life - General perspectives

Lecture 22 - Role of vanadium in life - Haloperoxidases

Lecture 23 - Enzymes based on manganese in life

Lecture 24 - Role of Iron in life - General perspectives

Lecture 25 - Role of Iron in life - Transport systems

Lecture 26 - Role of Iron in life - Transport and Storage systems

Lecture 27 - Role of Iron in life - Electron transfer

Lecture 28 - Role of Iron in life - Perspectives of electron transfer proteins

Lecture 29 - Role of Iron in life - Monooxygenases

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Role of Iron in life - Mono-and di-oxygenases
- Lecture 31 - Role of Iron in life - Reductases
- Lecture 32 - Role of Iron in life - Reductases and Phosphatases
- Lecture 33 - Role of Iron in life - Reductases and Phosphatases (Continued...)
- Lecture 34 - Role of Cobalt in life
- Lecture 35 - Role of Nickel in life - General perspectives
- Lecture 36 - Role of Nickel in life - Hydrolase, hydrogenase and SOD
- Lecture 37 - Role of Nickel in life - Carbonmonoxide dehydrogenase (CODH)
- Lecture 38 - Role of Copper in life - General perspectives
- Lecture 39 - Role of Copper in life - Type I and Type 2 copper enzymes
- Lecture 40 - Role of Copper in life - Multicenter copper oxidases and SOD
- Lecture 41 - Role of Zinc in life - General perspectives including oxidoreductases and hydrolases
- Lecture 42 - Role of Zinc in life - Carbonic anhydrase and carboxypeptidase
- Lecture 43 - Role of Zinc in life - Transferases, ligases and isomerases
- Lecture 44 - Role of Molybdenum in life - Introductory aspects
- Lecture 45 - Role of Molybdenum in life - Nitrogenase
- Lecture 46 - Role of Molybdenum in life - Oxidoreductases
- Lecture 47 - Role of Mercury in the environment - Mercury reductase
- Lecture 48 - Role of Selenium in life - Glutathione peroxidase
- Lecture 49 - Inorganics in medicine - Introductory aspects and cis-platin
- Lecture 50 - Inorganics in medicine - Apoptosis
- Lecture 51 - Inorganics in medicine - PDT, MRI and Barium tests
- Lecture 52 - Inorganics in medicine - Titanium in biomedical
- Lecture 53 - Highlights of the course - Part I
- Lecture 54 - Highlights of the course - Part II
- Lecture 55 - Highlights of the course - Part III
- Lecture 56 - Highlights of the course - Part IV
- Lecture 57 - Tutorials - Part I
- Lecture 58 - Tutorials - Part II
- Lecture 59 - Tutorials - Part III
- Lecture 60 - Tutorials - Part IV and overall



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Symmetry and Group Theory

Subject Co-ordinator - Prof. Anindya Datta

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Symmetry point group
- Lecture 2 - Symmetry point group
- Lecture 3 - Symmetry point group
- Lecture 4 - Symmetry point group
- Lecture 5 - Symmetry point group
- Lecture 6 - Transformation matrices and Matrix representation
- Lecture 7 - More on Matrix representation
- Lecture 8 - Matrix representation
- Lecture 9 - Introduction to Group Theory
- Lecture 10 - Group Multiplication Tables
- Lecture 11 - Groups and subgroups
- Lecture 12 - Classes, Similarity transformations
- Lecture 13 - Introduction to Matrices
- Lecture 14 - Application of matrices in solution of simultaneous equations
- Lecture 15 - Matrix eigenvalue equation
- Lecture 16 - Matrix eigenvalue equation
- Lecture 17 - Similarity Transformations
- Lecture 18 - Back to transformation matrices
- Lecture 19 - Matrix representation revisited
- Lecture 20 - Function space and Transformation Operators
- Lecture 21 - Transformation Operators form the same group as transformation matrices
- Lecture 22 - Transformation Operators form a unitary representation for orthonormal basis
- Lecture 23 - Transformation Operators
- Lecture 24 - Equivalent representations
- Lecture 25 - Unitary Transformation
- Lecture 26 - Unitary Transformations (Continued...)
- Lecture 27 - Reducible and Irreducible Representations
- Lecture 28 - Irreducible Representations and Great Orthogonality Theorem
- Lecture 29 - Character Tables

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- Lecture 30 - Character Tables
- Lecture 31 - Practice Session
- Lecture 32 - Reducible to Irreducible Representations
- Lecture 33 - Character Tables of Cyclic Groups
- Lecture 34 - Symmetry of Normal Modes
- Lecture 35 - Symmetry of Normal Modes
- Lecture 36 - Symmetry of Normal Modes
- Lecture 37 - Recap
- Lecture 38 - Contribution of internal motion to normal modes
- Lecture 39 - Normal mode analysis
- Lecture 40 - Infrared and Raman spectroscopy
- Lecture 41 - IR and Raman activity
- Lecture 42 - IR and Raman activity
- Lecture 43 - Symmetry Adapted Linear Combinations (SALC)
- Lecture 44 - SALC
- Lecture 45 - SALC
- Lecture 46 - SALC
- Lecture 47 - Projection Operators
- Lecture 48 - Projection Operators (Continued...)
- Lecture 49 - Generating SALCs using Projection Operators
- Lecture 50 - Generating SALCs using Projection Operators (Continued...)
- Lecture 51 - Oh complex and Group-subgroup relation
- Lecture 52 - Group-Subgroup Relation
- Lecture 53 - SALCs as Pi-MO and Cyclopropenyl group
- Lecture 54 - SALCs as Pi-MO, Cyclopropenyl group
- Lecture 55 - SALCs as Pi-MO, Benzene
- Lecture 56 - LCAO Huckel approximation
- Lecture 57 - Huckel approximation
- Lecture 58 - Stationary states, Multiplicity, Ethylene
- Lecture 59 - Napthalene - I
- Lecture 60 - Napthalene - II
- Lecture 61 - Napthalene - III
- Lecture 62 - Transition Metal Complexes
- Lecture 63 - Jahn-Teller Theorem, Tetragonal Distortion MOT
- Lecture 64 - MOT approach of bonding, H<sub>2</sub>O, Ferrocene
- Lecture 65 - MOT approach of bonding, H<sub>2</sub>O, Ferrocene
- Lecture 66 - Derivation
- Lecture 67 - Derivation
- Lecture 68 - Derivation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Computational Chemistry and Classical Molecular Dynamics

Subject Co-ordinator - Prof. B.L. Tembe

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Computational Chemistry

Lecture 2 - Writing Simple Programs

Lecture 3 - Programming Techniques 1 - Evaluating the sine function

Lecture 4 - Programming Techniques 2 - Do loops and if statements

Lecture 5 - Programming Techniques 3 - Roots of a quadratic equation and arrays

Lecture 6 - Programming Techniques 4 - Arrays and matrices

Lecture 7 - Practical Session of Programming 1

Lecture 8 - Programming Techniques 5 - Formats, Functions and Subroutines

Lecture 9 - Programming Techniques 6 - Functions and Subroutines, arranging numbers in as ascending order

Lecture 10 - Programming Techniques 7 - Functions and Subroutines, and the common statement

Lecture 11 - Numerical Methods. Analysis of errors

Lecture 12 - Practical Session on Programming 2 - The exponential function

Lecture 13 - Practical Session on Programming 3 - Functions and Subroutines

Lecture 14 - Interpolation Methods-1

Lecture 15 - Interpolation Methods-2

Lecture 16 - Errors in interpolation, Matrix operations

Lecture 17 - Gauss elimination method for matrix inversion

Lecture 18 - Matrix diagonalization, Similarity transformations

Lecture 19 - Matrix inversion, Matrix diagonalization

Lecture 20 - Curve fitting, Newton Raphson method

Lecture 21 - Random numbers, Numerical integration using Simpson's rule

Lecture 22 - Numerical Integration and Differential Equations

Lecture 23 - Practical Session on Programming 3

Lecture 24 - Scilab-2

Lecture 25 - Scilab-3

Lecture 26 - Scilab-4

Lecture 27 - Scilab-5

Lecture 28 - Scilab-6

Lecture 29 - Classical Molecular Dynamics-2, Force Fields and Equations of Motion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Classical Molecular Dynamics-3, Force Fields and MD Algorithms
- Lecture 31 - Classical MD-4 Thermodynamic Properties and Distribution Functions.
- Lecture 32 - Classical MD-5, Execution of programs on liquid argon
- Lecture 33 - Molecular Dynamics using Gromacs-1
- Lecture 34 - Molecular Dynamics using Gromacs-2
- Lecture 35 - Molecular Dynamics using Gromacs-3
- Lecture 36 - Molecular Dynamics using Gromacs-4
- Lecture 37 - Molecular Dynamics using Gromacs-5
- Lecture 38 - Molecular Dynamics using Gromacs-6
- Lecture 39 - Molecular Dynamics using Gromacs-7
- Lecture 40 - Molecular Dynamics using Gromacs-8
- Lecture 41 - Molecular Dynamics using Gromacs-9

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Molecular Spectroscopy: A Physical Chemists Perspective

Subject Co-ordinator - Prof. Anindya Datta

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Frequency Domain Spectroscopy
- Lecture 2 - Schematics of Instrumentation for FD Spectroscopy
- Lecture 3 - Sensitivity Light Collection and Signal to Noise Ratio
- Lecture 4 - Time Domain Spectroscopy
- Lecture 5 - Frequency Modulation for Fourier Transform Spectroscopy
- Lecture 6 - Rigid Rotor Model for Diatomic Molecules
- Lecture 7 - Recapitulation of Quantum Mechanics
- Lecture 8 - Conditions for Microwave Activity - I
- Lecture 9 - Conditions for Microwave Activity - II
- Lecture 10 - Microwave Spectra
- Lecture 11 - Simple Harmonic Oscillator
- Lecture 12 - Selection Rule
- Lecture 13 - High Resolution IR Spectra
- Lecture 14 - Anharmonic Oscillator and Raman Effect
- Lecture 15 - Semi Classical Treatment
- Lecture 16 - Time Dependent Perturbation Theory
- Lecture 17 - Transition Moment Integral
- Lecture 18 - Transition Probability and Natural Linewidth
- Lecture 19 - Einstein Treatment
- Lecture 20 - Relationship Between Theoretical and Experimental Quantities
- Lecture 21 - Level System
- Lecture 22 - Level System
- Lecture 23 - Laser Basic
- Lecture 24 - Applications of Laser in Spectroscopy
- Lecture 25 - Laser in Spectroscopy
- Lecture 26 - Snapshot of Bond Breaking
- Lecture 27 - Raman Effect
- Lecture 28 - Raman Spectroscopy
- Lecture 29 - Raman Spectroscopy and Beyond Dipole Approximation

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Symmetry in Chemistry
- Lecture 31 - Symmetry Operations
- Lecture 32 - Representations Reducible and Irreducible
- Lecture 33 - Matrix Representation of Symmetry Point Group
- Lecture 34 - Group Theory
- Lecture 35 - Character Table
- Lecture 36 - Mulliken Nomenclature, 2D Irreducible Representations and Bases
- Lecture 37 - Character Tables for Different Symmetry Point Groups
- Lecture 38 - Wave Functions as Basis
- Lecture 39 - Symmetry of Atomic and Molecular Orbitals
- Lecture 40 - Polyatomic Molecules
- Lecture 41 - Determination of Symmetries of Normal Modes of Vibration - I
- Lecture 42 - Determination of Symmetries of Normal Modes of Vibration - II
- Lecture 43 - A Shortcut to Symmetry of Normal Modes
- Lecture 44 - Normal Modes
- Lecture 45 - IR and Raman Activity - I
- Lecture 46 - IR and Raman Activity - II
- Lecture 47 - Electronic Spectroscopy
- Lecture 48 - Electronic Spectra
- Lecture 49 - Rotational Fine Structure
- Lecture 50 - Symmetry of Electronic States
- Lecture 51 - Electronic States of Oxygen
- Lecture 52 - Electronic States and Transitions of Benzene
- Lecture 53 - Vibronic Coupling
- Lecture 54 - Electronic Spectrum of Benzene
- Lecture 55 - Basics of NMR Spectroscopy - I
- Lecture 56 - Basics of NMR Spectroscopy - II
- Lecture 57 - Spin Spin Coupling- AX systems
- Lecture 58 - Coupling in A2 systems
- Lecture 59 - Coupling in A2 systems (Continued...)
- Lecture 60 - NMR
- Lecture 61 - FT NMR 1800 Pulses and Relaxation Phenomenon
- Lecture 62 - Relaxation Phenomenon

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Advanced Transition Metal Organometallic Chemistry

Subject Co-ordinator - Prof. P. Ghosh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Transition Metal Allyl and Enyl Complexes
- Lecture 2 - Transition Metal Allyl and Enyl complexes
- Lecture 3 - Transition Metal Allyl and Enyl complexes
- Lecture 4 - Transition Metal Allyl and Enyl Complexes
- Lecture 5 - Types of Transition Metal Sandwich Complexes
- Lecture 6 - Transition Metal Cyclobutadiene Complexes
- Lecture 7 - Transition Metal Cyclobutadiene Complexes
- Lecture 8 - Transition Metal Cyclobutadiene Complexes
- Lecture 9 - Transition Metal Cyclopentadiene Complexes
- Lecture 10 - Transition Metal Cyclopentadiene Complexes
- Lecture 11 - Transition Metal Cyclopentadiene Complexes
- Lecture 12 - Transition Metal Cyclopentadiene Complexes
- Lecture 13 - Transition Metal Cyclopentadiene Complexes
- Lecture 14 - Transition Metal Cyclopentadiene Complexes
- Lecture 15 - Transition Metal Cyclopentadienyl Carbonyl Complexes
- Lecture 16 - Transition Metal Cyclopentadienyl Carbonyl Complexes
- Lecture 17 - Transition Metal Cyclopentadienyl Nitrosyl Complexes
- Lecture 18 - Transition Metal Cyclopentadienyl Hydride Complexes
- Lecture 19 - Transition Metal Cyclopentadienyl Hydride and Halide Complexes
- Lecture 20 - Transition Metal Cyclopentadienyl Halide Complexes
- Lecture 21 - Transition Metal Cyclopentadienyl Halide and Transition Metal Arene Complexes
- Lecture 22 - Transition Metal Arene Complexes
- Lecture 23 - Transition Metal Arene Complexes
- Lecture 24 - Transition Metal Arene Complexes
- Lecture 25 - Transition Metal Arene Complexes
- Lecture 26 - Transition Metal Arene Carbonyl Complexes
- Lecture 27 - Transition Metal Arene Carbonyl Complexes
- Lecture 28 - Transition Metal Arene Cyclopentadienyl Complexes
- Lecture 29 - Transition Metal Arene Cyclopentadienyl and C<sub>7</sub>H<sub>7</sub> Complexes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transition Metal C<sub>7</sub>H<sub>7</sub> Complexes
- Lecture 31 - Transition Metal C<sub>7</sub>H<sub>7</sub> Complexes
- Lecture 32 - Transition Metal C<sub>8</sub>H<sub>8</sub> and C<sub>7</sub>H<sub>7</sub> Complexes
- Lecture 33 - Transition Metal C<sub>8</sub>H<sub>8</sub> Complexes
- Lecture 34 - Transition Metal  $\pi$ -complexes of heterocycles
- Lecture 35 - C $\rightarrow$ C Cross Coupling Reactions
- Lecture 36 - C $\rightarrow$ C Cross Coupling Reactions
- Lecture 37 - C $\rightarrow$ C Cross Coupling Reactions
- Lecture 38 - C $\rightarrow$ C Cross Coupling Reactions
- Lecture 39 - C $\rightarrow$ C Cross Coupling Reactions
- Lecture 40 - C $\rightarrow$ C Cross Coupling Reactions
- Lecture 41 - C $\rightarrow$ C Cross Coupling Reactions
- Lecture 42 - C $\rightarrow$ C Cross Coupling Reactions
- Lecture 43 - Hydrocyanation Reactions
- Lecture 44 - C $\rightarrow$ E heteroatom Coupling
- Lecture 45 - C $\rightarrow$ E heteroatom Coupling
- Lecture 46 - C $\rightarrow$ E Heteroatom Coupling
- Lecture 47 - C $\rightarrow$ E Heteroatom Coupling
- Lecture 48 - C $\rightarrow$ E Heteroatom Coupling
- Lecture 49 - Organometallic Catalysis Reactions
- Lecture 50 - Organometallic Catalysis Reactions
- Lecture 51 - Organometallic Catalysis Reactions
- Lecture 52 - Organometallic Catalysis Reactions
- Lecture 53 - Organometallic Catalysis Reactions
- Lecture 54 - Organometallic Catalysis Reactions
- Lecture 55 - Organometallic Catalysis Reactions
- Lecture 56 - Organometallic Catalysis Reactions
- Lecture 57 - Organometallic Catalysis Reactions
- Lecture 58 - Organometallic Catalysis Reactions
- Lecture 59 - Organometallic Catalysis Reactions
- Lecture 60 - Summary of Advanced Transition Metal Organometallic Chemistry



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Mechanisms in Organic Chemistry

Subject Co-ordinator - Prof. Nandita Madhavan

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Reaction Mechanisms
- Lecture 2 - Writing Reaction Mechanisms
- Lecture 3 - Types of Polar Reactions
- Lecture 4 - The Radical Reactions
- Lecture 5 - Reaction Co-ordinate Diagrams
- Lecture 6 - The Hammond Postulate
- Lecture 7 - Kinetic versus Thermodynamic Control
- Lecture 8 - Curtin-Hammett Principle
- Lecture 9 - An Introduction to Reaction Kinetics
- Lecture 10 - Deriving the Rate Laws
- Lecture 11 - Distinguishing Reaction Mechanisms Using Rate Laws
- Lecture 12 - Methods to Monitor a Reaction
- Lecture 13 - The Hammett Equation
- Lecture 14 - Linear Free Energy Relationships (LFER)
- Lecture 15 - Hammett Plots for Electronic Effects
- Lecture 16 - Scales used in Hammett Plots
- Lecture 17 - Deviation from Linear Free Energy Relationships
- Lecture 18 - LFER for Sterics
- Lecture 19 - Solvent Effects - Part A
- Lecture 20 - Solvent Effects - Part B
- Lecture 21 - Kinetic Isotope Effect
- Lecture 22 - Primary Kinetic Isotope Effect
- Lecture 23 - Secondary Kinetic Isotope Effect - Part A
- Lecture 24 - Secondary Kinetic Isotope Effect - Part B
- Lecture 25 - Heavy Atom Isotope Effects
- Lecture 26 - Equilibrium Isotope Effects
- Lecture 27 - Isotope Labelling
- Lecture 28 - Trapping Intermediates - Part A
- Lecture 29 - Trapping Intermediates - Part B

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Trapping Intermediates - Part C
- Lecture 31 - Checking for Common Intermediates
- Lecture 32 - Catalysis - Part A
- Lecture 33 - Catalysis - Part B
- Lecture 34 - Specific Catalysis
- Lecture 35 - General Catalysis - Part A
- Lecture 36 - General Catalysis - Part B
- Lecture 37 - Enzyme Catalysis
- Lecture 38 - Electrophilic Catalysis
- Lecture 39 - Other Types of Catalysis
- Lecture 40 - Course Summary

## NPTel Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTel Video Course - Chemistry and Biochemistry - NOC:Metals in Biology

Subject Co-ordinator - Prof. Debabrata Maiti

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Importance of metals in biology
- Lecture 2 - Choice, uptake and assembly of metal ions in cells
- Lecture 3 - Control and use of metal ions concentration in biological systems
- Lecture 4 - Metal mediated folding of biopolymers
- Lecture 5 - Study of binding mode of calcium and zinc in proteins
- Lecture 6 - Electron transfer (ET) in living systems
- Lecture 7 - Oxygen transport and activation
- Lecture 8 - Hydrolytic Enzymes - Part I - Carbonic anhydrase and Liver alcohol dehydrogenase
- Lecture 9 - Hydrolytic Enzymes - Part II - Carbopeptidase
- Lecture 10 - Hydrolytic Enzymes - Part III - Arginase and Urease
- Lecture 11 - Hemerythrin and azidomethemerythrin
- Lecture 12 - Dioxygen reactivity in copper
- Lecture 13 - Cu-O<sub>2</sub> intermediates
- Lecture 14 - Copper-Oxygen chemistry - Part I - Mononuclear copper-oxygen
- Lecture 15 - Copper-Oxygen chemistry - Part II - Cu-O<sub>2</sub> complexes
- Lecture 16 - Copper-Oxygen chemistry - Part III - Reactivity summary
- Lecture 17 - Iron Catalyzed oxidation of unactivated sp<sup>3</sup> C-H bonds - Part I
- Lecture 18 - Iron catalyzed oxidation of unactivated sp<sup>3</sup> C-H bonds - Part II
- Lecture 19 - Iron catalyzed oxidation of unactivated sp<sup>3</sup> C-H bonds - Part III
- Lecture 20 - Nitrous oxide reductase and its model complex
- Lecture 21 - Cytochrome C-oxidase
- Lecture 22 - Systematic variations in O-O stretch in Iron-oxo-copper ligand complex
- Lecture 23 - Mononuclear nonheme iron (NHI) enzymes
- Lecture 24 - Alpha-Keto Glutarate dependent Halogenases
- Lecture 25 - Cytochrome P450 - Part I - Introduction
- Lecture 26 - Cytochrome P450 - Part II - Reactions
- Lecture 27 - Cytochrome P450 - Part III - Mechanism
- Lecture 28 - Cytochrome P450 - Part IV - Role of Cystine ligand and distal charge relay
- Lecture 29 - Methane monooxygenase

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dinuclear Iron active sites for CH<sub>4</sub> to CH<sub>4</sub>OH conversion and its Mechanism
- Lecture 31 - Concerted Vs radical pathway for CH<sub>4</sub> to CH<sub>4</sub>OH conversion
- Lecture 32 - Photosynthesis - Part I
- Lecture 33 - Photosynthesis - Part II
- Lecture 34 - Pumps and channels
- Lecture 35 - Quick summary on O<sub>2</sub> transport
- Lecture 36 - Summary of Dioxygen reactivity in copper
- Lecture 37 - Summary of Dioxygen reactivity in iron
- Lecture 38 - Summary of Fe-O<sub>2</sub> chemistry

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:NMR Spectroscopy for Chemists and Biologists

Subject Co-ordinator - Prof. Ashutosh Kumar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic concepts
- Lecture 2 - Resonance absorption
- Lecture 3 - Bloch Equations
- Lecture 4 - Relaxation
- Lecture 5 - Introduction to Chemical Shift
- Lecture 6 - Factors affecting Isotropic Chemical Shifts
- Lecture 7 - Spin-Spin Coupling
- Lecture 8 - Interpretation of multiplet structure using first order analysis
- Lecture 9 - Analysis of NMR spectra of molecules
- Lecture 10 - Quantum Mechanical Analysis - Part I
- Lecture 11 - Quantum Mechanical Analysis - Part II
- Lecture 12 - Dynamic effects in the NMR Spectra
- Lecture 13 - Fourier Transform NMR
- Lecture 14 - Theorems on Fourier Transform
- Lecture 15 - Practical aspects of Fourier Transform NMR spectra
- Lecture 16 - Data Processing in Fourier Transform NMR
- Lecture 17 - Dynamic range in Fourier Transform NMR
- Lecture 18 - Spin Echo and Solvent Suppression
- Lecture 19 - Spin Decoupling in FT NMR and Relaxation Measurements
- Lecture 20 - Polarization Transfer
- Lecture 21 - Nuclear Overhauser Effect
- Lecture 22 - Steady state NOE and Transient NOE
- Lecture 23 - Distance and NOE
- Lecture 24 - Selective Population Inversion
- Lecture 25 - INEPT and Sensitivity Enhancement
- Lecture 26 - Rotating Frame Experiments
- Lecture 27 - Density matrix description of NMR - I
- Lecture 28 - Density matrix description of NMR - II
- Lecture 29 - Density matrix description of NMR - III

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Time evolution of density operator
- Lecture 31 - Density matrix description of NMR - IV
- Lecture 32 - Evolution of density operator in the presence of RF
- Lecture 33 - Product operator formalism
- Lecture 34 - Product operator formalism (Continued...)
- Lecture 35 - Product operator formalism (Continued...)
- Lecture 36 - Time evolution of basis operators
- Lecture 37 - Observable and Non-observable basis operators, Spin echo
- Lecture 38 - Spin echo (Continued...)
- Lecture 39 - INEPT
- Lecture 40 - Multidimensional NMR Spectroscopy
- Lecture 41 - Two Dimensional NMR - Part I
- Lecture 42 - Two Dimensional NMR - Part II
- Lecture 43 - Types of 2D NMR Spectra
- Lecture 44 - Two Dimensional Separation of Interaction in NMR
- Lecture 45 - Two Dimensional Correlation Experiments - I
- Lecture 46 - Two Dimensional Correlation Experiments - II
- Lecture 47 - Two Dimensional Correlation Experiments - III
- Lecture 48 - Double Quantum Filtered COSY (DQF-COSY)
- Lecture 49 - Two Dimensional Nuclear Overhauser Effect Spectroscopy (2D- NOESY)
- Lecture 50 - Constant-time COSY
- Lecture 51 - Scaling in 2D NMR
- Lecture 52 - Total Correlation Spectroscopy
- Lecture 53 - 2D Heteronuclear Experiment - I
- Lecture 54 - 2D Heteronuclear Experiment - II
- Lecture 55 - Multidimensional NMR
- Lecture 56 - Structure Determination of Peptides by NMR - I
- Lecture 57 - Structure Determination of Peptides by NMR - II
- Lecture 58 - Protein-Ligand Interaction - I
- Lecture 59 - Protein-Ligand Interaction - II
- Lecture 60 - Diffusion Ordered Spectroscopy

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Basics in Inorganic Chemistry

Subject Co-ordinator - Prof.Debabrata Maiti

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Concept of Effective Nuclear Charge

Lecture 2 - Electronic Configuration of Elements

Lecture 3 - Properties of Elements (Size, IE, EA and EN)

Lecture 4 - Extraction of Metals

Lecture 5 - Ellingham Diagram

Lecture 6 - Thermit Process and Zone Refining

Lecture 7 - Coordination Chemistry

Lecture 8 - Crystal Field Theory

Lecture 9 - Crystal Field Theory

Lecture 10 - Crystal Field Theory

Lecture 11 - Application of CFSE

Lecture 12 - Introduction to Molecular Magnetism

Lecture 13 - Problem Solving Approach

Lecture 14 - Magnetism

Lecture 15 - Spectroscopic Term Symbol

Lecture 16 - Magnetic States of Matter

Lecture 17 - Introduction to Bio-Inorganic Chemistry

Lecture 18 - Metalloprotein (Hb, Mb, Transferrin) and Metalloenzyme (Plastocyanin)

Lecture 19 - Oxygen Transportation Mechanism

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Ultrafast Laser Spectroscopy

Subject Co-ordinator - Prof. Anindya Datta

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Steady State Spectra
- Lecture 3 - Spectro Photometer
- Lecture 4 - How to record Absorption and Emission Spectra
- Lecture 5 - Excited state processes
- Lecture 6 - TCSPC for picosecond- Nanosecond Time Domain
- Lecture 7 - TCSPC for picosecond- Nanosecond Time Domain (Continued...)
- Lecture 8 - TCSPC Lab
- Lecture 9 - Data Fitting 1
- Lecture 10 - Data Fitting 2
- Lecture 11 - Femtosecond Fluorescence Upconversion - 1
- Lecture 12 - Femtosecond Fluorescence Upconversion - 2
- Lecture 13 - Femtosecond Fluorescence Upconversion - 3
- Lecture 14 - FOG Lab
- Lecture 15 - Gate Detectors and Streak Camera - Part 1
- Lecture 16 - Gate Detectors and Streak Camera - Part 2
- Lecture 17 - Stimulated Emission
- Lecture 18 - Two Level System
- Lecture 19 - 3 and 4 level system
- Lecture 20 - From CW to Pulsed Laser
- Lecture 21 - Longitudinal modes
- Lecture 22 - Modelocking for short pulses
- Lecture 23 - Modelocking for short pulses (Continued...)
- Lecture 24 - Kerr lens Modelocking for femtosecond pulses
- Lecture 25 - Titanium Sapphire lasers
- Lecture 26 - Active and Passive Modelocking
- Lecture 27 - Modelocking and cavity damping
- Lecture 28 - Ti
- Lecture 29 - Cavity Dumping

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- Lecture 30 - Cavity dumping (Continued...)
- Lecture 31 - Q switching
- Lecture 32 - Stretching and compressing ultrafast laser pulses
- Lecture 33 - Pulse stretcher/Compressor
- Lecture 34 - Chirped pulsed amplification
- Lecture 35 - Oscillators and Amplifier
- Lecture 36 - Alexandrite and fibril lasers
- Lecture 37 - Regenerative amplifier in our lab
- Lecture 38 - Brief overview of nonlinear optical phenomena
- Lecture 39 - Brief overview of nonlinear optical phenomena (Continued...)
- Lecture 40 - Brief overview of nonlinear optical phenomena (Continued...)
- Lecture 41 - SFG and SHG with ultrafast pulses
- Lecture 42 - SFG and SHG with ultrafast pulses (Continued...)
- Lecture 43 - Optical parametric generation and amplification
- Lecture 44 - OPA in our lab TOPAS C - Part 1
- Lecture 45 - OPA in our lab TOPAS C - Part 2
- Lecture 46 - OPA in our lab TOPAS C - Part 3
- Lecture 47 - Snapshots of bond breaking
- Lecture 48 - Twisted Intramolecular Charge Transfer - Part 1
- Lecture 49 - Twisted Intramolecular Charge Transfer - Part 2
- Lecture 50 - Solvation dynamics - Part 1
- Lecture 51 - Solvation dynamics - Part 2
- Lecture 52 - Vibrational energy transfer in water
- Lecture 53 - Excited state proton transfer
- Lecture 54 - Excited state double proton transfer of 7-Azaindole dimer - 1
- Lecture 55 - Excited state double proton transfer of 7-Azaindole dimer - 2
- Lecture 56 - Excited state double proton transfer of 7-Azaindole dimer - 3
- Lecture 57 - Plasmonic nanoparticles - 1
- Lecture 58 - Plasmonic nanoparticles - 2
- Lecture 59 - Nanoclusters
- Lecture 60 - Semiconductor Nanocrystals - Part 1
- Lecture 61 - Semiconductor nanocrystals - Part 2
- Lecture 62 - Radiative and Nonradiative Relaxation Pathways in CdSe Nanocrystals - Part 1
- Lecture 63 - Radiative and Nonradiative Relaxation Pathways in CdSe Nanocrystals - Part 2
- Lecture 64 - Multiexciton in semiconductor nanocrystals - Part 1
- Lecture 65 - Multiexciton in semiconductor nanocrystals - Part 2
- Lecture 66 - Two dimensional Infrared spectroscopy
- Lecture 67 - 2DIR

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Transition Metal Organometallics in Catalysis and Biolo

Subject Co-ordinator - Prof. Prasenjit Ghosh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Reppe Synthesis (Introduction)
- Lecture 3 - Reppe Reactions - Part 1
- Lecture 4 - Reppe Reactions - Part 2
- Lecture 5 - Reppe Reactions - Part 3
- Lecture 6 - Metallative and Conventional Reppeand Metathesis Reaction (Introduction)
- Lecture 7 - Origin of Olefin Metathesis
- Lecture 8 - Mechanistic approaches of Metathesis Reaction - Part 1
- Lecture 9 - Mechanistic approaches of Metathesis Reaction - Part 2
- Lecture 10 - Mechanistic approaches of Metathesis Reaction - Part 3
- Lecture 11 - Mechanistic approaches of Metathesis Reaction - Part 4
- Lecture 12 - Types of Carbenes
- Lecture 13 - Types of Metathesis Reactions
- Lecture 14 - Alkyne Metathesis
- Lecture 15 - Catalysis Development Aspect of Olefin Metathesis - Part 1
- Lecture 16 - Catalysis Development Aspect of Olefin Metathesis - Part 2
- Lecture 17 - Catalysis Development Aspect of Olefin Metathesis - Part 3
- Lecture 18 - Catalysis Development Aspect of Olefin Metathesis - Part 4
- Lecture 19 - Cross Metathesis - Part 1
- Lecture 20 - Cross Metathesis - Part 2
- Lecture 21 - Cross Metathesis - Part 3
- Lecture 22 - Ring Opening Metathesis - Part 1
- Lecture 23 - Ring Opening Metathesis - Part 2
- Lecture 24 - Ring Opening Metathesis - Part 3
- Lecture 25 - Ring Closing Metathesis - Part 1
- Lecture 26 - Ring Closing Metathesis - Part 2
- Lecture 27 - Ring Closing Metathesis - Part 3
- Lecture 28 - Alkyne Metathesis
- Lecture 29 - Alkene Alkyne Metathesis - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Alkene Alkyne Metathesis - Part 2
- Lecture 31 - Alkene Alkyne Metathesis - Part 3
- Lecture 32 - Ring Closing Eneyne Metathesis (RCEYM) - Part 1
- Lecture 33 - Ring Closing Eneyne Metathesis (RCEYM) - Part 2
- Lecture 34 - Ring Closing Eneyne Metathesis (RCEYM) and Alkenes and Alkynes oligomerization reactions
- Lecture 35 - Oligomerization of alkenes and alkynes - Part 1
- Lecture 36 - Oligomerization of alkenes and alkynes - Part 2
- Lecture 37 - Oligomerization of alkenes and alkynes - Part 3
- Lecture 38 - Oligomerization of alkenes and alkynes - Part 4
- Lecture 39 - Alkene oligomerization and Polymerization.
- Lecture 40 - Olefin Polymerization - Part 1
- Lecture 41 - Olefin Polymerization - Part 2
- Lecture 42 - Olefin Polymerization - Part 3
- Lecture 43 - Olefin Polymerization - Part 4
- Lecture 44 - Olefin Polymerization - Part 5
- Lecture 45 - Olefin Polymerization - Part 6
- Lecture 46 - Olefin Polymerization - Part 7
- Lecture 47 - Olefin Polymerization - Part 8
- Lecture 48 - Olefin Polymerization - Part 9
- Lecture 49 - Olefin Polymerization - Part 10
- Lecture 50 - Olefin Polymerization - Part 11
- Lecture 51 - Olefin Polymerization - Part 12
- Lecture 52 - Olefin Polymerization - Part 13
- Lecture 53 - Olefin Polymerization - Part 14
- Lecture 54 - Olefin Polymerization - Part 15
- Lecture 55 - Olefin Polymerization - Part 16
- Lecture 56 - Homo and Copolymerization; Functionalized olefins, Cycloolefins and Diolefins
- Lecture 57 - Non- Group IV Metal based olefin polymerization catalysts
- Lecture 58 - Non- Group IV Metal based olefin polymerization catalysts
- Lecture 59 - Bioorganometallic Chemistry
- Lecture 60 - Overall summary of Transition metal organometallics in catalysis and biology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Quantum Chemistry of Atoms and Molecules

Subject Co-ordinator - Prof. Anindya Datta

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Introduction
- Lecture 2 - Bohr Model and Beyond
- Lecture 3 - The wave nature of matter
- Lecture 4 - Ground Rules
- Lecture 5 - Ground Rules
- Lecture 6 - Particle in a box - Part I
- Lecture 7 - Particle in a box - Part II
- Lecture 8 - Particle in a box - Part III
- Lecture 9 - Particle in a box - Uncertainty Principle
- Lecture 10 - Particle in a box - Uncertainty Principle (Continued...)
- Lecture 11 - Quantum Mechanical Tunneling
- Lecture 12 - Harmonic Oscillator - Part 1
- Lecture 13 - Harmonic Oscillator - Part 2
- Lecture 14 - Harmonic Oscillator - Part 3
- Lecture 15 - Harmonic Oscillators - Wave Functions and Recursion formulae
- Lecture 16 - Harmonic Oscillators - Wave Functions and Recursion formulae (Continued...)
- Lecture 17 - Harmonic Oscillators
- Lecture 18 - Rigid Rotor - Part 1
- Lecture 19 - Rigid Rotor - Part 2
- Lecture 20 - Rigid Rotor - Part 3
- Lecture 21 - Polar Plots of Spherical Harmonics
- Lecture 22 - Angular Momentum
- Lecture 23 - Angular Momentum (Continued...)
- Lecture 24 - Hydrogen Atom
- Lecture 25 - Hydrogen Atom
- Lecture 26 - Hydrogen atom
- Lecture 27 - Radial Probability distribution functions
- Lecture 28 - Hydrogen atom wavefunctions
- Lecture 29 - 2s orbital

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - 2p orbitals
- Lecture 31 - 3pz and 3d orbitals
- Lecture 32 - Atomic orbitals and orbital approximation
- Lecture 33 - Multi electron atoms
- Lecture 34 - He atom wavefunction
- Lecture 35 - Excited states of many electron atoms
- Lecture 36 - Introduction to Perturbation theory
- Lecture 37 - Scope of Perturbation theory
- Lecture 38 - Application of Perturbation theory
- Lecture 39 - Higher order perturbations
- Lecture 40 - Perturbation theory for non-degenerate states
- Lecture 41 - Perturbation Theory for degenerate states
- Lecture 42 - Application of Perturbation Theory for degenerate States
- Lecture 43 - Variation Method
- Lecture 44 - Variational Method (Continued...)
- Lecture 45 - Variational calculations for Harmonic Oscillator and Particle in a Box
- Lecture 46 - Secular equations in Variational calculations
- Lecture 47 - Secular equations for particle in a box
- Lecture 48 - Variational calculation for particle in a box (Continued...)
- Lecture 49 - Perturbation theory for many electron atoms
- Lecture 50 - Variational method for many electron atoms
- Lecture 51 - Hartree-Fock Equations and Self Consistent Fields
- Lecture 52 - Hartree-Fock Equations for He - Part 1
- Lecture 53 - Hartree-Fock Equations for He - Part 2
- Lecture 54 - Electronic Wavefunctions of He atom
- Lecture 55 - Valance Bond Theory and homonuclear diatomics - Part 1
- Lecture 56 - Valance Bond Theory and homonuclear diatomics - Part 2
- Lecture 57 - Molecular shape and hybrid orbitals
- Lecture 58 - sp<sup>2</sup> hybridization
- Lecture 59 - sp<sup>3</sup> hybridization
- Lecture 60 - Non-equivalent hybrid orbitals
- Lecture 61 - Molecular Orbital Theory for H<sub>2</sub><sup>+</sup>
- Lecture 62 - Molecular orbital theory for homonuclear diatomic molecules
- Lecture 63 - Beyond Homonuclear diatomic molecules
- Lecture 64 - MOT for polyatomic molecules
- Lecture 65 - Huckel MOT-1
- Lecture 66 - Huckel MOT-2
- Lecture 67 - The last word

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Basic Statistical Mechanics

Subject Co-ordinator - Prof. Biman Bagchi

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Why Study Statistical Mechanics?

Lecture 2 - Thermodynamics

Lecture 3 - Probability Theory - Part 1

Lecture 4 - Probability Theory - Part 2

Lecture 5 - Fundamental concepts and Postulates of Statistical Mechanics - Part 1

Lecture 6 - Fundamental concepts and Postulates of Statistical Mechanics - Part 2

Lecture 7 - From Postulates to Formulation

Lecture 8 - Microcanonical Ensemble

Lecture 9 - Relation with Thermodynamics in Microcanonical Ensemble - Part 1

Lecture 10 - Relation with Thermodynamics in Microcanonical Ensemble - Part 2

Lecture 11 - Canonical Ensemble - Part 1

Lecture 12 - Canonical Ensemble - Part 2

Lecture 13 - Thermodynamic Potential for Canonical ensemble

Lecture 14 - Grand Canonical Ensemble

Lecture 15 - Thermodynamic Potentials for Grand Canonical and Isothermal-Isobaric ensembles

Lecture 16 - Fluctuations and Response Function - Part 1

Lecture 17 - Fluctuations and Response Function - Part 2

Lecture 18 - Ideal Monatomic Gas

Lecture 19 - Ideal Monatomic Gas

Lecture 20 - Ideal Monatomic Gas

Lecture 21 - Ideal Monatomic Gas

Lecture 22 - Ideal Monatomic Gas

Lecture 23 - Ideal Gas of Diatomic Molecules

Lecture 24 - Ideal Gas of Diatomic Molecules

Lecture 25 - Ideal Gas of Diatomic Molecules

Lecture 26 - Ideal Gas of Diatomic Molecules

Lecture 27 - Ideal Gas of Polyatomic molecules

Lecture 28 - Cluster Expansion and Mayer's Theory of Condensation - Part 1

Lecture 29 - Cluster Expansion and Mayer's Theory of Condensation - Part 2

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cluster Expansion and Mayer's Theory of Condensation - Part 3
- Lecture 31 - Cluster Expansion and Mayer's Theory of Condensation - Part 4
- Lecture 32 - Cluster Expansion and Mayer's Theory of Condensation - Part 5
- Lecture 33 - Cluster Expansion and Mayer's Theory of Condensation - Part 6
- Lecture 34 - Phase Transition and Landau Theory - Part 1
- Lecture 35 - Phase Transition and Landau Theory - Part 2
- Lecture 36 - Phase Transition and Landau Theory - Part 3
- Lecture 37 - Comments on some important Concepts of Statistical Mechanics
- Lecture 38 - Nucleation Part 1
- Lecture 39 - Nucleation Part 2
- Lecture 40 - Nucleation Part 3
- Lecture 41 - Nucleation Part 4
- Lecture 42 - Spinodal Decomposition and Pattern Formation
- Lecture 43 - Spinodal Decomposition and Pattern Formation
- Lecture 44 - Ising Model and Other Lattice Models - Part 1
- Lecture 45 - Ising Model and Other Lattice Models - Part 2
- Lecture 46 - Ising Model and Other Lattice Models - Part 3
- Lecture 47 - Ising Model and Other Lattice Models - Part 4
- Lecture 48 - Ising Model and Other Lattice Models - Part 5
- Lecture 49 - Binary Mixtures
- Lecture 50 - Binary Mixtures
- Lecture 51 - Theory of Liquids - Part 1
- Lecture 52 - Theory of Liquids - Part 2
- Lecture 53 - Theory of Liquids - Part 3
- Lecture 54 - Theory of Liquids - Part 4
- Lecture 55 - Polymers in Solution and Polymer Collapse - Part 1
- Lecture 56 - Polymers in Solution and Polymer Collapse - Part 2
- Lecture 57 - Polymers in Solution and Polymer Collapse - Part 3
- Lecture 58 - Polymers in Solution and Polymer Collapse - Part 4
- Lecture 59 - Computer Simulation Methods in Statistical Mechanics - Part 1
- Lecture 60 - Computer Simulation Methods in Statistical Mechanics - Part 2
- Lecture 61 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Quantum Mechanics and Molecular Spectroscopy

Subject Co-ordinator - Prof. Naresh Patwari

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to quantum Mechanics - Part 1
- Lecture 2 - Introduction to quantum Mechanics - Part 2
- Lecture 3 - Introduction to quantum Mechanics - Part 3
- Lecture 4 - Time Dependant Perturbation Theory of Two states - Part 1
- Lecture 5 - Time Dependent Perturbation Theory of Two States - Part 2
- Lecture 6 - Time Dependent Perturbation Theory of Two States - Part 3
- Lecture 7 - Time Dependent Perturbation Theory of Many States - Part 1
- Lecture 8 - Time Dependent Perturbation Theory of Many States - Part 2
- Lecture 9 - First-Order Correction to Time- Dependent Perturbation Theory
- Lecture 10 - Properties of Light (Classical Treatment)
- Lecture 11 - Interaction Hamiltonian - Part 1
- Lecture 12 - Interaction Hamiltonian - Part 2
- Lecture 13 - Interaction Hamiltonian - Part 3
- Lecture 14 - Transition Moment Integral
- Lecture 15 - Absorption Probability - Part 1
- Lecture 16 - Absorption Probability - Part 2
- Lecture 17 - Transition to Continuum States
- Lecture 18 - Einstein's Coefficient - Part 1
- Lecture 19 - Einstein's Coefficient - Part 2
- Lecture 20 - Einstein's Coefficient - Part 3
- Lecture 21 - Spontaneous Emission Lifetime
- Lecture 22 - Relationship between Transition Dipole and Extinction Coefficient
- Lecture 23 - Spectral Lineshapes
- Lecture 24 - Selection Rules
- Lecture 25 - Molecular Rotations - Part 1
- Lecture 26 - Molecular Rotations - Part 2
- Lecture 27 - Molecular Rotations - Part 3
- Lecture 28 - Rotational Selection Rules
- Lecture 29 - Rotational Spectrum

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Molecular Vibrations - Part 1
- Lecture 31 - Molecular Vibrations - Part 2
- Lecture 32 - Vibrational Selection rules
- Lecture 33 - Electronic Transition
- Lecture 34 - Rotations of Polyatomic Molecules - Part 1
- Lecture 35 - Rotations of Polyatomic Molecules - Part 2
- Lecture 36 - Selection Rules for particle in a box
- Lecture 37 - Interpretation of Rotational Spectra
- Lecture 38 - Features of vibrational and electronic spectroscopy

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Essentials of Oxidation, Reduction and C-C Bond Formation

Subject Co-ordinator - Prof. Yashwant D Vankar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to organic synthesis-Importance of selectivity, stereochemistry and Mechanism
- Lecture 2 - Sulfur based oxidations of alcohols
- Lecture 3 - Sulfur based oxidations and Pummerer rearrangement
- Lecture 4 - Further aspects of sulfur and selenium based oxidations
- Lecture 5 - Organoselenium chemistry and SeO<sub>2</sub> based oxidations
- Lecture 6 - SeO<sub>2</sub> based oxidation of ketones and Sulfoxide- Sulfenate rearrangement (Mislow-Evans rearrangement)
- Lecture 7 - Mechanistic and stereochemical aspects of Mislow-Evans rearrangement and synthetic applications
- Lecture 8 - Further synthetic applications of Mislow-Evans rearrangement and Saegusa-Ito oxidation
- Lecture 9 - 1,2-Ketone transpositions, Shapiro reaction and Dauben-Michno rearrangement (a case of 1,3-enone)
- Lecture 10 - Dess-Martin periodinane oxidation
- Lecture 11 - Iodoxybenzoic acid (IBX) based oxidations
- Lecture 12 - Silver based oxidations: Prevost reaction and use of Fetizon's reagent
- Lecture 13 - Further aspects of oxidations using Fetizon's reagent: Mechanism and Stereochemistry
- Lecture 14 - Ruthenium tetroxide (and RuCl<sub>3</sub>/NaIO<sub>4</sub>) mediated oxidations
- Lecture 15 - Tetra-n-propylammonium perruthenate (TPAP) based oxidations, and Tamao-Fleming oxidation
- Lecture 16 - Further synthetic and mechanistic aspects of Tamao-Fleming oxidations
- Lecture 17 - Oxidations with dimethyl dioxirane (DMDO)
- Lecture 18 - Mechanistic aspects of DMDO based oxidations and oxaziridine mediated alpha-hydroxylations of ketones
- Lecture 19 - Asymmetric alpha-hydroxylations using oxaziridine based reactions
- Lecture 20 - Barton and related reactions (oxidation at unfunctionalised carbons) and synthetic applications
- Lecture 21 - beta-Cleavage in Barton and related reactions and miscellaneous oxidations such as TEMPO based oxidations
- Lecture 22 - Reductions in organic chemistry: Metal hydride (NaBH<sub>4</sub> and LiAlH<sub>4</sub>) mediated reduction
- Lecture 23 - Reductions using diisobutylaluminum hydride (DIBAL-H)
- Lecture 24 - Further aspects of DIBAL-H based reductions and comparison with mixed chloride hydrides
- Lecture 25 - Reductions with Red-Al, and Luche Reductions
- Lecture 26 - Further aspects of Luche reduction, stereochemistry in reductions and reduction with LiBH<sub>4</sub>
- Lecture 27 - Reductions with Zn(BH<sub>4</sub>)<sub>2</sub>, LiBHET<sub>3</sub> (superhydride) and L and K-selectrides
- Lecture 28 - Reductions with LS/KS selectrides and NaCNBH<sub>3</sub>
- Lecture 29 - Dissolving metal reductions (Na, K, Mg) and McMurry coupling using Ti(0)

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- Lecture 30 - Stereochemistry and mechanistic aspects of McMurry coupling and metal mediated reductions of alky
- Lecture 31 - Silanes [R<sub>3</sub>SiH, including polymethylhydrosiloxanes (PMHS)] as reducing agents
- Lecture 32 - Further aspects of silanes as reducing agents and Barton-McCombie deoxygenation
- Lecture 33 - Tributyltinhydride (n-Bu<sub>3</sub>SnH) based radical based reductions and C-C bond formations
- Lecture 34 - Asymmetric synthesis: An introduction
- Lecture 35 - Sharpless asymmetric epoxidation: Mechanism, stereochemistry and kinetic resolution
- Lecture 36 - Synthetic utility of chiral 2,3-epoxy alcohols obtained from Sharpless epoxidation
- Lecture 37 - Katsuki-Jacobsen epoxidation: Mechanism and stereochemistry
- Lecture 38 - Further aspects of Katsuki-Jacobsen epoxidation, and Introduction to Sharpless Asymmetric Dihydro
- Lecture 39 - Mechanism, stereochemical aspects and synthetic applications of Sharpless Asymmetric Dihydroxyla
- Lecture 40 - Asymmetric hydrogenations and reductions using rhodium and ruthenium derived chiral catalysts
- Lecture 41 - Asymmetric reduction with oxazaborolidines
- Lecture 42 - C-C bond formations: Introduction to enolate, enamine and enol silyl ether based chemistry
- Lecture 43 - C-C bond formations using enol silyl ether and imine based chemistry including SAMP and RAMP bas
- Lecture 44 - Asymmetric C-C bond formations using Oppolzer's camphorsultams and introduction to directed Al
- Lecture 45 - Further aspects of Aldol chemistry including the use of boron and silicon enolates
- Lecture 46 - C-C bond formations using Evans's oxazolidinone based chemistry
- Lecture 47 - Ireland-Claisen rearrangement: Emphasis of enolate geometry on the stereochemical outcome, and C
- Lecture 48 - Aromatic Claisen rearrangement, Johnson-Claisen rearrangement and Eschenmoser-Claisen rearrangem
- Lecture 49 - Bellus-Claisen rearrangement, Aza-Claisen rearrangement, Thia-Claisen rearrangement, Chen-Mapp r
- Lecture 50 - Zwitterionic-Claisen rearrangement, Overmann rearrangement, Bamford- Stevens and Shapiro reactio
- Lecture 51 - Introduction to allyl metal additions for C-C bond formation
- Lecture 52 - Allylindium chemistry: Mechanism, stereochemistry and synthetic applications
- Lecture 53 - Allyltin chemistry: Mechanism, stereochemistry and synthetic applications
- Lecture 54 - Chemistry of allylsilanes: Mechanism, stereochemistry and synthetic applications - Part 1
- Lecture 55 - Further synthetic aspects of the chemistry of allylsilanes - Part 2
- Lecture 56 - Further synthetic aspects of the chemistry of allylsilanes - Part 3
- Lecture 57 - Chemistry of Vinylsilanes: Mechanism, Stereochemistry and Synthetic Applications
- Lecture 58 - Peterson olefination and further synthetic aspects of vinylsilane chemistry
- Lecture 59 - Simmons Smith cyclopropanation: Mechanism, stereochemistry and synthetic applications
- Lecture 60 - Course Summary and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemical Kinetics and Transition State Theory

Subject Co-ordinator - Prof. Amber Jain

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Rate: the reaction velocity
- Lecture 2 - Its elementary - rate law equations
- Lecture 3 - Arrhenius equation: what's the fuss about?
- Lecture 4 - Dance of atoms: from Newton to Hamilton
- Lecture 5 - Boltzmann distribution: a story of Hamilton, Liouville and Boltzmann
- Lecture 6 - Maxwell Boltzmann distribution: how fast are molecules moving?
- Lecture 7 - Kinetic theory of collisions: initial estimate
- Lecture 8 - Boltzmann distribution and kinetic theory of collisions
- Lecture 9 - Kinetic theory of collisions: a discussion
- Lecture 10 - Kinetic theory of collisions: reactive cross section
- Lecture 11 - Problem solving session - 1
- Lecture 12 - Problem solving session - 2
- Lecture 13 - Kinetic theory of collision and equilibrium constant
- Lecture 14 - Critique of kinetic theory of collisions
- Lecture 15 - Transition state theory and partition functions
- Lecture 16 - Partitioning the partition function
- Lecture 17 - Translating, rotating and vibrating quantum mechanically
- Lecture 18 - Partition function and equilibrium constant
- Lecture 19 - What is a transition state?
- Lecture 20 - A puzzle: cars on highway
- Lecture 21 - Transition state theory: derivation 1
- Lecture 22 - Practical calculation of TST rate
- Lecture 23 - Calculating TST rate for the reaction  $H+HBr$
- Lecture 24 - Collision theory as a special case of TST
- Lecture 25 - TST: an intuitive proof in one dimension
- Lecture 26 - Rate as a flux across a dividing surface
- Lecture 27 - Transition state theory: derivation 2 from dynamical perspective
- Lecture 28 - Discussion of the assumptions of TST
- Lecture 29 - Thermodynamic formulation of TST

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problem solving session - 3
- Lecture 31 - Problem solving session - 4
- Lecture 32 - Hills and valleys of potential energy surfaces
- Lecture 33 - Molecular dynamics: rolling spheres on potential energy surfaces
- Lecture 34 - Predictions from potential energy surfaces - rotational vs vibrational energies
- Lecture 35 - Free energy and potential of mean force
- Lecture 36 - Transmission coefficient and molecular dynamics
- Lecture 37 - Problem solving session - 5
- Lecture 38 - Microcanonical rate constant: putting balls in jars
- Lecture 39 - Microcanonical rate constant: RRK model
- Lecture 40 - Microcanonical rate constant: magic of Marcus - RRKM model
- Lecture 41 - Canonical TST from microcanonical RRKM model
- Lecture 42 - Sum and density of states
- Lecture 43 - Unimolecular decay - revisited
- Lecture 44 - Unimolecular decay: RRK's approach
- Lecture 45 - Unimolecular decay: RRKM's approach
- Lecture 46 - Problem solving session - 6

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Concepts of Chemistry for Engineering

Subject Co-ordinator - Prof. Anindya Datta

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to quantum theory
- Lecture 2 - Schrodinger's theory
- Lecture 3 - Laws of quantum mechanics
- Lecture 4 - Wave functions
- Lecture 5 - Quantum mechanics of a free particle
- Lecture 6 - Particle in 1D box
- Lecture 7 - Particle in 2D box
- Lecture 8 - Spherical polar coordinates and angular momentum
- Lecture 9 - Developing Hydrogen atom orbitals - 1
- Lecture 10 - Developing Hydrogen atom orbitals - 2
- Lecture 11 - Developing Hydrogen atom orbitals - 3
- Lecture 12 - Visualizing molecular orbitals
- Lecture 13 - Molecular orbital theory 1: Introduction
- Lecture 14 - Molecular orbital theory 2: Diatomic molecules
- Lecture 15 - Molecular orbital theory 3: Homo-diatomic molecules - I
- Lecture 16 - Molecular orbital theory 4: Homo-diatomic molecules - II
- Lecture 17 - Molecular orbital theory 5: Hetero-diatomic molecules
- Lecture 18 - Molecular orbital theory 6: Polyatomic molecules
- Lecture 19 - Molecular orbital theory 7: Ethylene (Introduction to Huckel's theory) - I
- Lecture 20 - Molecular orbital theory 8: Ethylene (Introduction to Huckel's theory) - II
- Lecture 21 - Molecular orbital theory 9: Butadiene - I
- Lecture 22 - Molecular orbital theory 9: Butadiene - II
- Lecture 23 - Concept of effective nuclear charge
- Lecture 24 - Electronic configuration of elements
- Lecture 25 - Properties of Elements (Size, IE, EA and EN)
- Lecture 26 - Polarizability
- Lecture 27 - Hard soft acid base
- Lecture 28 - Predicting molecular structures: VSEPR theory
- Lecture 29 - Coordination Chemistry: 18 electron rule and VBT

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- Lecture 30 - Crystal Field Theory: Octahedral Complex
- Lecture 31 - Crystal Field Theory: Tetrahedral Complex
- Lecture 32 - Crystal Field Theory: Octahedral vs. Tetrahedral Complex
- Lecture 33 - Application of CFSE: Spinel and J-T Distortion
- Lecture 34 - Introduction to Molecular Magnetism
- Lecture 35 - Problem Solving Approach
- Lecture 36 - Magnetism
- Lecture 37 - Spectroscopic Term Symbol
- Lecture 38 - Magnetic States of Matter: Paramagnetic, Ferro and Antiferromagnetic
- Lecture 39 - Band structures of solid materials
- Lecture 40 - Density of states and doping in semiconductors
- Lecture 41 - Introduction to molecular spectroscopy
- Lecture 42 - Rotational spectroscopy
- Lecture 43 - Vibrational spectroscopy
- Lecture 44 - Electronic Spectroscopy - I
- Lecture 45 - Electronic Spectroscopy - II
- Lecture 46 - Electronic Spectroscopy - III
- Lecture 47 - Fluorescence Spectroscopy
- Lecture 48 - Fundamentals of NMR spectroscopy and MRI
- Lecture 49 - Surface characterization techniques
- Lecture 50 - Introduction to thermodynamics: Work, heat and energy
- Lecture 51 - First law of thermodynamics: Diathermic and adiabatic systems, exothermic and endothermic processes
- Lecture 52 - Enthalpy, Hess's law
- Lecture 53 - Second law of thermodynamics: Entropy and third law of thermodynamics
- Lecture 54 - Helmholtz and Gibbs free energies, Concept of spontaneity
- Lecture 55 - Electrochemical equilibrium, Nernst equation
- Lecture 56 - Acid base and solubility equilibria
- Lecture 57 - Corrosion
- Lecture 58 - Extraction of metals
- Lecture 59 - Ellingham Diagram
- Lecture 60 - Problems From Thermodynamics
- Lecture 61 - Intermolecular forces: Electrostatic and Ion-Dipole Interaction
- Lecture 62 - Intermolecular forces: Dipole-dipole, hydrogen bonding
- Lecture 63 - Real gases - Part 1
- Lecture 64 - Real gases - Part 2
- Lecture 65 - Introduction to Potential Energy Surfaces
- Lecture 66 - Potential energy surface of H<sub>3</sub> system
- Lecture 67 - Salient features of H<sub>3</sub> potential energy surface
- Lecture 68 - Potential Energy Surfaces of HCN and H<sub>2</sub>F system

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- Lecture 69 - Representation of three dimensional structures
- Lecture 70 - Structural isomers and stereoisomers
- Lecture 71 - Configurations, Symmetry and Chirality
- Lecture 72 - Enantiomers and Diastereomers
- Lecture 73 - Optical activity, Conformational analysis, and absolute configuration
- Lecture 74 - Substitution reactions
- Lecture 75 - Elimination reactions
- Lecture 76 - Addition, Oxidation and Reduction reactions
- Lecture 77 - Synthesis of a drug molecule



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Classics in Total Synthesis-I

Subject Co-ordinator - Prof. Krishna P Kaliappan

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview - 1
- Lecture 2 - Overview - 2
- Lecture 3 - Overview - 3
- Lecture 4 - Illudin M (Kinder) Illudin C (Funk)
- Lecture 5 - Total Synthesis of FR900848 (Barrett)
- Lecture 6 - Total Synthesis of Cubane
- Lecture 7 - Total Synthesis of Endiandric acids
- Lecture 8 - Total Synthesis of Penicilin
- Lecture 9 - Total Synthesis of Thienamycin
- Lecture 10 - Total Synthesis of Prostaglandin (Corey)
- Lecture 11 - Total Synthesis of Prostaglandin (Johnson and Stork)
- Lecture 12 - Total Synthesis of Biotin and Lactacystin (i) Corey, (ii) Baldwin
- Lecture 13 - Total Synthesis of Triquinanes: Isocomene 1) M. Pirrung 2) Fitjer
- Lecture 14 - Total Synthesis of Triquinanes: Isocomene and Silphiperfol-6-en-5-one (Rawal)
- Lecture 15 - Total synthesis of Triquinanes by radical cyclisation - I (Curran)
- Lecture 16 - Total synthesis of Triquinanes by radical cyclisation - II
- Lecture 17 - Total synthesis of Triquinanes by photochemical reaction - I
- Lecture 18 - Total synthesis of Triquinanes by photochemical reaction - II
- Lecture 19 - Total synthesis of Triquinanes by Thermal Metathesis (Mehta)
- Lecture 20 - Total synthesis of Triquinanes by other reactions
- Lecture 21 - Total synthesis of Longifolene (Corey and Oppolzer)
- Lecture 22 - Total synthesis of Carpanone (Chapman)
- Lecture 23 - Total synthesis of Mevinolin (Clive)
- Lecture 24 - Total synthesis of Gibberellic Acid (Corey)
- Lecture 25 - Total synthesis of Gibberellic Acid (Yamada)
- Lecture 26 - Total synthesis of Perhydrohistrionicotoxin (Corey)
- Lecture 27 - Total synthesis of Strychnine (Woodward)
- Lecture 28 - Total synthesis of Strychnine (Rawal and Overman)
- Lecture 29 - Total synthesis of Strychnine (Kuehne)

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- Lecture 30 - Total synthesis of Reserpine (Woodward)
- Lecture 31 - Total synthesis of Yohimbine (Tamelen and Momose)
- Lecture 32 - Total synthesis of Quinine (Woodward and Stork)
- Lecture 33 - Total synthesis of Dendrobine (Livinghouse)
- Lecture 34 - Total synthesis of Morphine (Gates and Overman)
- Lecture 35 - Total synthesis of Morphine (Parker and White)
- Lecture 36 - Total synthesis of Methyldhomosecodaphniphyllate (Heathcock)
- Lecture 37 - Total synthesis of Lysergic acid (Woodward and Oppolzer)
- Lecture 38 - Total synthesis of Galanthamine (Barton and Kirby)
- Lecture 39 - Total synthesis of Epibatidine (Trost and Evans)
- Lecture 40 - Total synthesis of Swainsonine (Hashimoto)
- Lecture 41 - Total synthesis of Staurosporine (Danishefsky and Wood)
- Lecture 42 - Total synthesis of Manzamine A (Winkler)
- Lecture 43 - Total synthesis of Progesterone (Johnson)
- Lecture 44 - Total synthesis of Progesterone from Diosgenin (Marker)
- Lecture 45 - Total synthesis of Estrone (Torgov)
- Lecture 46 - Total synthesis of Taxol (Nicolaou)
- Lecture 47 - Total synthesis of Taxol (Holton)
- Lecture 48 - Total synthesis of Taxol (Danishefsky)
- Lecture 49 - Total synthesis of Taxol (Wender)
- Lecture 50 - Total synthesis of Eleutherobin (Nicolaou)
- Lecture 51 - Total synthesis of Eleutherobin (Danishefsky)
- Lecture 52 - Total synthesis of Phorbol (Wender)
- Lecture 53 - Total synthesis of Periplanone (Still and Schreiber)
- Lecture 54 - Total synthesis of Discodermolide (Schreiber)
- Lecture 55 - Total synthesis of Epothilones I (Nicolaou)
- Lecture 56 - Total synthesis of Epothilones II (Schinzer and Danishefsky)
- Lecture 57 - Total synthesis of Vineomycinone B2 (Tius and Danishefsky)
- Lecture 58 - Total synthesis of Zaragozic acid C (Carreira)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC: Circular Dichroism (CD) and Mossbauer Spectroscopy for

Subject Co-ordinator - Prof. Arnab Dutta

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - CD Spectroscopy: Introduction
- Lecture 2 - Symmetry and Molecular properties
- Lecture 3 - Symmetry elements - I
- Lecture 4 - Symmetry elements - II
- Lecture 5 - Symmetry and point groups - I
- Lecture 6 - Symmetry and point groups - II
- Lecture 7 - Point group determination tutorial
- Lecture 8 - Chirality and point group - I
- Lecture 9 - Chirality and point group - II
- Lecture 10 - Chirality and point group - III tutorial
- Lecture 11 - Chirality and biology - I
- Lecture 12 - Chirality and biology - II
- Lecture 13 - Chirality and biology - III
- Lecture 14 - Chirality and biology - IV
- Lecture 15 - Chirality and biology - V
- Lecture 16 - Origin of chirality
- Lecture 17 - The physical background of chiral response - I
- Lecture 18 - The physical background of chiral response - II
- Lecture 19 - The physical background of chiral response - III
- Lecture 20 - The physical background of chiral response - IV
- Lecture 21 - The physical background of chiral response - IV
- Lecture 22 - The physical background of chiral response - V
- Lecture 23 - The physical background of chiral response - VI
- Lecture 24 - Circular Dichroism Spectra
- Lecture 25 - Examples of Circular Dichroism - I
- Lecture 26 - Examples of Circular Dichroism - II
- Lecture 27 - Examples of Circular Dichroism - III
- Lecture 28 - Examples of Circular Dichroism - IV
- Lecture 29 - Applications of CD spectroscopy - I

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- Lecture 30 - Applications of CD spectroscopy - II
- Lecture 31 - Applications of CD spectroscopy - III
- Lecture 32 - Applications of CD spectroscopy - IV
- Lecture 33 - Applications of CD spectroscopy - V
- Lecture 34 - Applications of CD spectroscopy - VI
- Lecture 35 - CD spectroscopy: Conclusion
- Lecture 36 - MÃssbauer Spectroscopy: Introduction
- Lecture 37 - MÃssbauer Spectroscopy Fundamentals - I
- Lecture 38 - MÃssbauer Spectroscopy
- Lecture 39 - MÃssbauer Spectroscopy Fundamentals - II
- Lecture 40 - MÃssbauer Spectroscopy Fundamentals - III
- Lecture 41 - MÃssbauer Spectroscopy Fundamentals - IV
- Lecture 42 - MÃssbauer Spectroscopy: Isomer shift - I
- Lecture 43 - MÃssbauer Spectroscopy: Isomer shift - II
- Lecture 44 - MÃssbauer Spectroscopy: Isomer shift - III
- Lecture 45 - MÃssbauer Spectroscopy: Quadrupolar splitting - I
- Lecture 46 - MÃssbauer Spectroscopy: Quadrupolar splitting - II
- Lecture 47 - MÃssbauer Spectroscopy: Applications - I
- Lecture 48 - MÃssbauer Spectroscopy: Applications - II
- Lecture 49 - MÃssbauer Spectroscopy: Applications - III
- Lecture 50 - MÃssbauer Spectroscopy: Data measurement
- Lecture 51 - MÃssbauer Spectroscopy: Applications - IV
- Lecture 52 - MÃssbauer Spectroscopy: Effect of ligands - I
- Lecture 53 - MÃssbauer Spectroscopy: Effect of ligands - II
- Lecture 54 - MÃssbauer Spectroscopy: Applications - V
- Lecture 55 - MÃssbauer Spectroscopy: Probing ferrocenes - I
- Lecture 56 - MÃssbauer Spectroscopy: Probing ferrocenes - II
- Lecture 57 - MÃssbauer Spectroscopy: Probing ferrocenes - III
- Lecture 58 - MÃssbauer Spectroscopy: Mixed valent complexes - I
- Lecture 59 - MÃssbauer Spectroscopy: Mixed valent complexes - II
- Lecture 60 - MÃssbauer Spectroscopy: Mixed valent complexes - III
- Lecture 61 - Conclusion section: CD spectroscopy
- Lecture 62 - Conclusion section: MÃssbauer Spectroscopy

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:NMR Spectroscopy for Structural Biology

Subject Co-ordinator - Prof. Ashutosh Kumar, Prof. R. V Hosur

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - NMR Basic Concepts - I  
Lecture 2 - NMR Basic Concepts - II  
Lecture 3 - NMR Basic Concepts - III  
Lecture 4 - NMR Basic Concepts - IV  
Lecture 5 - NMR Spectra of Molecules  
Lecture 6 - Chemical Shifts and Coupling constant  
Lecture 7 - Fine Structures in NMR Spectra  
Lecture 8 - Pulse Excitation and FT-NMR  
Lecture 9 - Practical Aspects of FT-NMR - 1  
Lecture 10 - Practical Aspects of FT-NMR - 2  
Lecture 11 - Practical Aspects of FT-NMR - 3  
Lecture 12 - Practical Aspects of FT-NMR - 4  
Lecture 13 - Polarization Transfer Technique - 1  
Lecture 14 - Polarization Transfer Technique - 2  
Lecture 15 - General Concept of Multidimensional NMR - 1  
Lecture 16 - General Concept of Multidimensional NMR - 2  
Lecture 17 - 2-D NMR or 2-D Co-relation spectroscopy : General concept - 1  
Lecture 18 - 2-D NMR or 2-D Co-relation spectroscopy : General concept - 2  
Lecture 19 - 2-D NMR or 2-D Co-relation spectroscopy : General concept - 3  
Lecture 20 - Introduction to NOESY and HSQC - 1  
Lecture 21 - Introduction to NOESY and HSQC - 2  
Lecture 22 - Introduction to NOESY and HSQC - 3  
Lecture 23 - Introduction to NOESY and HSQC - 4  
Lecture 24 - Application of NMR in the area of structural Biology: Structure of DNA and RNA - 1  
Lecture 25 - Application of NMR in the area of structural Biology: Structure of DNA and RNA - 2  
Lecture 26 - Application of NMR in the area of structural Biology: Structure of DNA and RNA - 3  
Lecture 27 - Application of NMR in the area of structural Biology: Structure of DNA and RNA - 4  
Lecture 28 - Application of NMR in the area of structural Biology: Structure of DNA and RNA - 5  
Lecture 29 - Application of NMR in the area of structural Biology: Structure of DNA and RNA - 6

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Application of NMR in the area of structural Biology: Structure of DNA and RNA - 7
- Lecture 31 - Determination of Structure and Dynamics of Proteins - 1
- Lecture 32 - Determination of Structure and Dynamics of Proteins - 2
- Lecture 33 - Determination of Structure and Dynamics of Proteins - 3
- Lecture 34 - Determination of Structure and Dynamics of Proteins - 4
- Lecture 35 - Determination of Structure and Dynamics of Proteins - 5
- Lecture 36 - Determination of Structure and Dynamics of Proteins - 6
- Lecture 37 - NMR Analysis of Protein Dynamics - I
- Lecture 38 - NMR Analysis of Protein Dynamics - II
- Lecture 39 - NMR Analysis of Protein Dynamics - III
- Lecture 40 - NMR Analysis of Protein Dynamics - IV
- Lecture 41 - Protein-Ligand and Protein-Protein Interaction
- Lecture 42 - NMR Analysis of Ligand specific parameters in a Protein-Ligand Interaction - I
- Lecture 43 - NMR Analysis of Ligand specific parameters in a Protein-Ligand Interaction - II
- Lecture 44 - NMR Analysis of Protein Specific Parameters in a Protein-Ligand Interaction - I
- Lecture 45 - NMR Analysis of Protein Specific Parameters in a Protein-Ligand Interaction - II
- Lecture 46 - NMR in Drug Design
- Lecture 47 - NMR in Drug Discovery
- Lecture 48 - NMR in Drug metabolism - I
- Lecture 49 - NMR in Drug metabolism - II
- Lecture 50 - NMR in Drug metabolism - III
- Lecture 51 - Probing Protein Dynamics by NMR Spectroscopy - I
- Lecture 52 - Probing Protein Dynamics by NMR Spectroscopy - II
- Lecture 53 - Probing Protein Dynamics by NMR Spectroscopy - III
- Lecture 54 - Probing Protein Dynamics by NMR Spectroscopy - IV
- Lecture 55 - Probing Protein Dynamics by NMR Spectroscopy - V
- Lecture 56 - Basics of solid state NMR spectroscopy - I
- Lecture 57 - Basics of solid state NMR spectroscopy - II
- Lecture 58 - Basics of solid state NMR spectroscopy - III
- Lecture 59 - Basics of solid state NMR spectroscopy - IV
- Lecture 60 - Basics of solid state NMR spectroscopy - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Transition Metal Chemistry

Subject Co-ordinator - Prof. M S Balakrishna

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - History of Periodic Table - 1
- Lecture 2 - History of Periodic Table - 2
- Lecture 3 - History of Periodic Table - 3
- Lecture 4 - Introduction to Transition elements - 1
- Lecture 5 - Introduction to Transition elements - 2
- Lecture 6 - Introduction to Transition elements - 3
- Lecture 7 - Introduction to Transition elements - 4
- Lecture 8 - Coordination Theory
- Lecture 9 - Werner's Coordination Theory
- Lecture 10 - Early Bonding Concepts
- Lecture 11 - Valence Bond Theory (VBT) - 1
- Lecture 12 - Valence Bond Theory (VBT) - 2
- Lecture 13 - Background To Crystal Field Theory (CFT)
- Lecture 14 - Crystal Field Theory (CFT) Jahn-Teller Theorem
- Lecture 15 - Crystal Field Theory (CFT) - 1
- Lecture 16 - Crystal Field Theory (CFT) - 2
- Lecture 17 - Ligand Field Theory (LFT) - 1
- Lecture 18 - Ligand Field Theory (LFT) - 2
- Lecture 19 - Ligand Field Theory (LFT) - 3
- Lecture 20 - Ligand Field Theory (LFT) - 4
- Lecture 21 - 18 Electron Rule
- Lecture 22 - 18 Electron Rule
- Lecture 23 - Metal-Metal Multiple Bonds
- Lecture 24 - Metal-Metal Multiple Bonds [Quadruple and Quintuple Bonding]
- Lecture 25 - Preparation of metal Complexes
- Lecture 26 - Preparation of metal Complexes
- Lecture 27 - Classification of ligands by donor atoms
- Lecture 28 - Classification of ligands by donor atoms - Hydrogen
- Lecture 29 - Classification of ligands by donor atoms - Carbon - 1

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- Lecture 30 - Classification of ligands by donor atoms - Carbon - 2
- Lecture 31 - Classification of ligands by donor atoms - Carbon - 3
- Lecture 32 - Classification of ligands by donor atoms - Carbon - 4
- Lecture 33 - Classification of ligands by donor atoms - Nitrogen - 1
- Lecture 34 - Classification of ligands by donor atoms - Nitrogen - 2
- Lecture 35 - Classification of ligands by donor atoms - Nitrogen - 3
- Lecture 36 - Classification of ligands by donor atoms - Oxygen, Phosphorus
- Lecture 37 - Classification of ligands by donor atoms - Phosphorus - 1
- Lecture 38 - Classification of ligands by donor atoms - Phosphorus - 2
- Lecture 39 - Classification of ligands by donor atoms - Phosphorus - 3
- Lecture 40 - Classification of ligands by donor atoms - Halogens
- Lecture 41 - Oxidative addition and reductive elimination reactions - 1
- Lecture 42 - Oxidative addition and reductive elimination reactions - 2
- Lecture 43 - Oxidative addition and reductive elimination reactions - 3
- Lecture 44 - Oxidative addition and reductive elimination reactions - 4
- Lecture 45 - Inorganic Reaction Mechanisms
- Lecture 46 - Inorganic Reaction Mechanisms Square planar complexes
- Lecture 47 - Trans-Effect
- Lecture 48 - Substitution Reactions in Square Planar Complexes, Trans-Effect
- Lecture 49 - Substitution Reactions in Octahedral Complexes
- Lecture 50 - Substitution Reactions in Octahedral Complexes; Stereochemistry of Products
- Lecture 51 - Electron-Transfer Processes
- Lecture 52 - Electron-Transfer Processes
- Lecture 53 - Methods of Characterization UV-Visible Spectroscopy
- Lecture 54 - Methods of Characterization UV-Visible Spectroscopy
- Lecture 55 - UV-Visible Spectroscopy
- Lecture 56 - UV-Visible Spectroscopy
- Lecture 57 - NMR Spectroscopy
- Lecture 58 - NMR Spectroscopy
- Lecture 59 - NMR and IR Spectroscopy
- Lecture 60 - Summary and Conclusion



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Nuclear and Radiochemistry

Subject Co-ordinator - Prof. B.S.Tomar, Prof. P.K.Mohapatra

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Radioactivity
- Lecture 2 - Radioactive decay
- Lecture 3 - Radioactive decay chain
- Lecture 4 - Radioactive equilibria
- Lecture 5 - Nuclear structure and stability
- Lecture 6 - Nuclear force and nuclear properties
- Lecture 7 - Liquid drop model
- Lecture 8 - Applications of Liquid drop model
- Lecture 9 - Nuclear Shell model
- Lecture 10
- Lecture 11 - Alpha decay
- Lecture 12 - Beta decay
- Lecture 13 - Gamma decay
- Lecture 14 - Interaction of radiations with matter
- Lecture 15 - Interaction of fast electrons with matter
- Lecture 16 - Interaction of electromagnetic radiations with matter
- Lecture 17 - Principles of radiation detectors
- Lecture 18 - Gas filled detectors
- Lecture 19 - Scintillator detectors
- Lecture 20 - Semiconductor detectors
- Lecture 21
- Lecture 22
- Lecture 23
- Lecture 24
- Lecture 25
- Lecture 26 - Compound nucleus reactions
- Lecture 27 - Nuclear fission
- Lecture 28 - Nuclear fusion
- Lecture 29 - Production of radioisotopes using neutrons

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Radioisotope production using charged particles
- Lecture 31 - Radiochemical practices
- Lecture 32 - Radioanalytical techniques and applications
- Lecture 33 - Nuclear analytical techniques
- Lecture 34 - Applications of neutron activation analysis
- Lecture 35 - Ion beam analysis
- Lecture 36 - Nuclear reaction analysis and particle induced gamma emission
- Lecture 37 - Nuclear Probes: Positron annihilation spectroscopy
- Lecture 38 - Perturbed angular correlation
- Lecture 39 - Radioisotope applications in healthcare
- Lecture 40 - Radioisotope applications in Industry, agriculture and food technology
- Lecture 41 - History of actinides
- Lecture 42 - Actinide concept
- Lecture 43 - Actinide ionic species in water
- Lecture 44 - Actinide hydration and Hydrolysis
- Lecture 45 - pH-pE concept
- Lecture 46 - Ln/An absorption spectroscopy - I
- Lecture 47 - Ln/An absorption spectroscopy - II
- Lecture 48 - Ln/An emission spectroscopy - I
- Lecture 49 - Ln/An emission spectroscopy - II
- Lecture 50 - Solution chemistry Actinides
- Lecture 51 - Complexation of actinides - I
- Lecture 52 - Complexation of actinides - II
- Lecture 53 - Solvent extraction of actinides - I
- Lecture 54 - Solvent extraction of actinides - II
- Lecture 55 - Actinide partitioning
- Lecture 56 - Analytical chemistry of actinides
- Lecture 57 - Transactinides
- Lecture 58 - Fast radiochemical separations
- Lecture 59 - Actinides in the environment
- Lecture 60 - Actinides sorption and migration

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Fundamentals of Statistical Thermodynamics

Subject Co-ordinator - Prof. Nand Kishore

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General introduction to Statistical Thermodynamics
- Lecture 2 - Configuration and Weights
- Lecture 3 - Configuration and Weights (Continued...)
- Lecture 4 - Boltzmann Distribution
- Lecture 5 - The Molecular Partition Function
- Lecture 6 - The Molecular Partition Function of a uniform ladder of energy levels
- Lecture 7 - The partition function for a particle of mass  $m$  free to move in a 1D container
- Lecture 8 - The partition function for a particle of mass  $m$  free to move in a 3D container
- Lecture 9 - Numerical Problems Set-I (based on partition function)
- Lecture 10 - Numerical Problems Set-II
- Lecture 11 - The Internal Energy
- Lecture 12 - Obtaining expression for  $\beta$
- Lecture 13 - The Statistical Entropy
- Lecture 14 - Connecting partition function with entropy
- Lecture 15 - Solving numerical problems based on Internal energy and Entropy
- Lecture 16 - Solving numerical problems based on Internal energy and Entropy
- Lecture 17 - Negative Temperature
- Lecture 18 - Further discussion on  $q$  (Partition function),  $U$  (Internal energy) and  $S$  (Entropy)
- Lecture 19 - The Canonical Partition Function
- Lecture 20 - Relating Canonical Partition Function Internal Energy and Entropy
- Lecture 21 - Recovering molecular partition function  $q$  from canonical partition function  $Q$
- Lecture 22 - Entropy of a monatomic gas
- Lecture 23 - Further discussion on entropy of a monatomic gas - I
- Lecture 24 - Further discussion on entropy of a monatomic gas - II
- Lecture 25 - The Thermodynamic Functions (Pressure)
- Lecture 26 - The Thermodynamic Functions (Enthalpy)
- Lecture 27 - The Thermodynamic Functions (The Gibbs Energy)
- Lecture 28 - The Thermodynamic Functions (The Molecular Partition Function)
- Lecture 29 - The Rotational Contribution to Molecular Partition Function

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- Lecture 30 - The Rotational Contribution to Molecular Partition Function (Nonlinear Rotor)
- Lecture 31 - The Rotational Contribution to Molecular Partition Function
- Lecture 32 - Rotational Partition Function
- Lecture 33 - Vibrational Partition Function - I
- Lecture 34 - Vibrational Partition Function - II
- Lecture 35 - Vibrational Partition Function - Applications
- Lecture 36 - Electronic Partition Function
- Lecture 37 - Mean Energies
- Lecture 38 - Mean Energies (Continued...)
- Lecture 39 - Heat Capacity
- Lecture 40 - Heat Capacity (Continued...)
- Lecture 41 - Mean Energies (Applications)
- Lecture 42 - Problem Solving
- Lecture 43 - Residual Entropy
- Lecture 44 - Residual Entropy (Continued...)
- Lecture 45 - Relation between equilibrium constant  $K$  and partition function  $q$
- Lecture 46 - Relation between equilibrium constant  $K$  and partition function  $q$  (Continued...)
- Lecture 47 - Relation between equilibrium constant  $K$  and partition function  $q$  (Applications-1)
- Lecture 48 - Relation between equilibrium constant  $K$  and partition function  $q$  (Applications-2)
- Lecture 49 - Contributions to equilibrium constant
- Lecture 50 - Contributions to equilibrium constant (Continued...)
- Lecture 51 - Contributions to equilibrium constant (Continued...) and Problems Solving
- Lecture 52 - Problem Solving
- Lecture 53 - Problem Solving (Continued...)
- Lecture 54 - Equations of state
- Lecture 55 - Bose-Einstein Statistics
- Lecture 56 - Problem Solving
- Lecture 57 - FERMI-DIRAC Statistics
- Lecture 58 - Radial Distribution Function
- Lecture 59 - Recap - 1
- Lecture 60 - Recap - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC: Interpretative Molecular Spectroscopy

Subject Co-ordinator - Prof. M. S. Balakrishna

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Various Analytical Techniques and their applications
- Lecture 2 - Introduction to  $^1\text{H}$  NMR Spectroscopy
- Lecture 3 - NMR signals and magnetic shielding
- Lecture 4 - Introduction to the concept of Chemical Shifts in NMR spectra
- Lecture 5 - Chemical Shifts for different type of protons
- Lecture 6 - N+1 Rule and Pascal's Triangle
- Lecture 7 - Coupling constants for different types of molecules
- Lecture 8 - Second Order Coupling
- Lecture 9 - Introduction to  $^{13}\text{C}$  NMR Spectroscopy
- Lecture 10 - Introduction to  $^{31}\text{P}$  NMR Spectroscopy
- Lecture 11 - Chemical Shift Range in  $^{31}\text{P}$  NMR Spectroscopy
- Lecture 12 - Examples explaining Multinuclear NMR Spectroscopy - 1
- Lecture 13 - Examples explaining Multinuclear NMR Spectroscopy - 2
- Lecture 14 - Examples explaining Multinuclear NMR Spectroscopy - 3
- Lecture 15 - Examples explaining Multinuclear NMR Spectroscopy - 4
- Lecture 16 - Examples explaining Multinuclear NMR Spectroscopy - 5
- Lecture 17 - Monitoring reaction through  $^{31}\text{P}$  NMR Spectroscopy
- Lecture 18 -  $^{19}\text{F}$ ,  $^{14}\text{N}$  and  $^{15}\text{N}$  NMR Spectroscopy
- Lecture 19 -  $^6\text{Li}$  and  $^7\text{Li}$  NMR Spectroscopy
- Lecture 20 -  $^{11}\text{B}$ ,  $^{10}\text{B}$  and  $^{199}\text{Hg}$  NMR Spectroscopy
- Lecture 21 - Introduction to UV Spectroscopy
- Lecture 22 - Types of Electronic Transitions and Woodward-Fieser Rules
- Lecture 23 - Spin Orbit Coupling and Term Symbols
- Lecture 24 - Ground State Term Symbol
- Lecture 25 - Calculating microstates for different electronic configuration
- Lecture 26 - Selection Rule of Electronic Transition
- Lecture 27 - Orgel Level Diagrams
- Lecture 28 - Racah Parameters and Tanabe-Sugano Diagrams
- Lecture 29 - Introduction to IR Spectroscopy - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to IR Spectroscopy - 2
- Lecture 31 - Interpretation of IR Spectra
- Lecture 32 - IR stretching frequencies for various functional groups
- Lecture 33 - Hook's Law - Numericals
- Lecture 34 - IR Spectra of carbonyl compounds - 1
- Lecture 35 - IR Spectra of carbonyl compounds - 2
- Lecture 36 - Numerical Problems related to IR Spectroscopy - 1
- Lecture 37 - Numerical Problems related to IR Spectroscopy - 2
- Lecture 38 - Introduction to Mass Spectrometry
- Lecture 39 - Isotope Peaks in Mass Spectrometry
- Lecture 40 - Hydrogen deficiency Index
- Lecture 41 - EI Mass Spectra of various molecules - 1
- Lecture 42 - EI Mass Spectra of various molecules - 2
- Lecture 43 - EI Mass Spectra of various molecules - 3
- Lecture 44 - Types of Mass Spectrometry
- Lecture 45 - Introduction to EPR Spectroscopy - 1
- Lecture 46 - Introduction to EPR Spectroscopy - 2
- Lecture 47 - Hyperfine Interactions
- Lecture 48 - Examples of Hyperfine Interactions
- Lecture 49 - Introduction to Mössbauer Spectroscopy (Möss)
- Lecture 50 - More discussion, problems and solutions (Möss)
- Lecture 51 - Problems and Solutions - 1
- Lecture 52 - Problems and Solutions - 2
- Lecture 53 - Problems and Solutions - 3
- Lecture 54 - Problems and Solutions - 4
- Lecture 55 - Problems and Solutions - 5
- Lecture 56 - Rule of Thirteen and Nitrogen Rule
- Lecture 57 - Problems and Solutions - 6
- Lecture 58 - Problems and Solutions - 7
- Lecture 59 - Problems and Solutions - 8
- Lecture 60 - Summary and conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Many Body Methods in Quantum Chemistry

Subject Co-ordinator - Prof. Sourav Pal, Prof. Achintya Kumar Dutta

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Failure of classical mechanics
- Lecture 2 - Postulates of quantum mechanics
- Lecture 3 - Postulate 5 and 6
- Lecture 4 - Overview of exactly solvable system
- Lecture 5 - Introduction to many electron problem
- Lecture 6 - Non-interacting and interacting quantum particles
- Lecture 7 - Spin orbital concept
- Lecture 8 - Slater determinant introduction
- Lecture 9 - Form of exact wave function for interacting particles
- Lecture 10 - A brief introduction to Configuration Interaction (CI)
- Lecture 11 - Variational method and Rayleigh-Ritz variation
- Lecture 12 - Linear variation method
- Lecture 13 - Hartree-Fock theory introduction
- Lecture 14 - Slater rules for matrix elements
- Lecture 15 - Spin integrated for closed shell determinant
- Lecture 16 - Examples of spin integrated determinants
- Lecture 17 - Introduction to Lagrange variation
- Lecture 18 - General Lagrange variation
- Lecture 19 - Lagrange variation to minimize the Hartree-Fock energy
- Lecture 20 - Non-canonical HF equation
- Lecture 21 - Interpretation of Coulomb and exchange terms
- Lecture 22 - Unitary transformation of non-canonical HF equation
- Lecture 23 - Canonical Hartree-Fock equation
- Lecture 24 - Koopmans' approximation for IP
- Lecture 25 - Koopmans' approximation for EA
- Lecture 26 - Spin integrated Hartree-Fock for closed shell system (RHF)
- Lecture 27 - Molecular Hartree-Fock introduction
- Lecture 28 - Hartree-Fock Roothaan Hall equation
- Lecture 29 - Symmetry of two electron integrals

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- Lecture 30 - HF Roothan equation in terms of atomic orbitals
- Lecture 31 - Koopmans' IP for molecules
- Lecture 32 - Koopmans' EA for molecules
- Lecture 33 - Roothaan equation in orthonormalized basis
- Lecture 34 - Review of Hartree-Fock theory
- Lecture 35 - Charge density, Bond order and Population analysis
- Lecture 36 - Dipole Moment
- Lecture 37 - Introduction to basis set
- Lecture 38 - Dunning and Pople basis set
- Lecture 39 - Polarization and diffuse function
- Lecture 40 - Brillouin's theorem and Slater's rule type-2
- Lecture 41 - Slater rule type-2
- Lecture 42 - Spin adapted determinant
- Lecture 43 - Dissociation of Hydrogen molecule problem
- Lecture 44 - Inadequacies of restricted Hartree-Fock theory
- Lecture 45 - Hartree-Fock perturbation theory and correlation correction
- Lecture 46 - Hartree-Fock perturbation theory (Continued...)
- Lecture 47 - Introduction of 2nd order perturbation theory
- Lecture 48 - Intermediate normalization and an expression for the Correlation energy
- Lecture 49 - Slater rule -3 and derivation of 2-nd order perturbation energy
- Lecture 50 - Physical insight of pair correlation theory
- Lecture 51 - Introduction to configuration interaction (CI)
- Lecture 52 - Determine the parameter of CI
- Lecture 53 - Construction of CIS hamiltonian matrix
- Lecture 54 - Importance of doubly excited determinants in correlation contribution
- Lecture 55 - Intermediate normalization and an expression for the Correlation energy
- Lecture 56 - CI equation in terms of Normal-Ordered hamiltonian
- Lecture 57 - Doubly excited CI function (D-CI)
- Lecture 58 - Matrix structure of CISD (singly and doubly excited CI)
- Lecture 59 - Some illustrative example
- Lecture 60 - Effects of singly excited determinant in the calculation
- Lecture 61 - D-CI for non-interacting hydrogen molecules
- Lecture 62 - Size consistency problem in truncated CI
- Lecture 63 - N-dependence of D-CI correlation energy
- Lecture 64 - problem of truncating CI
- Lecture 65 - Introduction of second quantization operator in quantum mechanics
- Lecture 66 - Creation and annihilation operator and their properties
- Lecture 67 - Operators in second quantization
- Lecture 68 - Some basic examples related with second quantization operator

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Hole-Particle formalism
- Lecture 70 - Hugenholtz rule for diagrammatic construction of MP perturbation theory
- Lecture 71 - Linked cluster diagram
- Lecture 72 - Energy expression for higher order Moller-Plasset perturbation theory
- Lecture 73 - Diagrammatic representation of MP3 energy and some practice problem
- Lecture 74 - Overview of the some other correlation calculation method
- Lecture 75 - A brief introduction to Coupled cluster theory

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Bio-Physical Chemistry

Subject Co-ordinator - Dr. P.K. Chowdhury

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - A Course on Bio-physical Chemistry
- Lecture 2 - Protein Structure
- Lecture 3 - Secondary Structure of Proteins
- Lecture 4 - Secondary Structure of Proteins (Continued...)
- Lecture 5 - Tertiary Structure
- Lecture 6 - Forces in Protein Folding
- Lecture 7 - Forces in Protein Folding (Continued...)
- Lecture 8 - Electrostatics (Continued...)
- Lecture 9 - Intermolecular Interactions
- Lecture 10 - Dipole-Dipole Interaction
- Lecture 11 - Electrostatics (Continued...)
- Lecture 12 - Hydrophobic Effect
- Lecture 13 - Hydrophobic Effect (Continued...)
- Lecture 14 - Hydrogen Bonding
- Lecture 15 - Protein Stability Curves
- Lecture 16 - Thermodynamics of Protein Unfolding
- Lecture 17 - Thermodynamics of Protein Unfolding (Continued...)
- Lecture 18 - Mechanism of Chemical Denaturation
- Lecture 19 - Pressure Induced Denaturation (The P-T Diagram)
- Lecture 20 - Protein Folding Pathways and Energy Landscapes
- Lecture 21 - Diffusion
- Lecture 22 - Diffusion (Continued...)
- Lecture 23 - Diffusion (Continued...)
- Lecture 24 - Langevin Equation and Brownian Motion
- Lecture 25 - Langevin Equation and Brownian Motion (Continued...)
- Lecture 26 - Langevin Equation and Brownian Motion (Continued...)
- Lecture 27 - Protein Folding
- Lecture 28 - Protein Folding
- Lecture 29 - Protein Folding

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Protein Folding
- Lecture 31 - Protein Folding Kinetics
- Lecture 32 - Protein Folding Kinetics
- Lecture 33 - Protein Folding Kinetics
- Lecture 34 - Protein Folding Kinetics
- Lecture 35 - Experimental Tools
- Lecture 36 - Spectroscopy
- Lecture 37 - Spectroscopy
- Lecture 38 - Electronic Spectroscopy Absorption and Fluorescence
- Lecture 39 - Fluorescence
- Lecture 40 - Fluorescence Quenching
- Lecture 41 - Infrared Spectroscopy of Proteins
- Lecture 42 - Infrared Spectroscopy of Proteins (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Spectroscopic Techniques for Pharmaceutical and Biopharm

Subject Co-ordinator - Dr. Shashank Deep

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Spectroscopy - I
- Lecture 2 - Introduction to Spectroscopy - II
- Lecture 3 - Introduction to Spectroscopy - III
- Lecture 4 - Introduction to Spectroscopy - IV
- Lecture 5 - Introduction to Spectroscopy - V
- Lecture 6 - Introduction to Spectroscopy - VI
- Lecture 7 - Rotational, rotational Raman Spectroscopy theory and Application - I
- Lecture 8 - Rotational, rotational Raman Spectroscopy theory and Application - II
- Lecture 9 - Vibrational Spectroscopy Theory and Application - I
- Lecture 10 - Vibrational, Rotational-Vibrational, Raman Spectroscopy - II
- Lecture 11 - Vibrational, Rotational-Vibrational, Raman Spectroscopy - III
- Lecture 12 - Problems on Rotational, Vibrational and Raman Spectroscopy
- Lecture 13 - Atomic Spectroscopy - I
- Lecture 14 - Atomic Spectroscopy - II
- Lecture 15 - Atomic Spectroscopy - III
- Lecture 16 - Atomic Spectroscopy - IV
- Lecture 17 - Atomic and Molecular Spectroscopy
- Lecture 18 - Electronic Spectra of Diatomic Molecules and UV-Vis Spectroscopy
- Lecture 19 - UV-Visible Spectroscopy of Conjugated Molecules
- Lecture 20 - UV-Vis Spectroscopy and its Applications - I
- Lecture 21 - UV-Vis Spectroscopy and its Applications - II
- Lecture 22 - UV-Vis and Fluorescence Spectroscopy
- Lecture 23 - Fluorescence Spectroscopy (Continued...)
- Lecture 24 - Application of Fluorescence Spectroscopy
- Lecture 25 - Application of Steady-State Fluorescence
- Lecture 26 - Time-resolved Fluorescence Spectroscopy
- Lecture 27 - Microscopy
- Lecture 28 - Contrast in Microscopy, Fluorescence Microscopy
- Lecture 29 - Fluorescence Microscopy and Application

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Principle of NMR
- Lecture 31 - NMR data processing and Chemical shift
- Lecture 32 - Structure Informations from NMR
- Lecture 33 - Structure Calculation and 2D-NMR Spectroscopy
- Lecture 34 - Mass Spectroscopy

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC: Introductory Non-Linear Dynamics

Subject Co-ordinator - Prof. Ramakrishna Ramaswamy

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Stability, Phase Space and Invariant Sets - 1
- Lecture 2 - Introduction, Stability, Phase Space and Invariant Sets - 2
- Lecture 3 - Introduction, Stability, Phase Space and Invariant Sets - 3
- Lecture 4 - Maps and Flows. Simple Examples of Dynamics Systems - 1
- Lecture 5 - Maps and Flows. Simple Examples of Dynamics Systems - 2
- Lecture 6 - Logistic map. Simple Examples of Bifurcations
- Lecture 7 - Bifurcation Diagrams. Period 3 Implies Chaos. Characterizing Chaos
- Lecture 8 - Characterizing The Period-Doubling Route to Chaos
- Lecture 9 - Lyapunov Exponents; Invariant measures
- Lecture 10 - Intermittency. Crises
- Lecture 11 - Fractals
- Lecture 12 - Chaos in Flows. The Lorenz and Rossler Systems
- Lecture 13 - The Baker and Horseshoe Maps
- Lecture 14 - Hamiltonian Chaos - 1
- Lecture 15 - Hamiltonian Chaos - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Principles of Organic Synthesis

Subject Co-ordinator - Prof. T. Punniyamurthy

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Aldol Reaction

Lecture 2 - Perkin, Claisen and Thorpe Reactions

Lecture 3 - Reaction of Enolates

Lecture 4 - Mannich Reaction

Lecture 5 - Reaction of Alkenes and Carbonyl Compounds

Lecture 6 - Friedel-Crafts and Prins Reactions

Lecture 7 - Grignard Reagents

Lecture 8 - Organolithium Reagents

Lecture 9 - Organocopper, Organozinc and Organomercury Reagents

Lecture 10 - Ritter Reaction and Gabriel Synthesis

Lecture 11 - Reactions of imines and enamines, synthesis of alkaloids and amino acids

Lecture 12 - Reactions of electrophilic and nucleophilic nitrogens, synthesis of amino acids and peptides

Lecture 13 - Principles, effect of substituents and carbon-carbon bond formation

Lecture 14 - Formylation/acylation and related reactions

Lecture 15 - Nitration, Sulfonation and other reactions

Lecture 16 - Principle, Substitution mechanism and reactions of Benzyne

Lecture 17 - Schiemann Reaction, Ullmann reaction and Stephens-Castro coupling

Lecture 18 - Ziegler Alkylation, Chichibabin Reaction, Von Richter Rearrangement, Smiles Rearrangement, Bambe

Lecture 19 - Preparation, properties and reactions

Lecture 20 - Coupling reactions, Japp-Klingemann reaction and Tiffeneau-Demjanov rearrangement

Lecture 21 - Applications of diazonium salts

Lecture 22 - Wagner-Meerwein rearrangement, Pinacol rearrangement, Benzilic acid rearrangement and Arndt-Eistert

Lecture 23 - Rearrangement of halogen, oxygen, sulfur and nitrogen containing centre

Lecture 24 - Rearrangement to electron-rich carbon

Lecture 25 - Reactivity and several reactions

Lecture 26 - Reactions of sulfur and silicon containing reagents

Lecture 27 - Preparation and reactions of organoborane and organotin reagents

Lecture 28 - Formation of carbon-carbon and carbon-halogen bonds

Lecture 29 - Cu, Mn, Sm, and Sn Based Reactions, Acyloin Condensation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - C-N, C-O bond formation and decarboxylation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Reagents in Organic Synthesis

Subject Co-ordinator - Prof.Subhas Chandra

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Chromium Based Reagents for Oxidation
- Lecture 2 - Non-metal based Reagents for Oxidation
- Lecture 3 - Organic Peroxides
- Lecture 4 - Oxidation Mediated by DDQ, CAN and SeO<sub>2</sub>
- Lecture 5 - Oxidation Mediated by Mn and Ag
- Lecture 6 - Oxidation by Ru, Hypervalent Iodine, Al and Na based Reagents
- Lecture 7 - Na and Li Metal based Reduction
- Lecture 8 - Hydride based Reduction
- Lecture 9 - Hydrogenation
- Lecture 10 - Al, Zn and Li Based Reagents for Reduction
- Lecture 11 - Reduction With Boranes, Diimide and Trialkylsilanes
- Lecture 12 - Li Based Reagents in Organic Synthesis
- Lecture 13 - Mg and Na Based Reagents in Organic Synthesis
- Lecture 14 - B Based Reagents in Organic Synthesis
- Lecture 15 - B and Al Based Reagents in Organic Synthesis
- Lecture 16 - S Based Reagents in Organic Synthesis
- Lecture 17 - P Based Reagents in Organic Synthesis
- Lecture 18 - Si and Pb Based Reagents in Organic Synthesis
- Lecture 19 - Sn and Bi Based Reagents in Organic Synthesis
- Lecture 20 - Ti Based Reagents in Organic Synthesis
- Lecture 21 - Ru Based Reagents in Organic Synthesis
- Lecture 22 - Pd Based Reagents in Organic Synthesis
- Lecture 23 - Cu Based Reagents in Organic Synthesis
- Lecture 24 - Cr and Mn Based Reagents in Organic Synthesis
- Lecture 25 - Zn and Hg Based Reagents in Organic Synthesis
- Lecture 26 - Au Based Reagents in Organic Synthesis
- Lecture 27 - Fe and Co Based Reagents in Organic Synthesis
- Lecture 28 - Ag and Rh Based Reagents in Organic Synthesis
- Lecture 29 - Ni, Pt and Ir Based Reagents in Organic Synthesis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Lanthanides and Sm Based Reagents
- Lecture 31 - Samarium(II) Iodide Based Reagents in Organic Synthesis
- Lecture 32 - Sm and Yb Based Reagents in Organic Synthesis

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Thermodynamics: Classical to Statistical

Subject Co-ordinator - Prof. Sandip Paul

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concepts of heat and work; First Law of Thermodynamics
- Lecture 2 - Concepts of enthalpy and heat capacity
- Lecture 3 - Introduction to entropy
- Lecture 4 - Calculation of entropy for various processes
- Lecture 5 - Gibbs and Helmholtz free energy
- Lecture 6 - Introduction to chemical potential
- Lecture 7 - Clapeyron equation and phase transition; concept of fugacity
- Lecture 8 - Calculation of fugacity; free energy of mixing
- Lecture 9 - Partial molar quantities; excess thermodynamic quantities
- Lecture 10 - Concept of activity and activity coefficients; Debye-Huckel limiting law
- Lecture 11 - Phase Diagram of one component systems
- Lecture 12 - Phase Diagram of two component systems
- Lecture 13 - Phase Diagram of three component system; one dimensional random walk
- Lecture 14 - Macroscopic and microscopic states; Boltzmann distribution; Canonical partition function
- Lecture 15 - Calculation of different thermodynamical quantities using canonical partition function
- Lecture 16 - Introduction to molecular partition function
- Lecture 17 - Translational, electronic and nuclear partition function
- Lecture 18 - Rotational partition function
- Lecture 19 - Vibrational partition function; Introduction to grand canonical ensemble
- Lecture 20 - Grand canonical distribution; Introduction to microcanonical ensemble
- Lecture 21 - Problems on classical thermodynamics - 1
- Lecture 22 - Problems on classical thermodynamics - 2
- Lecture 23 - Problems on statistical thermodynamics - 1
- Lecture 24 - Problems on statistical thermodynamics - 2
- Lecture 25 - Problems on statistical thermodynamics - 3
- Lecture 26 - Fermi-Dirac and Bose-Einstein statistics
- Lecture 27 - Ideal Fermi gas
- Lecture 28 - Ideal Bose gas; Introduction to Bose-Einstein condensation
- Lecture 29 - Bose-Einstein condensations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Nuclear spin statistics; Ortho- and para-hydrogens
- Lecture 31 - Specific Heats of solids
- Lecture 32 - Problems on statistical thermodynamics - 4
- Lecture 33 - Advance problems - 1
- Lecture 34 - Advance Problems - 2
- Lecture 35 - Advance Problems - 3
- Lecture 36 - Advance Problems - 4
- Lecture 37 - Advance Problems - 5

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Essentials of Biomolecules: Nucleic Acids and Peptides

Subject Co-ordinator - Prof. Lal Mohan Kundu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Importance of Biomolecules
- Lecture 2 - DNA double helix
- Lecture 3 - DNA and Proteins
- Lecture 4 - Amino acids and Proteins
- Lecture 5 - Protein 3D structures, folding and denaturation
- Lecture 6 - Chemical synthesis pyrimidine nucleobases
- Lecture 7 - Chemical synthesis purine nucleobases, Prebiotic chemistry
- Lecture 8 - Synthesis of nucleosides
- Lecture 9 - Solid phase DNA synthesis
- Lecture 10 - Chemistry and Biology of DNA Replication
- Lecture 11 - Chemistry of Polymerase Chain Reaction
- Lecture 12 - Major components and steps involved in Polymerase chain reaction
- Lecture 13 - DNA sequencing
- Lecture 14 - DNA sequencing
- Lecture 15 - Numerical Problem-1
- Lecture 16 - Sugar Chemistry
- Lecture 17 - Chemistry behind DNA damage and mutation
- Lecture 18 - Chemistry behind DNA damage and mutation
- Lecture 19 - DNA repair
- Lecture 20 - Transcription - The transfer of genetic information from DNA to mRNA
- Lecture 21 - Translation - The transfer of genetic information from mRNA to protein I
- Lecture 22 - Translation - The transfer of genetic information from mRNA to protein II
- Lecture 23 - Role of Ribosome in protein synthesis and the concept of codon
- Lecture 24 - Protein sequencing using Sanger's and Edman's degradation methods
- Lecture 25 - Mass spectroscopy and other sequencing methods for large proteins
- Lecture 26 - Solution phase peptide synthesis
- Lecture 27 - Peptide coupling agents, Solid phase synthesis, peptide based therapeutics
- Lecture 28 - Spectroscopic techniques
- Lecture 29 - Spectroscopic techniques - II and Purification technique-I of biomolecules

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Purification techniques - II and Characteriation techniques of biomolecules
- Lecture 31 - Molecular probes
- Lecture 32 - Molecular Probes
- Lecture 33 - Carbohydrate chemistry - I
- Lecture 34 - Carbohydrate chemistry - II
- Lecture 35 - Carbohydrate chemistry - III

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Chemistry of Materials

Subject Co-ordinator - Prof. S. Sundar Manoharan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Materials Chemistry
- Lecture 2 - Preparative routes
- Lecture 3 - Preparative routes
- Lecture 4 - Preparative routes
- Lecture 5 - Preparative routes
- Lecture 6 - Preparative routes
- Lecture 7 - Preparative routes
- Lecture 8 - Preparative routes
- Lecture 9 - Preparative routes
- Lecture 10 - Molecular Beam Epitaxy
- Lecture 11 - Pulsed Laser Deposition
- Lecture 12 - Pulsed Electron Deposition
- Lecture 13 - Sputtering deposited thin films and applications
- Lecture 14 - Crystal growth-Single crystals.
- Lecture 15 - Applications of X-ray diffraction
- Lecture 16 - Applications of X-ray Photoelectron spectroscopy
- Lecture 17 - Applications of X-ray Absorption spectroscopy
- Lecture 18 - Applications of Thermal analysis techniques
- Lecture 19 - Applications of Scanning Tunneling microscopy
- Lecture 20 - Applications of Electron Microscopy
- Lecture 21 - Case Study of ZnO
- Lecture 22 - Magnetic materials - I
- Lecture 23 - Magnetic Materials - II
- Lecture 24 - Magnetic Materials - III & Related Phenomena
- Lecture 25 - Shape Memory Materials
- Lecture 26 - Spintronic Materials - I Colossal Magnetoresistive Oxides
- Lecture 27 - Spintronic Materials - II Giant Magnetoresistive Materials
- Lecture 28 - Spintronic Materials - III Tunneling Magnetoresistive Materials
- Lecture 29 - Spintronic Materials - IV Dilute Magnetic Semiconductors

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - High Tc Superconductors
- Lecture 31 - The New Carbon family - I - Fullerenes and Nanotubes
- Lecture 32 - The New Carbon family - II - Graphene
- Lecture 33 - Optoelectronic Materials - I - OLEDs
- Lecture 34 - Optoelectronic Materials - II - OLEDs
- Lecture 35 - Inorganic Phosphors - I
- Lecture 36 - Inorganic Phosphors - II
- Lecture 37 - Phosphor Materials
- Lecture 38 - Solar Cells
- Lecture 39 - Interview with C N R Rao and Interview with E C Subba Rao
- Lecture 40 - Perceptions & Projections



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Mathematics for Chemistry

Subject Co-ordinator - Dr. Madhav Ranganathan, Dr. P.P. Thankachan

Co-ordinating Institute - IIT - Kanpur | IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Mathematics for Chemistry  
Lecture 2 - Mathematics for Chemistry  
Lecture 3 - Mathematics for Chemistry  
Lecture 4 - Mathematics for Chemistry  
Lecture 5 - Mathematics for Chemistry  
Lecture 6 - Mathematics for Chemistry  
Lecture 7 - Mathematics for Chemistry  
Lecture 8 - Mathematics for Chemistry  
Lecture 9 - Mathematics for Chemistry  
Lecture 10 - Mathematics for Chemistry  
Lecture 11 - Mathematics for Chemistry  
Lecture 12 - Mathematics for Chemistry  
Lecture 13 - Mathematics for Chemistry  
Lecture 14 - Mathematics for Chemistry  
Lecture 15 - Mathematics for Chemistry  
Lecture 16 - Mathematics for Chemistry  
Lecture 17 - Mathematics for Chemistry  
Lecture 18 - Mathematics for Chemistry  
Lecture 19 - Mathematics for Chemistry  
Lecture 20 - Mathematics for Chemistry  
Lecture 21 - Mathematics for Chemistry  
Lecture 22 - Mathematics for Chemistry  
Lecture 23 - Mathematics for Chemistry  
Lecture 24 - Mathematics for Chemistry  
Lecture 25 - Mathematics for Chemistry  
Lecture 26 - Mathematics for Chemistry  
Lecture 27 - Mathematics for Chemistry  
Lecture 28 - Mathematics for Chemistry  
Lecture 29 - Mathematics for Chemistry

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Mathematics for Chemistry  
Lecture 31 - Mathematics for Chemistry  
Lecture 32 - Mathematics for Chemistry  
Lecture 33 - Mathematics for Chemistry  
Lecture 34 - Mathematics for Chemistry  
Lecture 35 - Mathematics for Chemistry  
Lecture 36 - Mathematics for Chemistry  
Lecture 37 - Mathematics for Chemistry  
Lecture 38 - Mathematics for Chemistry  
Lecture 39 - Mathematics for Chemistry  
Lecture 40 - Mathematics for Chemistry

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Advance Analytical Course

Subject Co-ordinator - Dr. Padma S Vankar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Advance Analytical Course  
Lecture 2 - Advance Analytical Course  
Lecture 3 - Advance Analytical Course  
Lecture 4 - Advance Analytical Course  
Lecture 5 - Advance Analytical Course  
Lecture 6 - Advance Analytical Course  
Lecture 7 - Advance Analytical Course  
Lecture 8 - Advance Analytical Course  
Lecture 9 - Advance Analytical Course  
Lecture 10 - Advance Analytical Course  
Lecture 11 - Advance Analytical Course  
Lecture 12 - Advance Analytical Course  
Lecture 13 - Advance Analytical Course  
Lecture 14 - Advance Analytical Course  
Lecture 15 - Advance Analytical Course  
Lecture 16 - Advance Analytical Course  
Lecture 17 - Advance Analytical Course  
Lecture 18 - Advance Analytical Course  
Lecture 19 - Advance Analytical Course  
Lecture 20 - Advance Analytical Course  
Lecture 21 - Advance Analytical Course  
Lecture 22 - Advance Analytical Course  
Lecture 23 - Advance Analytical Course  
Lecture 24 - Advance Analytical Course  
Lecture 25 - Advance Analytical Course  
Lecture 26 - Advance Analytical Course  
Lecture 27 - Advance Analytical Course  
Lecture 28 - Advance Analytical Course  
Lecture 29 - Advance Analytical Course

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Advance Analytical Course  
Lecture 31 - Advance Analytical Course  
Lecture 32 - Advance Analytical Course  
Lecture 33 - Advance Analytical Course  
Lecture 34 - Advance Analytical Course  
Lecture 35 - Advance Analytical Course  
Lecture 36 - Advance Analytical Course  
Lecture 37 - Advance Analytical Course  
Lecture 38 - Advance Analytical Course  
Lecture 39 - Advance Analytical Course  
Lecture 40 - Advance Analytical Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemical Applications of Symmetry and Group Theory

Subject Co-ordinator - Prof. Manabendra Chandra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Mathematics for Chemistry

Subject Co-ordinator - Dr. Madhav Ranganathan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Errors, precision and accuracy
- Lecture 2 - Probability and distributions
- Lecture 3 - Gaussian distribution and integrals
- Lecture 4 - Gaussian distribution, integrals, averages
- Lecture 5 - Practice problems 1
- Lecture 6 - Vectors and Vector Spaces
- Lecture 7 - Linear Independence
- Lecture 8 - Scalar and vector fields
- Lecture 9 - Gradient, divergence and curl
- Lecture 10 - Practice problems 2
- Lecture 11 - Line integrals, Potential Theory
- Lecture 12 - Surface and Volume Integrals
- Lecture 13 - Matrices
- Lecture 14 - Linear Systems, Cramer's Rule
- Lecture 15 - Practice Problems 3
- Lecture 16 - Rank and Inverse of a Matrix
- Lecture 17 - Eigenvalues and Eigenvectors
- Lecture 18 - Special matrices
- Lecture 19 - Spectral decomposition and Normal modes
- Lecture 20 - Practice Problems 4
- Lecture 21 - Differential equations, Order
- Lecture 22 - Exact and Inexact differentials
- Lecture 23 - Integrating Factors
- Lecture 24 - System of 1st order ODEs, matrix methods
- Lecture 25 - Practice Problems 5
- Lecture 26 - Types of 2nd order ODEs, nature of solutions
- Lecture 27 - Homogeneous 2nd order ODEs
- Lecture 28 - Homogeneous and nonhomogeneous equations
- Lecture 29 - Nonhomogeneous equations  $\hat{A}$  Variation of parameters

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Practice Problems 6
- Lecture 31 - Power series method for solving Legendre DE
- Lecture 32 - Properties of Legendre Polynomials
- Lecture 33 - Associated Legendre Polynomials, Spherical Harmonics
- Lecture 34 - Hermite Polynomials, Solution of Quantum Harmonic Oscillator
- Lecture 35 - Practice Problems 7
- Lecture 36 - Conditions for power series solution
- Lecture 37 - Frobenius Method, Bessel Functions
- Lecture 38 - Properties of Bessel Functions, circular boundary problems
- Lecture 39 - Legendre Polynomials, solution to radial part of H-atom
- Lecture 40 - Practice Problems 8



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Quantum Computing

Subject Co-ordinator - Prof. Debabrata Goswami

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - Motivation and Overview
- Lecture 2 - Introduction - Technical Details
- Lecture 3 - Introduction - Basic tools
- Lecture 4 - Computational Tools
- Lecture 5 - Quantum Measurement and Teleportation
- Lecture 6 - Quantum Teleportation and Cryptography
- Lecture 7 - DJ Algorithm and Implementation Aspects
- Lecture 8 - Grover's Algorithm
- Lecture 9 - Basics of Shor's Algorithm
- Lecture 10 - Shor's Algorithm and Quantum Fourier Transform (QFT)
- Lecture 11 - Basics of Quantum Mechanics
- Lecture 12 - Modern look at Quantum Mechanics
- Lecture 13 - Basics of NMR
- Lecture 14 - Concepts in NMR Quantum Computing
- Lecture 15 - Laser Basics
- Lecture 16 - Continuous Wave Lasers
- Lecture 17 - Pulsed Lasers
- Lecture 18
- Lecture 19
- Lecture 20
- Lecture 21 - Optical Implementation
- Lecture 22 - Solutions to problem set - 1
- Lecture 23 - Basics of Ion Traps
- Lecture 24 - Applications of Ion Traps in QIQC
- Lecture 25 - Reviewing Concepts and clarifying problems - 1
- Lecture 26 - Reviewing Concepts and clarifying problems - 2
- Lecture 27 - Qubits used in Commercial Quantum Computing
- Lecture 28 - Spintronics Quantum Computing
- Lecture 29 - Back to Basics - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Back to Basics - II
- Lecture 31 - Understanding Implementation Issues from the Basics - I
- Lecture 32 - Understanding Implementation Issues from the Basics - II
- Lecture 33 - Implementation with Solid-State Super conducting Qubits
- Lecture 34 - Concept of Density Matrix for Quantum Computing
- Lecture 35 - Understanding the ensemble of Qubits from Density Matrix
- Lecture 36 - Understanding Quantum Measurement, Entanglement etc. in Quantum Computing using Density Matrix
- Lecture 37 - Principles
- Lecture 38 - Measurements
- Lecture 39 - Working of Quantum Computers
- Lecture 40 - Academic Development in Quantum Computing - I
- Lecture 41 - Academic Development in Quantum Computing - II
- Lecture 42 - Commercial Development in Quantum Computing Implementation
- Lecture 43 - Use of Atomic Qubits in Quantum Computing
- Lecture 44 - Futuristic Aspects in Implementing Quantum Computing - I
- Lecture 45 - Futuristic Aspects in Implementing Quantum Computing - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Basics of Fluorescence Spectroscopy

Subject Co-ordinator - Prof. Pratik Sen

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
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Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Laser: Fundamentals and Applications

Subject Co-ordinator - Prof. Manabendra Chandra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Unique properties of LASERS and their applications
- Lecture 2 - LASER and its history
- Lecture 3 - Interaction of Light with matter
- Lecture 4 - Einsteins Concept of stimulated emission
- Lecture 5 - Calculation of Einsteins coefficient
- Lecture 6 - Population inversion, 2-level system and 3-level system
- Lecture 7 - 3-level System and 4-level system
- Lecture 8 - Components of LASERS
- Lecture 9 - Modes of LASER cavity and standing waves
- Lecture 10 - Transverse Modes of LASER cavity
- Lecture 11 - Threshold Condition
- Lecture 12 - Properties of Laser
- Lecture 13 - Properties of Laser
- Lecture 14 - Continuous and Pulsed Lasers
- Lecture 15 - Some Numerical problem
- Lecture 16 - Cavity Dumping
- Lecture 17 - Q-switching
- Lecture 18 - Q-switching and Pockels effect
- Lecture 19 - Passive Q-switching, Mode-Locking
- Lecture 20 - Mode Locking
- Lecture 21 - Mode - locking
- Lecture 22 - Mode - locking (Continued...)
- Lecture 23 - Passive Mode - locking and Types of LASERS
- Lecture 24 - Solid state LASERS
- Lecture 25 - Semiconductor LASERS and Gas LASERS
- Lecture 26 - Gas LASERS
- Lecture 27 - Chemical and Dye LASERS
- Lecture 28 - Introduction to Non Linear Optics
- Lecture 29 - Non Linear Optics

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- Lecture 30 - 2nd order Nonlinear optics
- Lecture 31 - Non-linear optical processes
- Lecture 32 - Aspects of SHG and Application of non-linear optics
- Lecture 33 - Application of LASER
- Lecture 34 - Application of Laser
- Lecture 35 - Application of Laser
- Lecture 36 - Laser Induced Chemistry
- Lecture 37 - Laser Induced Chemistry and Ultrafast chemical Dynamics
- Lecture 38 - Lasers in Medical Sciences
- Lecture 39 - Lasers in Material sciences and engineering and Optical Communications
- Lecture 40 - Laser safety and summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Advanced Mathematical Methods for Chemistry

Subject Co-ordinator - Prof. Madhav Ranganathan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Vectors, Vector Operations and Linear Independence
- Lecture 2 - Vector Operations, Generalization of Vectors
- Lecture 3 - Vector Differentiation, Vector Transformations
- Lecture 4 - Vector Integration, Line, Surface and Volume Integrals
- Lecture 5 - Practice Problems
- Lecture 6 - Matrix as a vector transformation, linear system
- Lecture 7 - Special Matrices
- Lecture 8 - Rotational Matrices, Eigenvalues and Eigenvectors
- Lecture 9 - Determinants, Matrix Inverse
- Lecture 10 - Practice Problems
- Lecture 11 - Step Function, Delta Function
- Lecture 12 - Gamma Function, Error Function
- Lecture 13 - Spherical Polar Coordinates
- Lecture 14 - Cylindrical Polar Coordinates, Integrals
- Lecture 15 - Recap of Module 3, Practice Problems
- Lecture 16 - ODEs and PDEs, First order ODEs, system of 1st order ODEs
- Lecture 17 - First order ODEs, exact integrals, integrating factors
- Lecture 18 - System of first order ODEs, Linear first order ODEs
- Lecture 19 - General solution of a system of linear first order ODEs with constant coefficients
- Lecture 20 - Recap of Module 4, Practice problems
- Lecture 21 - Homogeneous 2nd Order ODE, Basis Functions
- Lecture 22 - Nonhomogeneous 2nd Order ODE
- Lecture 23 - Power Series Method of Solving ODEs
- Lecture 24 - Frobenius Method / Power Series Method
- Lecture 25 - Time-independent Schrodinger Equation for H-atom
- Lecture 26 - Maxima and Minima, Taylor Series
- Lecture 27 - Taylor Series for functions of several variables
- Lecture 28 - Critical Points of Functions
- Lecture 29 - Lagranges Method of Undetermined Multipliers

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- Lecture 30 - Recap of Module 6, Practice Problems
- Lecture 31 - Nonlinear Differential Equations
- Lecture 32 - Phase Plane of A Pendulum
- Lecture 33 - Stability of Critical Points
- Lecture 34 - Population Dynamics Models
- Lecture 35 - Recap of Module 7, Practice Problems
- Lecture 36 - Fourier Series, Fourier Expansion of Periodic Functions
- Lecture 37 - (Part A)
- Lecture 38 - (Part B)
- Lecture 39 - Orthogonal Eigenfunctions, Sturm-Liouville Theory
- Lecture 40 - Recap of Module 8, Practice Problems
- Lecture 41 - Fourier Transforms
- Lecture 42 - Properties of Fourier Transforms
- Lecture 43 - Fourier Transforms and Partial Differential Equations
- Lecture 44 - Laplace Transforms
- Lecture 45 - Recap of Module 9, Practice Problems
- Lecture 46 - Partial Differential Equations, Boundary Conditions
- Lecture 47 - Separation of Variables
- Lecture 48 - (Part A)
- Lecture 49 - (Part B)
- Lecture 50 - Recap of Module 10, Practice Problems
- Lecture 51 - Discrete and Continuous Random Variables
- Lecture 52 - Probability Distribution Functions
- Lecture 53 - Poisson Distribution, Gaussain Distribution
- Lecture 54 - Error Estimates, Least Square Fit, Correlation Functions
- Lecture 55 - Recap of Module 11, Practice Problems



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Solid State Chemistry

Subject Co-ordinator - Prof. Madhav Ranganathan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Nature of solid state and the solid state materials
- Lecture 2 - Thermodynamics of solids
- Lecture 3 - Crystallisation Kinetics
- Lecture 4 - Synthetic Strategy
- Lecture 5 - Review of week 1 and Practice problems
- Lecture 6 - Unit Cells
- Lecture 7 - Conventional Unit Cell and Primitive Unit Cell
- Lecture 8 - Bravais Lattices
- Lecture 9 - Bravais Lattices, Basis and crystal
- Lecture 10 - Summary of week 2 and Practices Problems
- Lecture 11 - Symmetry In Crystals, Point Symmetries
- Lecture 12 - Reflections, Inversions and Rotoinversions
- Lecture 13 - Schonflies and Hermann-Mauguin Conventions
- Lecture 14 - Fractional Coordinates, Planer Visualization
- Lecture 15 - Review of week 3 And Practice Problems
- Lecture 16 - Combining symmetry operations, translational symmetries
- Lecture 17 - Screw Axis
- Lecture 18 - Glide Planes
- Lecture 19 - Symmetry and Symmetry Notations
- Lecture 20 - Summary of week 4 and Practice Problems
- Lecture 21 - Crystal Systems
- Lecture 22 - Crystal Systems and Unit Cells
- Lecture 23 - Point Groups
- Lecture 24 - Space Groups
- Lecture 25 - Week 5 Summary and Practice Problems
- Lecture 26 - 32 Crystal Classes Based on Symmetry
- Lecture 27 - Notation for 32 Crystal Classes
- Lecture 28 - Short Form of Hermann-Mauguin Notations
- Lecture 29 - Hermann - Mauguin notation for Space Groups

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Summary and Practice Problems
- Lecture 31 - Coordination number, Voids
- Lecture 32 - Lattice Imperfections and Crystals
- Lecture 33 - Line Planner and Bulk defects and crystals
- Lecture 34 - Thermodynamics of defects in crystals
- Lecture 35 - Review of Week 7, Practice Problems
- Lecture 36 - Miller Planes, Miller Indices
- Lecture 37 - Miller Indices for Hexagonal Systems, Distance between Planes
- Lecture 38 - X-ray diffraction, Bragg's Law, Reciprocal Lattice
- Lecture 39 - Reciprocal Lattice, XRD instrumentation
- Lecture 40 - Review of week 8, Practice Problems
- Lecture 41 - XRD - Analysis of Pattern
- Lecture 42 - Geometric Structure Factor - Missing Peaks
- Lecture 43 - X-Ray Crystallography
- Lecture 44 - Electron Microscopy
- Lecture 45 - Review of Week 9. Practice Problems
- Lecture 46 - Closed - Packed Structures and Voids
- Lecture 47 - Crystal Structures of Binary Compounds
- Lecture 48 - Perovskites and Spinals
- Lecture 49 - Space filling Polyhedra, Alloys
- Lecture 50 - Summary of Week 10 and Practice Problems
- Lecture 51 - Free electron Models
- Lecture 52 - Bloch Theorem
- Lecture 53 - Band Theory of Solids
- Lecture 54 - Bands in Higher Dimensions
- Lecture 55 - Summary of Week 11 and Practice Problems
- Lecture 56 - More about Band Theory, Crystal Momentum
- Lecture 57 - Density of States
- Lecture 58 - Metals, Insulators and Semiconductors
- Lecture 59 - Band Gap and Optical Properties
- Lecture 60 - Summary of Week 12 and Practice Problems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Bioinorganic Chemistry

Subject Co-ordinator - Prof. S. P. Rath

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General Introduction and Prospects
- Lecture 2 - Metals in Biology
- Lecture 3 - Metals in Biology
- Lecture 4 - Metals in Biology
- Lecture 5 - Metals in Biology
- Lecture 6 - Design Principles Used in Chemical Biology
- Lecture 7 - Design Principles Used in Chemical Biology
- Lecture 8 - Design Principles Used in Chemical Biology
- Lecture 9 - Design Principles Used in Chemical Biology
- Lecture 10 - Life with Oxygen
- Lecture 11 - Life with Oxygen
- Lecture 12 - Life with Oxygen
- Lecture 13 - Life with Oxygen
- Lecture 14 - Life with Oxygen
- Lecture 15 - Life with Oxygen
- Lecture 16 - Life with Oxygen
- Lecture 17 - Life with Oxygen
- Lecture 18 - Life with Oxygen
- Lecture 19 - Metals in Medicine
- Lecture 20 - Metals in Medicine

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemistry and Physics of Surfaces and Interfaces

Subject Co-ordinator - Prof. Thiruvancheril G. Gopakumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Intro-Chemistry and Physics of Surfaces and Interfaces
- Lecture 2 - Historic perspective to surface science
- Lecture 3 - Creating surfaces from bulk lattices
- Lecture 4 - Reconstruction of surfaces
- Lecture 5 - Hexagonal lattice and miller bravais indices
- Lecture 6 - Introduction to ultra-high Vacuum and Preparation of Clean Surfaces
- Lecture 7 - Adsorption and the Energetic of Adsorption
- Lecture 8 - Nomenclature and types of Adlayers
- Lecture 9 - Thermal Desorption Spectroscopy
- Lecture 10 - Different types of Preparation methods for Thin Films
- Lecture 11 - Examples of PVD and CVD
- Lecture 12 - Moire Pattern at Solid-Solid Interface
- Lecture 13 - Growth Modes of Adlayers
- Lecture 14 - Energies that Control the Growth of Adlayers
- Lecture 15 - Kinetic and Thermodynamic Control in Adlayer Growth
- Lecture 16 - Molecular Adsorbates: Preparation
- Lecture 17 - Molecular Adsorbates: Factors Controlling Molecular Adlayer Formation - I
- Lecture 18 - Molecular Adsorbates: Factors Controlling Molecular Adlayer Formation - II
- Lecture 19 - Molecular Adsorbates: Factors Controlling Molecular Adlayer Formation - III
- Lecture 20 - Scanning Tunneling Microscopy
- Lecture 21 - Tip-vacuum Tunneling Junction
- Lecture 22 - Scanning Tunneling Spectroscopy - I
- Lecture 23 - Scanning Tunneling Spectroscopy - II
- Lecture 24 - Scanning Tunneling Spectroscopy: Applications - I
- Lecture 25 - Scanning Tunneling Spectroscopy: Applications - II
- Lecture 26 - Imaging Molecules and Atom Manipulation on Surfaces
- Lecture 27 - Single Molecule Manipulation on Surfaces
- Lecture 28 - Inelastic Tunneling Spectroscopy
- Lecture 29 - Ultra-violet Photo-electron Spectroscopy (UPS)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ultra-violet Photo-electron Spectroscopy (UPS): Applications
- Lecture 31 - X-ray Photo-electron Spectroscopy (XPS)
- Lecture 32 - X-Ray Photo-electron Spectroscopy (XPS): Applications - 1
- Lecture 33 - X-Ray Photo-electron Spectroscopy (XPS): Applications - 2
- Lecture 34 - 2D Molecular Materials on Surface - 1
- Lecture 35 - 2D Molecular Materials on Surface - 2
- Lecture 36 - Atomic Force Microscopy (AFM) - I
- Lecture 37 - Atomic Force Microscopy (AFM) - II
- Lecture 38 - Atomic Force Microscopy (AFM) - III
- Lecture 39 - Dynamics of Atoms on Surfaces
- Lecture 40 - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Supramolecular Chemistry-I

Subject Co-ordinator - Prof. Parimal Kanti Bharadwaj

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Bio-inorganic chemistry

Subject Co-ordinator - Prof. D. Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Iron Storage and Transport - I
- Lecture 3 - Iron Storage and Transport - II
- Lecture 4 - Iron Storage and Transport - III
- Lecture 5 - Electron Transport Proteins - I
- Lecture 6 - Electron transport Proteins - II
- Lecture 7 - Electron Transport Proteins - III
- Lecture 8 - Electron Transport Proteins - IV
- Lecture 9 - Electron Transport Proteins - V
- Lecture 10 - Electron Transport Proteins - VI
- Lecture 11 - Electron Transport Proteins - VII
- Lecture 12 - Electron Transport Proteins - VIII
- Lecture 13 - Electron Transport Proteins - IX
- Lecture 14 - Electron Transfer in Photosynthesis - I
- Lecture 15 - Electron Transfer in Photosynthesis - II
- Lecture 16 - Manganese Enzymes
- Lecture 17 - Nickel Enzymes - I
- Lecture 18 - Nickel Enzymes - II
- Lecture 19 - Nickel Enzymes - III
- Lecture 20 - Nickel Enzymes - IV
- Lecture 21 - Nickel Enzymes - V
- Lecture 22 - Molybdenum Enzymes - I
- Lecture 23 - Molybdenum Enzymes - II
- Lecture 24 - Molybdenum Enzymes - III
- Lecture 25 - Molybdenum Enzymes - IV
- Lecture 26 - Molybdenum Enzymes - V
- Lecture 27 - Molybdenum Enzymes - VI
- Lecture 28 - Molybdenum and Tungsten in Biology
- Lecture 29 - Tungsten Enzymes - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tungsten Enzymes - II
- Lecture 31 - Tungsten Enzymes - III
- Lecture 32 - Tungsten Enzymes - IV
- Lecture 33 - Vanadium Enzymes - I
- Lecture 34 - Vanadium Enzymes - II
- Lecture 35 - Vanadium Enzymes - III
- Lecture 36 - Vanadium Enzymes - IV
- Lecture 37 - Non-metals in Biology - I
- Lecture 38 - Non-metals in Biology - II
- Lecture 39 - Non-metals in Biology - III
- Lecture 40 - Non-metals in Biology - IV

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Co-ordination chemistry (chemistry of transition elements)

Subject Co-ordinator - Prof. D. Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Definition  
Lecture 3 - Classification of Ligands - I  
Lecture 4 - Classification of Ligands - II  
Lecture 5 - Ligands - III and Nomenclature - I  
Lecture 6 - Nomenclature - II  
Lecture 7 - Coordination Number - I  
Lecture 8 - Coordination Number - II  
Lecture 9 - Coordination Number - III  
Lecture 10 - Coordination Number - IV  
Lecture 11 - Isomerism - I  
Lecture 12 - Isomerism - II  
Lecture 13 - Coordination Equilibria - I  
Lecture 14 - Coordination Equilibria - II  
Lecture 15 - Bonding in Complexes - I  
Lecture 16 - Bonding in Complexes - II  
Lecture 17 - Bonding in Complexes - III  
Lecture 18 - Bonding in Complexes - IV  
Lecture 19 - Jahn-Teller Effect  
Lecture 20 - Spin Crossover and Colour  
Lecture 21 - Optical Spectra  
Lecture 22 - d-d Transitions  
Lecture 23 - Charge Transfer  
Lecture 24 - Orgel Diagram  
Lecture 25 - Tanabe Sugano Diagram  
Lecture 26 - MLCT Transitions  
Lecture 27 - Application of CFT  
Lecture 28 - Spinels  
Lecture 29 - Magnetochemistry

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Magnetic Properties
- Lecture 31 - Magnetic Measurements
- Lecture 32 - Ligand Field Theory
- Lecture 33 - Sigma Orbitals
- Lecture 34 - Pi Orbitals
- Lecture 35 - Reaction Mechanism - I
- Lecture 36 - Reaction Mechanism - II
- Lecture 37 - Reaction Mechanism - III
- Lecture 38 - Reaction Mechanism - IV
- Lecture 39 - Reaction Mechanism - V
- Lecture 40 - Biological Inorganic Chemistry

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Heterocyclic Chemistry

Subject Co-ordinator - Prof. D.R. Mal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition and Scope
- Lecture 2 - Single - Step Methods for IVPs
- Lecture 3 - Systematic Nomenclature
- Lecture 4 - Nomenclature (Continued...) and Important Names
- Lecture 5 - Overview of Structure Determination in Heterocyclic Chemistry
- Lecture 6 -  $^{15}\text{N}$  NMR in Heterocyclic Chemistry
- Lecture 7 - Effects of Ring Nitrogen - A
- Lecture 8 - Effects of Ring Nitrogen - B
- Lecture 9 - Effects of Ring Nitrogen - C
- Lecture 10 - Oxidation in Heterocyclic Chemistry
- Lecture 11 - Oxidation in Heterocyclic Chemistry (Continued...)
- Lecture 12 - Reduction in Heterocyclic Chemistry
- Lecture 13 - Radicals in Heterocyclic Chemistry - I
- Lecture 14 - Radicals in Heterocyclic Chemistry - II
- Lecture 15 - Lithiation for 5-membered heterocycles
- Lecture 16 - Lithiation for 5-membered heterocycles (Continued...)
- Lecture 17 - Lithiation of 6-membered heterocycle and non-aromatic heterocycles
- Lecture 18 - Magnetiation and Zincation in Heterocyclic Chemistry
- Lecture 19 - Transition metal catalyzed cross coupling
- Lecture 20 - Transition metal catalyzed cross coupling (Continued...)
- Lecture 21 - Dehydrogenative (Oxidative) cross coupling
- Lecture 22 - Tert-amino effect in heterocycle synthesis
- Lecture 23 - [4 plus 2] cycloaddition in heterocyclic chemistry
- Lecture 24 - [4 plus 2] cycloaddition in heterocyclic chemistry (Continued...)
- Lecture 25 - [3 plus 2] Cycloaddition in heterocyclic chemistry
- Lecture 26 - Cycloaddition
- Lecture 27 - [4 plus 3] Cycloaddition
- Lecture 28 - [5 plus 2] Cycloaddition
- Lecture 29 - [2 plus 2 plus 2] Cycloaddition

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pyrrole Synthesis - I
- Lecture 31 - Pyrrole Synthesis - II
- Lecture 32 - Indole Synthesis - I
- Lecture 33 - Indole Synthesis - II
- Lecture 34 - Furan Synthesis
- Lecture 35 - Thiophene Synthesis
- Lecture 36 - Oxazole, Imidazole and Thiazole Synthesis
- Lecture 37 - Pyridine Synthesis
- Lecture 38 - Synthesis of Quinolines and Isoquinolines
- Lecture 39 - Bicyclic Polyheteroatomic Heterocycles
- Lecture 40 - Heterocyclic Rearrangements

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Organic photochemistry and pericyclic reactions

Subject Co-ordinator - Dr. N.D. Pradeep Singh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Organic Photochemistry
- Lecture 2 - Introduction to Organic Photochemistry (Continued...)
- Lecture 3 - Reactivity of  $n\text{-}\pi^*$
- Lecture 4 -  $\hat{I}\pm$  - cleavage - I
- Lecture 5 -  $\hat{I}\pm$  - cleavage - II
- Lecture 6 -  $\hat{I}\pm$  - cleavage - III
- Lecture 7 -  $\hat{I}^2$  - cleavage
- Lecture 8 - Intramolecular Hydrogen Abstraction - I
- Lecture 9 - Intramolecular Hydrogen Abstraction - II
- Lecture 10 - Intramolecular Hydrogen Abstraction - III
- Lecture 11 - Intramolecular Hydrogen Abstraction
- Lecture 12 - Addition to  $\hat{I}$  - System
- Lecture 13 - Intramolecular Paterno-Buchi Reaction
- Lecture 14 - Energy of Electron Transfer Reaction
- Lecture 15 - Reactivity of  $\hat{I} - \hat{I}^*$
- Lecture 16 - Addition Reaction of  $\hat{I} - \hat{I}^*$
- Lecture 17 - Addition Reaction of  $\hat{I} - \hat{I}^*$  (Continued...)
- Lecture 18 - Di-Pi Methane Rearrangement
- Lecture 19 - Photochemistry of Cyclohexanone
- Lecture 20 - Singlet Oxygen Chemistry
- Lecture 21 - Carbenes and Nitrenes
- Lecture 22 - Remote Functionalisation
- Lecture 23 - Introduction to Pericyclic Reaction
- Lecture 24 - Sigmatropic Reactions - I
- Lecture 25 - Sigmatropic Reactions - II
- Lecture 26 - Sigmatropic Reactions - III
- Lecture 27 - Cycloaddition Reactions - I
- Lecture 28 - Cycloaddition Reactions - II
- Lecture 29 - Cycloaddition - Diels-Alder Reactions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cycloaddition - Diels-Alder Reactions (Continued...)
- Lecture 31 - Cycloaddition - Ene Reactions
- Lecture 32 - 1,3 Dipolar Cycloaddition - I
- Lecture 33 - 1,3 Dipolar Cycloaddition - II
- Lecture 34 - Electrocyclic Reaction - I
- Lecture 35 - Electrocyclic Reaction - II
- Lecture 36 - Practice Problems in Pericyclic Reaction - I
- Lecture 37 - Practice Problems in Pericyclic Reaction - II
- Lecture 38 - Practice Problems in Pericyclic Reaction - III
- Lecture 39 - Chelotropic Reaction
- Lecture 40 - Application of Photochemistry

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Polymer Chemistry

Subject Co-ordinator - Dr. D. Dhara

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Polymers
- Lecture 2 - Introduction to Polymers (Continued...)
- Lecture 3 - Introduction to Polymers (Continued...)
- Lecture 4 - Step - growth Polymerization
- Lecture 5 - Step - growth Polymerization (Continued...)
- Lecture 6 - Step - growth Polymerization (Continued...)
- Lecture 7 - Step - growth Polymerization (Continued...)
- Lecture 8 - Step - growth Polymerization (Continued...)
- Lecture 9 - Radical Chain Polymerization
- Lecture 10 - Radical Chain Polymerization (Continued...)
- Lecture 11 - Radical Chain Polymerization (Continued...)
- Lecture 12 - Radical Chain Polymerization (Continued...)
- Lecture 13 - Radical Chain Polymerization (Continued...)
- Lecture 14 - Radical Chain Polymerization (Continued...)
- Lecture 15 - Radical Chain Polymerization (Continued...)
- Lecture 16 - Radical Chain Polymerization (Continued...)
- Lecture 17 - Ionic Chain Polymerization
- Lecture 18 - Ionic Chain Polymerization (Continued...)
- Lecture 19 - Ionic Chain Polymerization (Continued...) and Chain Copolymerization
- Lecture 20 - Chain Copolymerization (Continued...)
- Lecture 21 - Chain Copolymerization (Continued...)
- Lecture 22 - Chain Copolymerization (Continued...) and Ring Opening Polymerization
- Lecture 23 - Polymer Stereochemistry and Coordination Polymerization
- Lecture 24 - Polymer Stereochemistry and Coordination Polymerization (Continued...)
- Lecture 25 - Polymer Solutions
- Lecture 26 - Polymer Solutions (Continued...)
- Lecture 27 - Polymer Solutions (Continued...)
- Lecture 28 - Polymer Solutions (Continued...) and Chain Dimensions
- Lecture 29 - Chain Dimensions (Continued...) and Frictional Properties of Solution

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Frictional Properties of Solutions (Continued...) and Determination of Molecular Weight
- Lecture 31 - Determination of Molecular Weight of Polymers (Continued...)
- Lecture 32 - Determination of Molecular Weight of Polymers (Continued...)
- Lecture 33 - Determination of Molecular Weight of Polymers (Continued...)
- Lecture 34 - Structural Analysis of Polymers by Spectroscopic Methods
- Lecture 35 - Amorphous and Crystalline State
- Lecture 36 - Amorphous and Crystalline State
- Lecture 37 - Polymer Properties and Evaluation
- Lecture 38 - Polymer Properties and Evaluation
- Lecture 39 - Other Properties (Continued...) and Polymer Additives
- Lecture 40 - Polymer Additives (Continued...)
- Lecture 41 - Polymer Additives (Continued...), Blends, Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Rate processes

Subject Co-ordinator - Dr. M. Halder

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Rate Processes
- Lecture 2 - Reaction Rates and Rate Laws
- Lecture 3 - Effect of Temperature on Reaction Rate
- Lecture 4 - Effect of Temperature on Reaction Rate (Continued...)
- Lecture 5 - Complex Reaction
- Lecture 6 - Complex Reaction (Continued...)
- Lecture 7 - Complex Reaction (Continued...)
- Lecture 8 - Complex Reaction (Continued...)
- Lecture 9 - Theories of Reaction Rate
- Lecture 10 - Theories of Reaction Rate (Continued...)
- Lecture 11 - Theories of Reaction Rate (Continued...)
- Lecture 12 - Theories of Reaction Rate (Continued...)
- Lecture 13 - Theories of Reaction Rate (Continued...)
- Lecture 14 - Kinetics of Some Specific Reactions
- Lecture 15 - Kinetics of Some Specific Reactions (Continued...)
- Lecture 16 - Enzyme Inhibition
- Lecture 17 - Oscillatory Reactions
- Lecture 18 - Acid Base Catalysis
- Lecture 19 - Acid Base Catalysis (Continued...)
- Lecture 20 - Kinetic Isotope Effects
- Lecture 21 - Fast Reactions
- Lecture 22 - Fast Reactions (Continued...)
- Lecture 23 - Magneto Kinetics
- Lecture 24 - Reactions in Solutions
- Lecture 25 - Reactions in Solutions (Continued...)
- Lecture 26 - Kinetics at Electrodes
- Lecture 27 - Kinetics at Electrodes (Continued...)
- Lecture 28 - Ultrafast Process
- Lecture 29 - Ultrafast Process (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ultrafast Process (Continued...)
- Lecture 31 - Reaction Dynamics
- Lecture 32 - Reaction Dynamics (Continued...)
- Lecture 33 - Reaction Dynamics (Continued...)
- Lecture 34 - Reaction Dynamics
- Lecture 35 - Reaction Dynamics
- Lecture 36 - Reaction Dynamics
- Lecture 37 - Reaction Dynamics
- Lecture 38 - Reaction Dynamics
- Lecture 39 - Reaction Dynamics
- Lecture 40 - Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Biochemistry

Subject Co-ordinator - Prof. S. Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Amino Acid - I  
Lecture 2 - Amino Acid - II  
Lecture 3 - Protein Structure - I  
Lecture 4 - Protein Structure - II  
Lecture 5 - Protein Structure - III  
Lecture 6 - Protein Structure - IV  
Lecture 7 - Enzymes - I  
Lecture 8 - Enzymes - II  
Lecture 9 - Enzymes - III  
Lecture 10 - Enzyme Mechanisms - I  
Lecture 11 - Enzyme Mechanisms - II  
Lecture 12 - Myoglobin and Hemoglobin  
Lecture 13 - Lipids and Membranes - I  
Lecture 14 - Lipids and Membranes - II  
Lecture 15 - Membrane Transport  
Lecture 16 - Nucleic Acids - I  
Lecture 17 - Nucleic Acids - II  
Lecture 18 - Nucleic Acids - III  
Lecture 19 - Vitamins and Coenzymes - I  
Lecture 20 - Vitamins and Coenzymes - II  
Lecture 21 - Carbohydrates - I  
Lecture 22 - Carbohydrates - II  
Lecture 23 - Bioenergetics - I  
Lecture 24 - Bioenergetics - II  
Lecture 25 - Metabolism - I  
Lecture 26 - Metabolism - II  
Lecture 27 - Metabolism - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Analytical Chemistry

Subject Co-ordinator - Prof. Debashis Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Chemicals and Materials Analysis
- Lecture 2 - Methods
- Lecture 3 - Methods (Continued...)
- Lecture 4 - Methods (Continued...)
- Lecture 5 - Methods (Continued...)
- Lecture 6 - Role of Analytical Chemistry
- Lecture 7 - Techniques, Wet Ashing
- Lecture 8 - Apparatus and Weighing
- Lecture 9 - Filtration, Ignition
- Lecture 10 - Crucibles, Filter Papers and their Uses
- Lecture 11 - Chemical Equilibria
- Lecture 12 - Chemical Equilibria (Continued...)
- Lecture 13 - Chemical Equilibria (Continued...)
- Lecture 14 - Chemical Equilibria (Continued...)
- Lecture 15 - Chemical Equilibria (Continued...)
- Lecture 16 - Spectrochemic Methods - I
- Lecture 17 - Spectrochemic Methods - I (Continued...)
- Lecture 18 - Spectrochemic Methods - I (Continued...)
- Lecture 19 - Spectrochemic Methods - I (Continued...)
- Lecture 20 - Spectrochemic Methods - I (Continued...)
- Lecture 21 - Spectrochemical Methods - II
- Lecture 22 - Spectrochemical Methods - II (Continued...)
- Lecture 23 - Spectrochemical Methods - II (Continued...)
- Lecture 24 - Spectrochemical Methods - II (Continued...)
- Lecture 25 - Spectrochemical Methods - II (Continued...)
- Lecture 26 - Spectrochemical Methods - III
- Lecture 27 - Spectrochemical Methods - III (Continued...)
- Lecture 28 - Spectrochemical Methods - III (Continued...)
- Lecture 29 - Spectrochemical Methods - III (Continued...)

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- Lecture 30 - Spectrochemical Methods - III (Continued...)
- Lecture 31 - Thermal Methods of Analysis - I
- Lecture 32 - Thermal Methods of Analysis - I (Continued...)
- Lecture 33 - Thermal Methods of Analysis - I (Continued...)
- Lecture 34 - Thermal Methods of Analysis - I (Continued...)
- Lecture 35 - Thermal Methods of Analysis - I (Continued...)
- Lecture 36 - Thermal Methods of Analysis - II
- Lecture 37 - Thermal Methods of Analysis - II (Continued...)
- Lecture 38 - Thermal Methods of Analysis - II (Continued...)
- Lecture 39 - Thermal Methods of Analysis - II (Continued...)
- Lecture 40 - Thermal Methods of Analysis - II (Continued...)
- Lecture 41 - Electrochemical Methods - I
- Lecture 42 - Electrochemical Methods - I (Continued...)
- Lecture 43 - Electrochemical Methods - I (Continued...)
- Lecture 44 - Electrochemical Methods - I (Continued...)
- Lecture 45 - Electrochemical Methods - I (Continued...)
- Lecture 46 - Electrochemical Methods - II
- Lecture 47 - Electrochemical Methods - II (Continued...)
- Lecture 48 - Electrochemical Methods - II (Continued...)
- Lecture 49 - Electrochemical Methods - II (Continued...)
- Lecture 50 - Electrochemical Methods - II (Continued...)
- Lecture 51 - Electrochemical Methods - III
- Lecture 52 - Electrochemical Methods - III (Continued...)
- Lecture 53 - Electrochemical Methods - III (Continued...)
- Lecture 54 - Electrochemical Methods - III (Continued...)
- Lecture 55 - Electrochemical Methods - III (Continued...)
- Lecture 56 - Applications
- Lecture 57 - Applications (Continued...)
- Lecture 58 - Applications (Continued...)
- Lecture 59 - Applications (Continued...)
- Lecture 60 - Applications (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Co-ordination Chemistry (Chemistry of Transition Elements)

Subject Co-ordinator - Prof. Debashis Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Definition
- Lecture 3 - Classification of Ligands - I
- Lecture 4 - Classification of Ligands - II
- Lecture 5 - Ligands- III and Nomenclature - I
- Lecture 6 - Nomenclature - II
- Lecture 7 - Coordination Number - I
- Lecture 8 - Coordination Number - II
- Lecture 9 - Coordination Number - III
- Lecture 10 - Coordination Number - IV
- Lecture 11 - Isomerism - I
- Lecture 12 - Isomerism - II
- Lecture 13 - Co-ordination Equilibria - I
- Lecture 14 - Co-ordination Equilibria - II
- Lecture 15 - Bonding in Complexes - I
- Lecture 16 - Bonding in Complexes - II
- Lecture 17 - Bonding in Complexes - III
- Lecture 18 - Bonding in Complexes - IV
- Lecture 19 - Jahn - Teller Effect
- Lecture 20 - Spin Crossover and Colour
- Lecture 21 - Optical Spectra
- Lecture 22 - d-d Transitions
- Lecture 23 - Charge Transfer
- Lecture 24 - Orgel Diagram
- Lecture 25 - Tanabe Sugano Diagram
- Lecture 26 - MLCT Transitions
- Lecture 27 - Application of CFT
- Lecture 28 - Spinels
- Lecture 29 - Magnetochemistry

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Magnetic Properties
- Lecture 31 - Magnetic Measurements
- Lecture 32 - Ligand Field Theory
- Lecture 33 - Sigma Orbitals
- Lecture 34 - Pi Orbitals
- Lecture 35 - Reaction Mechanism - I
- Lecture 36 - Reaction Mechanism - II
- Lecture 37 - Reaction Mechanism - III
- Lecture 38 - Reaction Mechanism - IV
- Lecture 39 - Reaction Mechanism - V
- Lecture 40 - Biological Inorganic Chemistry



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Stereochemistry

Subject Co-ordinator - Prof. A. Basak

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Constitution and Configuration
- Lecture 2 - Chirality, Symmetry Elements
- Lecture 3 - Project Ion Formulae Rules for Drawing
- Lecture 4 - Chirotopicity and Stereogenicity
- Lecture 5 - Newmann Projection, Saw Horse Projection, Wedge Formula
- Lecture 6 - Chirotopicity and Stereogenicity
- Lecture 7 - Absolute Configuration
- Lecture 8 - Absolute Configuration (Continued...)
- Lecture 9 - Problems on the above topics
- Lecture 10 - Topicity
- Lecture 11 - Axial Chirality in Allenes, Biphenyls
- Lecture 12 - Relative Configuration, Prochiral Faces and Prochiral Centres
- Lecture 13 - Chirality in Heteroatom Systems
- Lecture 14 - Conformations and Conformers
- Lecture 15 - Conformational Analysis of Acyclic Molecules
- Lecture 16 - Conformational Analysis of Acyclic Molecules (Continued...)
- Lecture 17 - Conformations of Acyclic Molecules Containing Heteroatoms
- Lecture 18 - Conformations of Cyclic Systems
- Lecture 19 - Conformations of Cyclic Systems (Continued...)
- Lecture 20 - Conformation of Cyclobutane and Cyclopentane
- Lecture 21 - Conformation of Cyclohexane
- Lecture 22 - Energy Changes During Flipping
- Lecture 23 - Energy Comparison between Chair and Boat Conformations
- Lecture 24 - Conformational Analysis of Substituted Cyclohexanes
- Lecture 25 - Conformational Analysis of Substituted Cyclohexanes (Continued...)
- Lecture 26 - Conformational Analysis of Substituted Cyclohexanes (Continued...)
- Lecture 27 - Conformational Analysis of Substituted Cyclohexanes (Continued...)
- Lecture 28 - Conformational Analysis of Systems with Preference for Axial Groups
- Lecture 29 - Conformation and Reactivity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Conformation and Reactivity (Continued...)
- Lecture 31 - Conformation and Reactivity (Continued...)
- Lecture 32 - Stereoelectronic Effects
- Lecture 33 - Stereoelectronic Effects (Continued...)
- Lecture 34 - Substitution and Elimination in Cyclohexane Systems
- Lecture 35 - Stereospecific and Stereoselective Reactions and Asymmetric Synthesis (Elementary Idea)
- Lecture 36 - Asymmetric Induction
- Lecture 37 - Asymmetric Induction
- Lecture 38 - Asymmetric Induction (Continued...)
- Lecture 39 - Facial Selectivity and Examples of Asymmetric Synthesis
- Lecture 40 - Revisiting the Contents Covered

## NPTel Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTel Video Course - Chemistry and Biochemistry - NOC:A Study Guide in Organic Retrosynthesis - Problem Solving

Subject Co-ordinator - Prof. Samik Nanda

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introductory Remarks
- Lecture 2 - Introductory remarks (Continued...)
- Lecture 3 - Introductory remarks and some rapid fire quiz
- Lecture 4 - Retro Quiz based on simple Transformation
- Lecture 5 - Transformation based strategy for a given target
- Lecture 6 - Tf/Fg/SM based strategy and its exploration
- Lecture 7 - Tf/SM/Fg based approaches to solve some basic problems
- Lecture 8 - Tf/SM/Fg based strategy and its exploration
- Lecture 9 - Tf/SM/Fg based strategy and its exploration for some simple target molecules
- Lecture 10 - Tf/SM/Fg based strategy and its exploration
- Lecture 11 - Tf/SM/Fg based strategies and its exploration
- Lecture 12 - Tf/Fg/SM based strategies and its exploration
- Lecture 13 - Tf/Fg/SM based approaches and its exploration
- Lecture 14 - Tf/Fg/SM based strategies and its exploration
- Lecture 15 - Multiple Tf based strategy for small molecule disconnection
- Lecture 16 - Multiple Tf based strategies
- Lecture 17 - Specific Tf such as Barton's nitrile ester photolysis
- Lecture 18 - Specific transformation
- Lecture 19 - Selective transformations
- Lecture 20 - Functional Group (Fg) based strategies
- Lecture 21 - Functional group based strategy
- Lecture 22 - Fg based strategy
- Lecture 23 - Fg based strategy
- Lecture 24 - Fg based strategy based on protecting groups
- Lecture 25 - Fg based strategy
- Lecture 26 - Protecting group based strategic disconnection
- Lecture 27 - Fg group based strategy
- Lecture 28 - Fg based strategy
- Lecture 29 - Fg based strategies

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fg based strategy
- Lecture 31 - Fg based strategy
- Lecture 32 - Fg based strategy
- Lecture 33 - Starting material (SM) based strategy
- Lecture 34 - Fg/Tf/SM based strategies
- Lecture 35 - Fg/Tf/SM based strategies
- Lecture 36 - Fg/Tf/SM based strategies
- Lecture 37 - Fg based strategies
- Lecture 38 - Fg based strategies in combination with SM and Tf
- Lecture 39 - Fg/SM/Tf based combined strategies
- Lecture 40 - Fg/SM/Tf based combined strategies
- Lecture 41 - Fg based strategies
- Lecture 42 - Fg based strategies
- Lecture 43 - Symmetry based strategy
- Lecture 44 - Symmetry based strategies
- Lecture 45 - Symmetry based strategies
- Lecture 46 - Symmetry based strategy
- Lecture 47 - Symmetry based strategies
- Lecture 48 - Symmetry based strategies
- Lecture 49 - Topological based strategies
- Lecture 50 - Topological strategies
- Lecture 51 - Topological strategies
- Lecture 52 - Stereochemical strategies
- Lecture 53 - Stereochemical strategies
- Lecture 54 - Stereochemical strategies
- Lecture 55 - Stereochemical Strategies
- Lecture 56 - Stereochemical strategies
- Lecture 57 - Stereochemical strategies
- Lecture 58 - Stereochemical strategies
- Lecture 59 - Synthon concept revisited
- Lecture 60 - Concluding remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Introduction to Molecular Thermodynamics

Subject Co-ordinator - Prof. Srabani Taraphder

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of Classical Thermodynamics - Part I
- Lecture 2 - Review of Classical Thermodynamics - Part II
- Lecture 3 - Thermodynamic potentials - Part 1
- Lecture 4 - Thermodynamic potentials - Part 2
- Lecture 5 - Microstates of a system
- Lecture 6 - Microstates of a System (Continued...)
- Lecture 7 - Microstates of a system (Continued...)
- Lecture 8 - Microstates of a system (Continued...)
- Lecture 9 - Microstates of a system
- Lecture 10 - Microstates of a system
- Lecture 11 - Microstates of a system (Continued...)
- Lecture 12 - Microstates of a system (Continued...)
- Lecture 13 - Microstates of a System (Continued...)
- Lecture 14 - Fundamentals of Statistical Mechanics
- Lecture 15 - Statistical Ensembles
- Lecture 16 - Microstates of a system
- Lecture 17 - Canonical ensemble - Part I
- Lecture 18 - Canonical Ensemble - Part I (Continued...)
- Lecture 19 - Canonical Ensemble - Part II
- Lecture 20 - Canonical Ensemble - Part III
- Lecture 21 - Ideal gas
- Lecture 22 - Ideal gases (Continued...)
- Lecture 23 - Ideal gases (Continued...)
- Lecture 24 - Ideal gases (Continued...)
- Lecture 25 - Statistical thermodynamics of ideal gases (Continued...)
- Lecture 26 - Statistical Thermodynamics of ideal gases (Continued...)
- Lecture 27 - Statistical thermodynamics of ideal gases (Continued...)
- Lecture 28 - Statistical thermodynamics of ideal gases (Continued...)
- Lecture 29 - Statistical thermodynamics of ideal gases (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Statistical thermodynamics of diatomic ideal gases
- Lecture 31 - Statistical thermodynamics of ideal gas
- Lecture 32 - Chemical reaction equilibrium
- Lecture 33 - Specific heat of solids
- Lecture 34 - Application of Molecular Thermodynamics
- Lecture 35 - Introduction to classical statistical mechanics
- Lecture 36 - Introduction to classical statistical mechanics (Continued...)
- Lecture 37 - Classical Statistical Mechanics
- Lecture 38 - Classical Statistical Mechanics
- Lecture 39 - Classical Statistical Mechanics
- Lecture 40 - Rate of Chemical Reaction

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Molecules in Motion

Subject Co-ordinator - Prof. Amita Pathak Mahanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Kinetic theory of gases  
Lecture 2 - Kinetic theory of gases (Continued...)  
Lecture 3 - Kinetic theory of gases (Continued...)  
Lecture 4 - Kinetic theory of gases (Continued...)  
Lecture 5 - Kinetic theory of gases (Continued...)  
Lecture 6 - Kinetic theory of gases (Continued...)  
Lecture 7 - Kinetic theory of gases (Continued...)  
Lecture 8 - Kinetic theory of gases (Continued...)  
Lecture 9 - Kinetic theory of gases (Continued...)  
Lecture 10 - Kinetic theory of gases (Continued...)  
Lecture 11 - Transport properties  
Lecture 12 - Transport properties (Continued...)  
Lecture 13 - Transport properties of gases  
Lecture 14 - Molecular motion in Liquids  
Lecture 15 - Molecular motion in Liquids (Continued...)  
Lecture 16 - Molecular motion in Liquids (Continued...)  
Lecture 17 - Molecular motion in Liquids (Continued...)  
Lecture 18 - Molecular motion in Liquids (Continued...)  
Lecture 19 - Molecular motion in Liquids (Continued...)  
Lecture 20 - Molecular motion in Liquids (Continued...)  
Lecture 21 - Molecular motion in Liquids (Continued...)  
Lecture 22 - Molecular motion in Liquids (Continued...)  
Lecture 23 - Molecular motion in Liquids (Continued...)  
Lecture 24 - Molecular motion in Liquids (Continued...)  
Lecture 25 - Molecular motion in Liquids (Continued...)  
Lecture 26 - Molecular motion in Liquids (Continued...)  
Lecture 27 - Molecular motion in Liquids (Continued...)  
Lecture 28 - Molecular motion in Liquids (Continued...)  
Lecture 29 - Molecular motion in Liquids (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Molecular motion in Liquids (Continued...)
- Lecture 31 - Molecular motion in Liquids (Continued...)
- Lecture 32 - Molecular motion in Liquids (Continued...)
- Lecture 33 - Molecular motion in Liquids (Continued...)
- Lecture 34 - Molecular motion in Liquids (Continued...)
- Lecture 35 - Molecular motion in Liquids (Continued...)
- Lecture 36 - Molecular motion in Liquids (Continued...)
- Lecture 37 - Molecular motion in Liquids (Continued...)
- Lecture 38 - Molecular motion in gases
- Lecture 39 - Molecular motion in gases
- Lecture 40 - Molecular motion in gases



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Experimental Biochemistry

Subject Co-ordinator - Prof. Soumya De, Prof. Swagata Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Buffers
- Lecture 3 - Introduction to Biochemistry Laboratory Equipments and Safety Measures
- Lecture 4 - Practical Aspects of Making Buffer
- Lecture 5 - Making Tris Buffer (pH=8.2)
- Lecture 6 - Making Phosphate Buffer (100mM)
- Lecture 7 - Amino Acids and Their Properties
- Lecture 8 - Amino Acid Titrations
- Lecture 9 - pI Determination of Glycine
- Lecture 10 - pI Determination of Lysine
- Lecture 11 - Summary
- Lecture 12 - UV and Visible Spectroscopy
- Lecture 13 - Fluorescence Spectroscopy
- Lecture 14 - UV/Visible Spectra of Amino Acids and Proteins
- Lecture 15 - Fluorescence Spectra of Amino Acids and proteins
- Lecture 16 - Spectroscopic Techniques Summary
- Lecture 17 - Protein Folding and Denaturation - I
- Lecture 18 - Protein Folding and Denaturation - II
- Lecture 19 - Urea denaturation of HSA studied by UV/Vis absorbance
- Lecture 20 - Temperature denaturation of HSA studied by UV/Vis absorbance
- Lecture 21 - Denaturation of HSA by GdnHCl studied by Trp fluorescence
- Lecture 22 - Protein Folding and Denaturation Summary
- Lecture 23 - Chromatographic Techniques - I
- Lecture 24 - Chromatographic Techniques - II
- Lecture 25 - Protein Purification by Size Exclusion Chromatography (SEC)
- Lecture 26 - Protein Purification by Affinity Chromatography
- Lecture 27 - Gel Electrophoresis of DNA and Proteins - Part I
- Lecture 28 - Gel Electrophoresis of DNA and Proteins - Part II
- Lecture 29 - Gel Electrophoresis of DNA and Proteins - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Isolation and Characterization of Proteins Part - I
- Lecture 31 - Isolation and Characterization of Proteins Part - II
- Lecture 32 - Isolation and Purification of Proteins
- Lecture 33 - Quality and Quantity of the Isolated Protein
- Lecture 34 - Enzyme Kinetics - I
- Lecture 35 - Enzyme Kinetics - II
- Lecture 36 - Enzyme Kinetics (by using enzyme from apple juice)
- Lecture 37 - Enzyme Kinetics (by using enzyme from apple juice) (Continued...)
- Lecture 38 - Isolation and Characterization of DNA Part - I
- Lecture 39 - Isolation and Characterization of DNA Part - II
- Lecture 40 - Bacterial Culture for Plasmid DNA Isolation
- Lecture 41 - Isolation of Plasmid DNA
- Lecture 42 - Isolation and Characterization of DNA Summary
- Lecture 43 - Basics of rDNA Technology Part - I
- Lecture 44 - Basics of rDNA Technology Part - II
- Lecture 45 - Cloning
- Lecture 46 - DNA Transformation
- Lecture 47 - Protein-Ligand Interaction
- Lecture 48 - Protein-Ligand Interaction (Continued...)
- Lecture 49 - Interaction study of HSA protein with Curcumin and Gallic acid using UV-Vis spectroscopy
- Lecture 50 - Interaction study of HSA protein with Curcumin and Gallic acid using UV-Vis spectroscopy (Continued...)
- Lecture 51 - Analysis of the Structure of Protein ligand complex
- Lecture 52 - Immunoassay Techniques
- Lecture 53 - Western Blotting Technique

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Industrial Inorganic Chemistry

Subject Co-ordinator - Prof. Debashis Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Importance of chemical industry, chemicals from materials
- Lecture 3 - Bulk and commodity chemicals
- Lecture 4 - Fine and speciality chemicals
- Lecture 5 - Water
- Lecture 6 - Hydrogen
- Lecture 7 - Inorganic peroxide compounds
- Lecture 8 - Nitrogen compounds
- Lecture 9 - Chloramine and Hydroxylamine
- Lecture 10 - Nitric acid, Ostwald process and uses
- Lecture 11 - Phosphorus and its components
- Lecture 12 - Phosphoric acid salts
- Lecture 13 - Tetrapotassium diphosphate preparation
- Lecture 14 - Hydroxy apatite
- Lecture 15 - P<sub>4</sub>S<sub>10</sub> and phosphide preparation
- Lecture 16 - Sulfur and copper (I) phosphide
- Lecture 17 - Sulfur compounds and sulfur from H<sub>2</sub>S and SO<sub>2</sub>
- Lecture 18 - Sulfuric acid, catalyst and S<sub>2</sub>Cl<sub>2</sub>, applications
- Lecture 19 - Sulfur dichloride, thionyl chloride
- Lecture 20 - Thiosulfates and dithionite
- Lecture 21 - Sodium hydroxyl methanesulfinatate and hydrogen sulfide
- Lecture 22 - Halogen and halogen compounds
- Lecture 23 - Fluorine and inorganic fluorides
- Lecture 24 - Hydrogen fluoride and aluminum fluoride
- Lecture 25 - Cryolite and other industrially important fluoride salts
- Lecture 26 - Electrochemical fluorination, sulfonyl fluorides
- Lecture 27 - Chloralkali electrolysis
- Lecture 28 - Ion conduction membrane in electrolysis
- Lecture 29 - Hydrochloric acid manufacture

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Bromine and bromine compounds
- Lecture 31 - Hydrogen bromide and alkali bromates
- Lecture 32 - Iodine and iodine compounds
- Lecture 33 - Mineral fertilizers
- Lecture 34 - Nitrogen fertilizer and Urea
- Lecture 35 - Potassium fertilizer
- Lecture 36 - Metals and their compounds
- Lecture 37 - Sodium and its compounds
- Lecture 38 - Potassium and its compounds
- Lecture 39 - Magnesium and its compounds
- Lecture 40 - Calcium and its compounds
- Lecture 41 - Barium and its compounds
- Lecture 42 - Chromium and its compounds
- Lecture 43 - Manganese and its industrially important compounds
- Lecture 44 - Silicon and its compounds
- Lecture 45 - Organosilicon compounds, organoalkoxysilanes
- Lecture 46 - Organomercurio silanes and silicones
- Lecture 47 - Silicone rubber
- Lecture 48 - Inorganic solids
- Lecture 49 - Zeolites
- Lecture 50 - Inorganic Fibres
- Lecture 51 - Glass fibre production and construction materials
- Lecture 52 - Ceramics and its manufacturing processes
- Lecture 53 - Specialty ceramic products
- Lecture 54 - Ferrites and porcelain enamel
- Lecture 55 - Layers of enamelling
- Lecture 56 - Carbon modifications
- Lecture 57 - Activated carbon
- Lecture 58 - Metallic hard materials
- Lecture 59 - Fillers and inorganic pigments
- Lecture 60 - Oxide pigments, luminescent pigments, corrosion protection pigments, magnetic pigments

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Reactive Intermediates Carbene and Nitrene

Subject Co-ordinator - Prof. Rajarshi Samanta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Structure and Geometry of Carbenes
- Lecture 3 - Structure and Geometry of Carbenes (Continued...)
- Lecture 4 - Generation of Carbene
- Lecture 5 - Generation of Carbene (Continued...)
- Lecture 6 - Generation of Carbene (Continued...)
- Lecture 7 - Reaction of Carbene
- Lecture 8 - Reaction of Carbene (Continued...)
- Lecture 9 - Reaction of Carbene (Continued...)
- Lecture 10 - Reaction of Carbene (Continued...)
- Lecture 11 - Reaction of Carbene (Continued...)
- Lecture 12 - Reaction of Carbene (Continued...)
- Lecture 13 - Reaction of Carbene (Continued...)
- Lecture 14 - Reaction of Carbene (Continued...)
- Lecture 15 - Reaction of Carbene (Continued...)
- Lecture 16 - Nitrene
- Lecture 17 - Nitrene (Continued...)
- Lecture 18 - Reaction of Nitrene
- Lecture 19 - Reaction of Nitrene (Continued...)
- Lecture 20 - Reaction of Nitrene (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Organic Chemistry in Biology and Drug Development

Subject Co-ordinator - Prof. A. Basak

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - A brief introduction to Molecules of Life
- Lecture 2 - Biological Macromolecules and Small molecules
- Lecture 3 - Amino Acids
- Lecture 4 - Amino acids
- Lecture 5 - Method of determination of Amino acid sequence
- Lecture 6 - Selective peptide bond cleavage
- Lecture 7 - Peptide synthesis
- Lecture 8 - Peptide synthesis (Continued...) Protection, coupling and deprotection method
- Lecture 9 - Recent development of coupling agents; Merrifield's method of solid phase peptide synthesis
- Lecture 10 - Hierarchical structure of proteins
- Lecture 11 - Ramachandran plot and protein purification techniques
- Lecture 12 - Protein purification techniques (Continued...)
- Lecture 13 - Introduction to Enzymes and its kinetics
- Lecture 14 - Enzyme catalysed reactions and introduction to catalytic activity of proteases
- Lecture 15 - Enzyme Kinetics (Continued...)
- Lecture 16 - Concept of Enzyme Inhibition
- Lecture 17 - Concept of Enzyme Inhibition (Continued...)
- Lecture 18 - Problems on Enzyme Kinetics and Enzyme Inhibition
- Lecture 19 - Synthetic Biology
- Lecture 20 - Synthetic Biology (Continued...)
- Lecture 21 - Synthetic Biology (Continued...)
- Lecture 22 - Nucleic Acid
- Lecture 23 - Nucleic Acid (Continued...)
- Lecture 24 - DNA sequencing method
- Lecture 25 - DNA sequencing method (Continued...)
- Lecture 26 - DNA sequencing method (Continued...)
- Lecture 27 - Synthesis of oligonucleotide
- Lecture 28 - Central dogma
- Lecture 29 - Central dogma

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Central dogma
- Lecture 31 - Central dogma
- Lecture 32 - Central dogma
- Lecture 33 - Molecular Biology
- Lecture 34 - Molecular Biology (Continued...)
- Lecture 35 - Chemistry of cofactors/coenzymes
- Lecture 36 - Chemistry of cofactors/coenzymes (Continued...)
- Lecture 37 - Chemistry of cofactors/coenzymes (Continued...)
- Lecture 38 - Chemistry of cofactors/coenzymes (Continued...)
- Lecture 39 - Chemistry of cofactors/coenzymes (Continued...)
- Lecture 40 - Chemistry of cofactors/coenzymes (Continued...)
- Lecture 41 - Introduction to Drug Discovery Process
- Lecture 42 - Fundamental Principles of Drug Development Process
- Lecture 43 - Combinatorial chemistry
- Lecture 44 - Neurotransmitters
- Lecture 45 - Catechol amine based and GABA neurotransmitters
- Lecture 46 - Hypertension
- Lecture 47 - Inhibitor design of angiotensin converting enzyme
- Lecture 48 - Antimicrobial drugs
- Lecture 49 - Chemistry of penicillins
- Lecture 50 - Resistance to beta-lactam antibiotics
- Lecture 51 - Mechanistic studies of beta-lactamase
- Lecture 52 - Non beta-lactam antibiotics
- Lecture 53 - Mechanistic enzymology of Isopenicillin N synthase
- Lecture 54 - Polyketide Biosynthesis
- Lecture 55 - Biosynthesis of macrolide polyketides and introduction to virus
- Lecture 56 - Anti-viral drugs
- Lecture 57 - Cancer and Chemotherapy
- Lecture 58 - Anti-cancer drugs (Continued...)
- Lecture 59 - Aromatase inhibition and Anti-ulcer drugs
- Lecture 60 - Cholesterol lowering agents
- Lecture 61 - Cholesterol Biosynthesis
- Lecture 62 - Pharmacokinetics and pharmacodynamics
- Lecture 63 - QSAR principles

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Introduction to Polymer Science

Subject Co-ordinator - Dr. D. Dhara

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Importance of Polymer Science and Brief Historical background
- Lecture 2 - Definitions/Terminologies, Classifications
- Lecture 3 - Classifications, Nomenclature
- Lecture 4 - Classification by Polymerization Mechanism, Nomenclature
- Lecture 5 - Molecular Weight, Big Picture of Polymer Science, Common Polymers
- Lecture 6 - Examples of Step Polymers, Linear Step Polymerization
- Lecture 7 - Linear Step Polymerization
- Lecture 8 - Linear Step Polymerization
- Lecture 9 - Linear Step Polymerization
- Lecture 10 - Types of Chain polymerization, Mechanism and Kinetics of Radical Chain Polymerization
- Lecture 11 - Kinetics of Radical Chain Polymerization (Continued...), Various Types of Initiators
- Lecture 12 - Thermal Initiation (Continued...), Molecular Weight and Kinetic Chain Length, Other Types of Rad
- Lecture 13 - Transfer Reactions, Effect of Temperature on Rate and MW, MW Distribution, ceiling Temperature
- Lecture 14 - Energetics and Thermodynamics of Chain Polymerization, MW Distribution, Common Polymers
- Lecture 15 - Thermodynamics of Chain Polymerization, MW Distribution, Common Polymers
- Lecture 16 - Process Conditions, Emulsion Polymerization
- Lecture 17 - Emulsion Polymerization (Continued...), Common Polymers by Radical Chain Polymerization, RDRP
- Lecture 18 - Reversible - Deactivation Radical Polymerizations (RDRP)
- Lecture 19 - RAFT Polymerization (Continued...), Ionic Polymerization
- Lecture 20 - Polymer Stereochemistry and Zeigler - Natta Coordination Polymerization
- Lecture 21 - Ring Opening Polymerization, Copolymers
- Lecture 22 - Copolymerization (Continued...)
- Lecture 23 - Polymers in Solution
- Lecture 24 - Polymers in Solution
- Lecture 25 - Polymers in Solution
- Lecture 26 - Polymers Chain Dimensions
- Lecture 27 - Frictional Properties of Polymer Molecules in Dilute Solution, Determination of Polymer MW (Over
- Lecture 28 - Membrane Osmometry, End Group Analysis, Dilute Solution Viscometry
- Lecture 29 - Dilute Solution Viscometry, Light Scattering Techniques for MW

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gel Permeation Chromatography
- Lecture 31 - Light Scattering Techniques for MW and Size Measurements (Continued...)
- Lecture 32 - Mass Spectroscopy of Polymers
- Lecture 33 - Polymer Processing
- Lecture 34 - Mechanical Properties, Amorphous State
- Lecture 35 - Thermal Properties
- Lecture 36 - Thermal Properties
- Lecture 37 - Thermal Properties
- Lecture 38 - Thermomechanical Properties, Viscoelasticity
- Lecture 39 - Thermomechanical Properties, Viscoelasticity (Continued...)
- Lecture 40 - Optical, Electrical, Barrier Properties; Chemical Resistance and Weathering of Polymers
- Lecture 41 - Polymer Additives
- Lecture 42 - Polymer Blends, Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Structure, Stereochemistry and Reactivity of Organic Co

Subject Co-ordinator - Prof. A. Basak

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to structure and stereochemistry of organic molecules: salient features of symmetry
- Lecture 2 - Introduction to point group notation, classification, symmetry number and order
- Lecture 3 - Examples of various point group notations, chiral and achiral point groups, examples of various p
- Lecture 4 - Solving problems on point groups ( $C_n$ ,  $C_{nv}$ ,  $C_{nh}$ ,  $D_{nd}$ )
- Lecture 5 - Conformational Analysis of Perhydrophenanthrene
- Lecture 6 - Concept Clearing Session on Achiral Point Groups
- Lecture 7 - Axial, Planar and Helical Chirality, assignment of absolute configuration to such molecules
- Lecture 8 - Concept of pseudoasymmetry; Reflection variance/invariance problem; methods of nomenclature syste
- Lecture 9 - Conformational analysis of bicyclic systems: the Decalins
- Lecture 10 - Conformational analysis of Perhydrophenanthrene
- Lecture 11 - Conformational analysis of Perhydroanthracene
- Lecture 12 - Revisiting conformational analysis of Perhydrophenanthrene
- Lecture 13 - Revisiting conformational analysis of Perhydroanthracene
- Lecture 14 - Introduction to Linear Polarized light and interaction with chiral materials; Circular Birefring
- Lecture 15 - ORD, CD and Cotton Effect (CE); Empirical rule to determine the sign of CE, 2-axial haloketone r
- Lecture 16 - Octant rule: application to substituted cyclohexanone and decalone system
- Lecture 17 - Application of Octant rule to tricyclic system; drawing of octant projection
- Lecture 18 - Application of Octant rule to steroidal ketones; drawing of octant projection
- Lecture 19 - Stereoelectronic effects on conformation and reactivity
- Lecture 20 - Examples of anomeric effect and Stereoelectronic effect
- Lecture 21 - Baldwin rules
- Lecture 22 - Cyclization in enolic systems
- Lecture 23 - Problem solving on Baldwin rules
- Lecture 24 - Reactive Functionalities: Chemistry of Alkynes
- Lecture 25 - Reactive Functionalities: Chemistry of Alkynes (Continued...), arynes and enediynes
- Lecture 26 - Reactive Functionalities: Eneidyne (Continued...), allenes and Ketenes
- Lecture 27 - Beta - Lactam Synthesis
- Lecture 28 - Chemistry of radicals
- Lecture 29 - Reactivity of radicals: Frontier orbital approach.

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Radical mediated C-C bond formation
- Lecture 31 - Radical mediated C-C bond formation (Continued...).
- Lecture 32 - Radical mediated decarboxylation and deoxygenation
- Lecture 33 - Dynamic Stereochemistry: Conformationally rigid and mobile systems
- Lecture 34 - Dynamic Stereochemistry: Conformational analysis of elimination and addition
- Lecture 35 - Dynamic Stereochemistry: Stereoselectivity in carbonyl reduction
- Lecture 36 - Dynamic Stereochemistry: Reactivity of unsaturated carbonyl and enolate systems
- Lecture 37 - Dynamic Stereochemistry: Enolate as nucleophile
- Lecture 38 - Dynamic Stereochemistry: stereochemical issues in cyclohexenone reduction and alpha-electrophili
- Lecture 39 - Dynamic Stereochemistry: Asymmetric aldol reactions
- Lecture 40 - Dynamic Stereochemistry: Asymmetric aldol reaction (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Approximate Methods in Quantum Chemistry

Subject Co-ordinator - Prof. Sabyashachi Mishra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of Quantum Chemistry
- Lecture 2 - Postulates of Quantum Mechanics - I
- Lecture 3 - Postulates of Quantum Mechanics - II
- Lecture 4 - Exactly Solvable Models - I
- Lecture 5 - Exactly Solvable Models - II
- Lecture 6 - Exactly Solvable Models - II (Continued...)
- Lecture 7 - Variational Principle - I
- Lecture 8 - Variational Principle - II
- Lecture 9 - Variational Method: Applications - I
- Lecture 10 - Linear Variational Method
- Lecture 11 - Applications of Linear Variational Method
- Lecture 12 - Variational Method in Chemical Bonding - I
- Lecture 13 - Variational Method in Chemical Bonding - II
- Lecture 14 - Variational Method in Chemical Bonding - III
- Lecture 15 - Molecular Orbital Treatment of Polyatomics
- Lecture 16 - Molecular Orbital Treatment of Polyatomics
- Lecture 17 - Perturbation Theory
- Lecture 18 - Examples of Perturbation Theory - I
- Lecture 19 - Examples of Perturbation Theory - II
- Lecture 20 - Molecular Response to Electric Field - I
- Lecture 21 - Molecular Response to Electric Field - II
- Lecture 22 - Degenerate Perturbation Theory
- Lecture 23 - Excited States of He Atom - I
- Lecture 24 - Excited States of He Atom - II
- Lecture 25 - Slater Determinants - I
- Lecture 26 - Slater Determinants - II
- Lecture 27 - Energy Expectation Value with Slater Determinants - I
- Lecture 28 - Energy Expectation Value with Slater Determinants - II
- Lecture 29 - Self-Consistent Field Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Canonical HF Equations
- Lecture 31 - Hartree-Fock Energy
- Lecture 32 - Hartree-Fock-Roothan Equations
- Lecture 33 - The Density Matrix
- Lecture 34 - Evaluation of Molecular Properties
- Lecture 35 - Basis Sets - I
- Lecture 36 - Basis Sets - II
- Lecture 37 - Electron Correlation and Post HF Methods
- Lecture 38 - Time-Dependent Perturbation Theory - I
- Lecture 39 - Time-Dependent Perturbation Theory - II
- Lecture 40 - Slowly Switched Constant Perturbation
- Lecture 41 - Oscillating Perturbation
- Lecture 42 - Einstein's Coefficients

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Biological Inorganic Chemistry

Subject Co-ordinator - Prof. Debashis Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Metal Ions In Biological Systems
- Lecture 2 - Metallobiosite structures
- Lecture 3 - Biomolecular structure and molecular biology component
- Lecture 4 - Structures of nucleic acids
- Lecture 5 - Coordination Chemistry in action
- Lecture 6 - Coordination of peptide building blocks
- Lecture 7 - Occurrence and availability
- Lecture 8 - Potential ligands of different types
- Lecture 9 - Metal ion insertion
- Lecture 10 - Organic cofactors and siderophores
- Lecture 11 - Introduction
- Lecture 12 - CD and Raman spectroscopy
- Lecture 13 - EPR
- Lecture 14 - NMR and X-ray
- Lecture 15 - Electrochemical methods
- Lecture 16 - Metal ion assimilation
- Lecture 17 - Transport of metal ions in bacteria and plants
- Lecture 18 - Transport of metal ions in fungi and mammals
- Lecture 19 - Homeostasis in bacteria and plants
- Lecture 20 - Homeostasis in fungi and mammals
- Lecture 21 - Transport across membranes
- Lecture 22 - Ion channels and ion pumps
- Lecture 23 - (K<sup>+</sup>) channels
- Lecture 24 - (Na<sup>+</sup>) channels
- Lecture 25 - (Na<sup>+</sup>)-(K<sup>+</sup>) ATPase
- Lecture 26 - (Mg<sup>2+</sup>) dependent enzymes and kinases
- Lecture 27 - Phosphatases and enolases
- Lecture 28 - Photoreception and enzymes
- Lecture 29 - (Ca<sup>2+</sup>) transporting, binding and sensor proteins

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cell signaling by (Ca<sup>2+</sup>) binding and sensing
- Lecture 31 - Functions of iron ions and iron ion proteins
- Lecture 32 - Heme proteins for (O<sub>2</sub>) transport and storage
- Lecture 33 - Activators of (O<sub>2</sub>) and electron transport proteins
- Lecture 34 - Iron-sulfur proteins
- Lecture 35 - Mononuclear and dinuclear non-heme enzymes
- Lecture 36 - Oxygen transport and SOD activity
- Lecture 37 - Type 1 blue copper proteins
- Lecture 38 - Type 2 non-blue copper proteins
- Lecture 39 - Type 3 dinuclear copper proteins
- Lecture 40 - Multicopper and mixed-copper enzymes
- Lecture 41 - Coordination chemistry and function of zinc ions
- Lecture 42 - Carbonic anhydrase and lyases
- Lecture 43 - Carboxypeptidase and metalloproteinases
- Lecture 44 - Alcohol dehydrogenase and Beta-lactamase
- Lecture 45 - Redox catalysis by manganese ions
- Lecture 46 - Redox catalysis by manganese ions
- Lecture 47 - Catalysis by manganese and cobalt ions
- Lecture 48 - Cobalt ion dependent proteins and enzymes
- Lecture 49 - Nickel proteins and enzymes
- Lecture 50 - More nickel ion bearing enzymes
- Lecture 51 - Carbon, hydrogen and oxygen
- Lecture 52 - Nitrogen and Silicon
- Lecture 53 - Phosphorus
- Lecture 54 - Sulfur and Selenium
- Lecture 55 - Chlorine and Iodine
- Lecture 56 - Brain and blood-brain barrier (BBB)
- Lecture 57 - Zinc and copper ions
- Lecture 58 - Iron ions
- Lecture 59 - Metal ion based drugs and metallotherapeutics
- Lecture 60 - Chemotherapy, radiotherapy and contrast agents

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Principles and Applications of Enolate Alkylation

Subject Co-ordinator - Prof. Samik Nanda

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Enolate generation, structure of enolates and related topic - I
- Lecture 2 - Enolate generation, structure of enolates and related topic - II
- Lecture 3 - Enolate generation, structure of enolates and related topic - III
- Lecture 4 - Different mode of asymmetric induction in enolate alkylation
- Lecture 5 - Revisit again, Different mode of asymmetric induction in enolate alkylation
- Lecture 6 - Substrate directed stereocontrol in acyclic and cyclic system
- Lecture 7 - Substrate directed enolate alkylation in bicyclic system
- Lecture 8 - Seebach's SRS principle and related systems - I
- Lecture 9 - Seebach's SRS principle and related systems - II
- Lecture 10 - Seebach's SRS principle and related systems - III
- Lecture 11 - Evans oxazolidinone and related systems - I
- Lecture 12 - Evans oxazolidinone and related systems - II
- Lecture 13 - Evans oxazolidinone and related systems - III
- Lecture 14 - Evans oxazolidinone and related systems - IV
- Lecture 15 - Evans oxazolidinone and related systems - V
- Lecture 16 - Helmchen's auxiliary, Oppolzer's sultam based auxiliary
- Lecture 17 - Camphor based N-acyloxazolidinones as chiral auxiliary
- Lecture 18 - Myer's ephedrine, Chiral Weinreb amide equivalents and related systems
- Lecture 19 - Myer's ephedrine and related systems
- Lecture 20 - Chiral Weinreb amide equivalents and related systems
- Lecture 21 - Meyer's oxazoline based alkylation - I
- Lecture 22 - Meyer's oxazoline based alkylation - II
- Lecture 23 - Meyer's bicyclic lactam based enolate alkylation
- Lecture 24 - Meyer's bicyclic lactam based alkylation
- Lecture 25 - Meyer's bicyclic lactams, Gleason's bicyclic thioglycolate lactam based systems
- Lecture 26 - Few problem solving from Meyer's oxazoline/bicyclic lactam based alkylation
- Lecture 27 - Schollkopf's bis-lactim ether and related systems; Auxiliary induced chiral relay
- Lecture 28 - Chiral relay systems in amino acid derived enolate alkylation
- Lecture 29 - Williams oxazinone, Yamada's chiral glycine enolate and related system

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tricycloiminolactone as chiral glycine equivalents
- Lecture 31 - Najera's auxiliary, Davies diketopiperazine and related system
- Lecture 32 - Ender's RAMP/SAMP, Coltart's cyclic carbamate hydrazone, Ellman's sulfinamide and related
- Lecture 33 - Ender's RAMP/SAMP based systems
- Lecture 34 - Ender's RAMP/SAMP based systems
- Lecture 35 - Ender's RAMP/SAMP, Coltart's cyclic carbamate hydrazone, Ellman's sulfinamide
- Lecture 36 - Coltart's cyclic carbamate hydrazone and its exploration
- Lecture 37 - Memory of chirality in enolate alkylation
- Lecture 38 - Organocatalytic methods for enolate alkylation (SOMO activation)
- Lecture 39 - Enantioselective alkylation with chiral PTC
- Lecture 40 - Overall analysis of the entire discussion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Overview and Integration of Cellular Metabolism

Subject Co-ordinator - Dr. Arindam Ghosh, Dr. Aritri Bir

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Bioenergetics: Understanding the significance in Biological Systems
- Lecture 2 - Regulation of Enzyme Activity
- Lecture 3 - Digestion and Absorption of Carbohydrates
- Lecture 4 - Glycolysis, alcohol and lactic acid fermentation
- Lecture 5 - Biochemistry of TCA Cycle (I)
- Lecture 6 - TCA Cycle (II) - Regulation and special characteristics
- Lecture 7 - Neoglucogenesis
- Lecture 8 - Regulation of Glycolysis and Neoglucogenesis - I
- Lecture 9 - Regulation of Glycolysis and Neoglucogenesis - II Cori Cycle, Rapoport Leubering
- Lecture 10 - Hexose Monophosphate Shunt : Steps and Phases
- Lecture 11 - Hexose Monophosphate Shunt : Regulation and Significance
- Lecture 12 - Glycogen Metabolism - I
- Lecture 13 - Glycogen Metabolism - II
- Lecture 14 - Glycogen Metabolism - III
- Lecture 15 - Glycogen Metabolism - IV
- Lecture 16 - Galactose Metabolism and Associated Disorders
- Lecture 17 - Fructose Metabolism and Associated Disorders
- Lecture 18 - Regulation of Blood Glucose
- Lecture 19 - Diabetes Mellitus and Metabolic Alterations
- Lecture 20 - Digestion and absorption of Lipid
- Lecture 21 - Lipoprotein Metabolism - I
- Lecture 22 - Lipoprotein Metabolism - II
- Lecture 23 - Lipoprotein metabolism - III
- Lecture 24 - Fatty acid catabolism (Oxidation of Fatty acids) - I
- Lecture 25 - Fatty acid catabolism (Oxidation of Fatty acids) - II
- Lecture 26 - Fatty acid catabolism (Oxidation of Fatty acids) - III
- Lecture 27 - Metabolism of Ketone Bodies
- Lecture 28 - Biosynthesis of Fatty acid and its regulation
- Lecture 29 - Biosynthesis of triacylglycerol, phosphoglycerides and sphingolipids

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cholesterol Metabolism
- Lecture 31 - Digestion and absorption of Protein
- Lecture 32 - Transformation of Amino acids
- Lecture 33 - Metabolism of Ammonia and ammonia toxicity
- Lecture 34 - Urea cycle - Steps, Significance and Energetics
- Lecture 35 - Urea Cycle - Regulation and Enzyme Deficiency Disorders
- Lecture 36 - Metabolism of Phenylalanine and Associated Disorders
- Lecture 37 - Tyrosine Metabolism - I
- Lecture 38 - Tyrosine Metabolism - II (Catecholamines)
- Lecture 39 - Tyrosine Metabolism - III
- Lecture 40 - Tryptophan Metabolism
- Lecture 41 - Metabolism of Sulphur containing Amino acids (Methionine and Cysteine)
- Lecture 42 - Metabolism of Glycine and its disorders
- Lecture 43 - Metabolism of Serine, Threonine and Alanine
- Lecture 44 - Branched chain amino acid metabolism and their disorders
- Lecture 45 - Metabolism of Histidine, Proline, Arginine and Lysine
- Lecture 46 - Heme Metabolism - I (Heme Synthesis and Regulation)
- Lecture 47 - Heme Metabolism - II (Disorders of Heme Synthesis - Porphyrias)
- Lecture 48 - Heme Metabolism - III (Heme Degradation, Transport and Bilirubin Metabolism)
- Lecture 49 - Disorders of Bilirubin Metabolism
- Lecture 50 - Nucleotide Metabolism - I (Purine Metabolism)
- Lecture 51 - Nucleotide Metabolism - II (Disorders of Purine Metabolism)
- Lecture 52 - Nucleotide Metabolism - III (Pyrimidine Metabolism and Disorders)
- Lecture 53 - Inborn errors of Metabolism
- Lecture 54 - Integration of Metabolism - I (Cellular and Organ level integration)
- Lecture 55 - Integration of Metabolism - II (Starve feed cycle)
- Lecture 56 - Integration of Metabolism - III (Metabolic Control Analysis)
- Lecture 57 - Obesity, Metabolic Syndrome and Role of Adipokines
- Lecture 58 - Fatty Liver and alcohol metabolism
- Lecture 59 - Energy metabolism and Nutritional disorders, Protein Energy Malnutrition and Dietary
- Lecture 60 - Metabolism in Cancer Cells

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Elementary Thermodynamics for All

Subject Co-ordinator - Prof. Srabani Taraphder

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - System, Equilibrium States
- Lecture 3 - Mathematical foundation - Exact differentials
- Lecture 4 - Mathematical foundation - Inexact differentials
- Lecture 5 - First law - Introduction to Internal energy
- Lecture 6 - First law - Heat and work
- Lecture 7 - First law - Pressure-volume work
- Lecture 8 - First law - Internal energy revisited
- Lecture 9 - First Law - Enthalpy
- Lecture 10 - First law - Estimation of change in internal energy and enthalpy
- Lecture 11 - Second law - Introduction
- Lecture 12 - Second law - Carnot engine and entropy
- Lecture 13 - Entropy and Third law
- Lecture 14 - Entropy and Spontaneity in isolated systems
- Lecture 15 - Spontaneity and equilibrium - Thermodynamic potentials
- Lecture 16 - Spontaneity and equilibrium - Non-isolated systems
- Lecture 17 - Thermodynamic potentials and Maxwell's relations
- Lecture 18 - Application of Maxwell's relations
- Lecture 19 - Thermodynamic response functions
- Lecture 20 - Using Maxwell's relations to solve numerical problems
- Lecture 21 - Fundamental Equation of Chemical Thermodynamics
- Lecture 22 - Open systems and chemical potential
- Lecture 23 - Chemical potential in one and many component ideal gas
- Lecture 24 - Gibbs-Duhem relation and thermodynamics of ideal gas mixture
- Lecture 25 - Numerical applications of Gibbs-Duhem relation
- Lecture 26 - Phase equilibrium - Part 1
- Lecture 27 - Phase equilibrium - Part 2
- Lecture 28 - Phase equilibrium - Part 3
- Lecture 29 - Phase equilibrium - Part 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Numerical problems in phase equilibrium
- Lecture 31 - Simple non-reactive mixtures - Part 1
- Lecture 32 - Simple non-reactive mixtures - Part 2
- Lecture 33 - Numerical problems in simple mixtures
- Lecture 34 - Numerical problems on phase equilibrium in simple mixtures
- Lecture 35 - Chemical potential of real systems - Activity and concentration
- Lecture 36 - Numerical problems on chemical potential in real systems
- Lecture 37 - Chemical Equilibrium - Part I
- Lecture 38 - Chemical Equilibrium - Part II
- Lecture 39 - Chemical Equilibrium - Part III
- Lecture 40 - Chemical Equilibrium - Part IV
- Lecture 41 - Numerical problems on chemical equilibrium
- Lecture 42 - Numerical problems on chemical equilibrium (Continued...)
- Lecture 43 - Electrochemical equilibrium - Part I
- Lecture 44 - Electrochemical equilibrium - Part II
- Lecture 45 - Electrochemical equilibrium - Part III
- Lecture 46 - Electrochemical equilibrium - Part IV
- Lecture 47 - Electrochemical equilibrium - Part V
- Lecture 48 - Electrochemical equilibrium - Part VI
- Lecture 49 - Numerical problems on electrochemistry
- Lecture 50 - Numerical problems on electrochemistry (Continued...)
- Lecture 51 - Numerical problems on electrochemistry (Continued...)
- Lecture 52 - Numerical problems on electrochemistry (Continued...)
- Lecture 53 - Numerical problems on electrochemistry (Continued...)
- Lecture 54 - Thermodynamic stability
- Lecture 55 - Thermodynamics in action - Part I
- Lecture 56 - Thermodynamics in action - Part II
- Lecture 57 - Thermodynamics in action - Part III
- Lecture 58 - Thermodynamics in action - Part IV
- Lecture 59 - Demonstration
- Lecture 60 - Concluding Lectuer

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Principles and Application of Electron Paramagnetic Resonance

Subject Co-ordinator - Prof. Ranjan Das

Co-ordinating Institute - TIFR

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Remembering the Masters

Lecture 2 - Introduction to EPR spectroscopy

Lecture 3 - Electron-Nuclear Hyperfine Interaction - I

Lecture 4 - Electron-Nuclear Hyperfine Interaction - II

Lecture 5 - Magnetic Moment in Magnetic Field - I

Lecture 6 - Magnetic Moment in Magnetic Field - II

Lecture 7 - EPR Instrumentations - I

Lecture 8 - EPR Instrumentations - II

Lecture 9 - EPR Instrumentations - III

Lecture 10 - EPR Instrumentations - IV

Lecture 11 - Quantum Mechanical Description of EPR - I

Lecture 12 - Quantum Mechanical Description of EPR - II

Lecture 13 - Introduction to Spin Relaxation

Lecture 14 - Theory of First-order EPR Spectra - I

Lecture 15 - Theory of First-order EPR Spectra - II

Lecture 16 - How to Analyse First-order EPR Spectra

Lecture 17 - How to Record EPR Spectra

Lecture 18 - Second-order Effects on EPR Spectra

Lecture 19 - Photochemistry and EPR Spectroscopy

Lecture 20 - Electron Spin Polarisation - I

Lecture 21 - Electron Spin Polarisation - II

Lecture 22 - Anisotropic Interactions in EPR Spectroscopy

Lecture 23 - Theoretical Basis of isotropic Hyperfine Coupling

Lecture 24 - Spin Relaxation and Bloch Equations - I

Lecture 25 - Spin Relaxation and Bloch Equations - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemistry-I

Subject Co-ordinator - Prof. K. Mangala Sunder

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3 - Part I

Lecture 3 - Part II

Lecture 4 - Part I

Lecture 4 - Part II

Lecture 4 - Part III

Lecture 5 - Part I

Lecture 5 - Part II

Lecture 5 - Part III

Lecture 5 - Part IV

Lecture 5 - Part V

Lecture 6 - Part I

Lecture 6 - Part II

Lecture 6 - Part III

Lecture 6 - Part IV

Lecture 7 - Part I

Lecture 7 - Part II

Lecture 8 - Part I

Lecture 8 - Part II

Lecture 8 - Part III

Lecture 9 - Part I

Lecture 9 - Part II

Lecture 9 - Part III

Lecture 10

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemistry-II

Subject Co-ordinator - Prof. K. Mangala Sunder

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Electromagnetic radiation
- Lecture 2 - Interaction of radiation with matter
- Lecture 3 - Introduction to chemical applications
- Lecture 4 - Analysis of spectra
- Lecture 5 - Radiation densities and Einstein's semi classical model
- Lecture 6 - Introduction to quantum mechanics - I
- Lecture 7 - Introduction to quantum mechanics - II
- Lecture 8 - Born-Oppenheimer approximation
- Lecture 9 - Beer-Lambert law
- Lecture 10 - Diatomic Vibration Spectra Hermonic Model
- Lecture 11 - Diatomic Vibration Morse Oscillator Model
- Lecture 12 - Normal Vibrational modes Triatomic molecules
- Lecture 13 - Normal Vibrational modes Polyatomic molecules
- Lecture 14 - Vibrational Polyatomic Infrared Spectroscopy Local Modes and Group Frequencies
- Lecture 15 - Microwave spectra of di-atomic molecules
- Lecture 16 - Diatomic Molecules Microwave Energies and Transitions
- Lecture 17 - Methodology of solving problems
- Lecture 18 - Rotational and Vibrational Line Intensities
- Lecture 19 - Microwave Spectra of Polyatomic molecules (Symmetric tops)
- Lecture 20 - Video Tutorial 2
- Lecture 21 - Video Tutorial 2
- Lecture 22 - Introduction to Tensors
- Lecture 23 - Polarizability Tensor
- Lecture 24 - Introduction to Rotational Raman Spectra.
- Lecture 25 - Review of basic concepts in Molecular Spectroscopy
- Lecture 26 - Review of Microwave Spectroscopy
- Lecture 27 - Review of Elementary Vibrational Spectroscopy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Application of Spectroscopic Methods in Molecular Struc

Subject Co-ordinator - Prof. S. Sankararaman

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Module 1

Module 2

Module 3

Module 4

Module 5

Module 6

Module 7

Module 8

Module 9

Module 10

Module 11

Module 12

Module 13

Module 14

Module 15

Module 16

Module 17

Module 18

Module 19

Module 20

Module 21

Module 22

Module 23

Module 24

Module 25

Module 26

Module 27

Module 28

Module 29

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Module 30  
Module 31  
Module 32  
Module 33  
Module 34  
Module 35  
Module 36

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Pericyclic Reactions and Organic Photochemistry

Subject Co-ordinator - Prof. S. Sankararaman

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Activation of chemical reactions. Thermal and photochemical methods
- Lecture 2 - MOs of polyene and their symmetry properties and methods of analyzing pericyclic reactions
- Lecture 3 - Introduction to electrocyclic reactions and Woodward Hoffmann rules
- Lecture 4 - Electrocyclic reactions  $\hat{A}$  examples of 3, 4 and 5 membered ring systems (2e and 4e systems)
- Lecture 5 - Electrocyclic reactions  $\hat{A}$  examples of 6 and larger ring systems (6e and more)
- Lecture 6 - Tutorial session 1
- Lecture 7 - Cycloaddition reactions - Introduction and Woodward Hoffmann rules - [2+2] cycloadditions
- Lecture 8 - Cycloaddition reactions  $\hat{A}$  ketene cycloadditions
- Lecture 9 - Cycloaddition reactions  $\hat{A}$  Diels-Alder reaction - Woodward Hoffmann rule - Regiochemistry and Stereochemistry
- Lecture 10 - Diels Alder reaction - synthetic applications
- Lecture 11 - Diels Alder reaction continued - Hetero diene and dienophile - Lewis acid mediated - asymmetric
- Lecture 12 - 1,3-Dipolar cycloaddition reactions
- Lecture 13 - 1,3-Dipolar cycloaddition reactions (Continued...)
- Lecture 14 - [4pi+4pi], [4pi+6pi] and higher order cycloaddition reactions
- Lecture 15 - Tutorial session 2 on cycloaddition reactions
- Lecture 16 - Pericyclic reactions  $\hat{A}$  Sigmatropic rearrangements  $\hat{A}$  Introduction and [1,3] migrations
- Lecture 17 - Pericyclic reactions  $\hat{A}$  Sigmatropic rearrangements (Continued...) [1,5] H and C migrations and Cope rearrangement
- Lecture 18 - Pericyclic reactions  $\hat{A}$  Sigmatropic rearrangements (Continued...) oxy Cope and Claisen Rearrangement
- Lecture 19 - Pericyclic reactions  $\hat{A}$  Sigmatropic rearrangements (Continued...)
- Lecture 20 - Pericyclic reactions  $\hat{A}$  Sigmatropic rearrangements (Continued...) [2,3] sigmatropic shifts and H-shift
- Lecture 21 - Pericyclic reactions  $\hat{A}$  Sigmatropic rearrangements (Continued...) Wittig rearrangement and higher order
- Lecture 22 - Pericyclic reactions  $\hat{A}$  Chelotropic reactions - introduction, SO<sub>2</sub> extrusion reactions
- Lecture 23 - Pericyclic reactions  $\hat{A}$  Tutorial session 3 - Problems on sigmatropic reactions
- Lecture 24 - Chelotropic reactions 2
- Lecture 25 - The Ene Reaction
- Lecture 26 - Tutorial session - 4
- Lecture 27 - Introduction to organic photochemistry
- Lecture 28 - Photochemistry of alkenes cis-trans isomerization
- Lecture 29 - Photochemistry of alkenes (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Photochemistry of carbonyl compounds, Norrish type 1 and 2 reactions
- Lecture 31 - Photochemistry of carbonyl compounds, enone and dienone photochemistry
- Lecture 32 - Photochemistry of Nitrogen compounds
- Lecture 33 - Photochemistry of aromatic compounds
- Lecture 34 - Photoinduced electron transfer reactions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemistry I:Introduction To Quantum Chemistry And Molec

Subject Co-ordinator - Prof. K. Mangala Sunder

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1 - Historical context and experiments: Introducing the Schrödinger equation  
Lecture 2 - Lecture 2 - Bohr's atom, De Broglie Matter Waves and Schrodinger equation  
Lecture 3 - Lecture 3 - Electromagnetic Radiation  
Lecture 4 - Lecture 4 - Interaction of Radiation with Matter  
Lecture 5 - Lecture 5 - Molecular Spectroscopy  
Lecture 6 - Lecture 6 - Elementary Mathematical Functions I  
Lecture 7 - Lecture 7 - Review of Properties of Elementary Functions II  
Lecture 8 - Lecture 8 - Time Dependent Schrödinger Equation & Time Independent Schrödinger Equation  
Lecture 9 - Lecture 9 - Schrödinger Equation Particle in a One-dimensional Box : Part I  
Lecture 10 - Lecture 10 - Schrödinger Equation Particle in a One-dimensional Box : Part II  
Lecture 11 - Lecture 11 - Schrödinger Equation Particle in Two-dimensional Box : Part I  
Lecture 12 - Lecture 12 - Particle in Two-dimensional Box : Part II Uncertainty Principle  
Lecture 13 - Lecture 13 - Particle in Two-dimensional Box : Part III Expectation Values  
Lecture 14 - Lecture 14 - The Quantum Mechanics of Hydrogen Atom - Part I  
Lecture 15 - Lecture 15 - The Quantum Mechanics of Hydrogen Atom - Part II  
Lecture 16 - Lecture 16 - The Quantum Mechanics of Hydrogen Atom - Part III  
Lecture 17 - Lecture 17 - The Quantum Mechanics of Hydrogen Atom - Part IV  
Lecture 18 - Lecture 18 - The Quantum Mechanics of Hydrogen Atom - Part V  
Lecture 19 - Lecture 19A - Assignment 1 Solution/Hints  
Lecture 20 - Lecture 19B - Assignment 1 Solution/Hints  
Lecture 21 - Lecture 19C - Assignment 1 Solution/Hints  
Lecture 22 - Lecture 19D - Assignment 1 Solution/Hints  
Lecture 23 - Lecture 19E - Assignment 1 Solution/Hints  
Lecture 24 - Lecture 20 Harmonic Oscillator Model - Part I  
Lecture 25 - Lecture 21 Harmonic Oscillator Model - Part II  
Lecture 26 - Lecture 22 Harmonic Oscillator Model - Part III  
Lecture 27 - Lecture 23 Harmonic Oscillator Model - Part IV  
Lecture 28 - Lecture 24 Particle on a Ring - Part I  
Lecture 29 - Lecture 25 Particle on a Ring - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lecture 26 - Heisenberg's Uncertainty Relation
- Lecture 31 - Lecture 27A - Operators, Commutators, Eigenvalues and Eigenvectors
- Lecture 32 - Lecture 27B - Operators, Commutators, Eigenvalues and Eigenvectors
- Lecture 33 - Lecture 28 - Introduction to Chemical Applications
- Lecture 34 - Lecture 29 - Radiation Densities and Einstein's Semiclassical model
- Lecture 35 - Lecture 30 - Born Oppenheimer Approximation
- Lecture 36 - Lecture 31 - Beer Lambert Law
- Lecture 37 - Lecture 32 - Diatomic Vibrational Spectra Harmonic Model
- Lecture 38 - Lecture 33 - Diatomic Vibration Morse Oscillator Model
- Lecture 39 - Lecture 34 - Molecular Vibrations in Polyatomic Molecules - Qualitative Account
- Lecture 40 - Lecture 35 - Polyatomic Vibrations - Illustrative examples of normal vibrations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Introduction to Chemical Thermodynamics and Kinetics

Subject Co-ordinator - Prof.Arijit Kumar De

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Chemical Thermodynamics and Kinetics

Lecture 2 - Properties of gases - Part 1

Lecture 3 - Properties of gases - Part 2

Lecture 4 - Introduction - Part 1

Lecture 5 - Introduction - Part 2

Lecture 6 - First law - Part 1

Lecture 7 - First law - Part 2

Lecture 8 - First law - Part 3

Lecture 9 - First law - Part 4

Lecture 10 - First law - Part 5

Lecture 11 - Second law - Part 1

Lecture 12 - Second law - Part 2

Lecture 13 - Spontaneity and equilibrium - Part 1

Lecture 14 - Spontaneity and equilibrium - Part 2

Lecture 15 - Spontaneity and equilibrium - Part 3

Lecture 16 - Phase equilibrium - Part 1

Lecture 17 - Phase equilibrium - Part 2

Lecture 18 - Phase equilibrium - Part 3

Lecture 19 - Phase equilibrium - Part 4

Lecture 20 - Phase equilibrium - Part 5

Lecture 21 - Phase equilibrium - Part 6

Lecture 22 - Phase equilibrium - Part 7

Lecture 23 - Mixtures - Part 1

Lecture 24 - Mixtures - Part 2

Lecture 25 - Mixtures - Part 3

Lecture 26 - Mixtures - Part 4

Lecture 27 - Mixtures - Part 5

Lecture 28 - Chemical Equilibrium - Part 1

Lecture 29 - Chemical Equilibrium - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Chemical Equilibrium - Part 3
- Lecture 31 - Chemical Equilibrium - Part 4
- Lecture 32 - Chemical Equilibrium - Part 5
- Lecture 33 - Chemical equilibrium - Part 2B
- Lecture 34 - Chemical equilibrium - Part 2C
- Lecture 35 - Electrochemistry - Part 1
- Lecture 36 - Electrochemistry - Part 2
- Lecture 37 - Electrochemistry - Part 3
- Lecture 38 - Surfaces and interfaces
- Lecture 39 - Chemical Kinetics: Rate laws - Part 1
- Lecture 40 - Chemical Kinetics: Rate laws - Part 2
- Lecture 41 - Chemical Kinetics: Rate laws - Part 3
- Lecture 42 - Chemical Kinetics: Rate laws - Part 4
- Lecture 43 - Chemical Kinetics: Mechanisms - Part 1
- Lecture 44 - Chemical Kinetics: Mechanisms - Part 2
- Lecture 45 - Chemical Kinetics: Mechanisms - Part 3
- Lecture 46 - Chemical Kinetics: Mechanisms - Part 4
- Lecture 47 - Chemical Kinetics: Mechanisms - Part 5
- Lecture 48 - Chemical Kinetics: Mechanisms - Part 6
- Lecture 49 - Reaction dynamics - Part 1
- Lecture 50 - Reaction dynamics - Part 2
- Lecture 51 - Reaction dynamics - Part 3
- Lecture 52 - Reaction dynamics - Part 4
- Lecture 53 - Reaction dynamics - Part 5
- Lecture 54 - Reaction dynamics - Part 6
- Lecture 55 - Reaction dynamics - Part 7



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemical Crystallography

Subject Co-ordinator - Prof.Angshuman Roy Choudhury

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to X-Ray Crystallography
- Lecture 2 - Sources of X-Rays, Crystal Systems and Bravais lattices
- Lecture 3 - Crystallographic Symmetries
- Lecture 4 - Equivalent Points and 1D Lattices
- Lecture 5 - 5 Fold Symmetry and 2D Lattices
- Lecture 6 - 2D Space Lattices
- Lecture 7 - Crystallographic Point Groups
- Lecture 8 - Stereographic Projections of Point Groups
- Lecture 9 - Understanding of Crystallographic Space Groups
- Lecture 10 - 2D Projection of Space Groups
- Lecture 11 - Tutorial - 01
- Lecture 12 - 3D Space Groups and Equivalent Points
- Lecture 13 - Obtaining Equivalent Points by Shifting of Origin
- Lecture 14 - Representation of Orthorhombic and Tetragonal Space Groups
- Lecture 15 - Miller Indices for Crystallographic Directions and Planes
- Lecture 16 - Miller Indices and Planar Densities
- Lecture 17 - Tutorial - 02
- Lecture 18 - Cubic Structures and atomic packing factors
- Lecture 19 - Ceramic Structures
- Lecture 20 - Theory of X-Ray Diffraction
- Lecture 21 - Tutorial - 03
- Lecture 22 - Origin of Reciprocal Lattice
- Lecture 23 - Bragg's Law in Reciprocal Lattice and Origin of Systematic Absences
- Lecture 24 - Systematic Absences and Crystallisation Methods
- Lecture 25 - Special Method of Crystallisation
- Lecture 26 - Tutorial
- Lecture 27 - Single Crystal X-Ray Diffraction Data Collection
- Lecture 28 - Diffractometers
- Lecture 29 - Diffractometers and Detectors

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Laue's and Bragg's Analysis
- Lecture 31 - Experimental Methods and Theoretical Understanding of X-Ray Diffraction
- Lecture 32 - Derivation of Friedel's Law from Structure Factor by Vector Space Diagram
- Lecture 33 - Structure Factor and Electron Density
- Lecture 34 - Systematic Absence Conditions from Special Structure Factor Expression
- Lecture 35 - Structure Refinement
- Lecture 36 - Single Crystal X-Ray Diffractometer
- Lecture 37 - Understanding the X-Ray Data
- Lecture 38 - Data Handling (Solution and Refinement) using Various Crystallographic Packages
- Lecture 39 - Structure Solution using Apex II (Bruker Diffractometer)
- Lecture 40 - Direct Methods - Part 1
- Lecture 41 - Direct Methods - Part 2
- Lecture 42 - Disorder Treatment using Olex 2
- Lecture 43 - Cambridge Structure Database and its Application
- Lecture 44 - Data Reduction - Absorption Correction
- Lecture 45 - Data Reduction - Lorentz and Polarization Correction
- Lecture 46 - Data Reduction - Scale and Temperature Factor
- Lecture 47 - Identification from Intensity Statistics the Correct Crystal System and Presence of Inversion Centres
- Lecture 48 - Identification from Intensity Statistics the presence of 2 fold axis in Lattice
- Lecture 49 - Phase Problem
- Lecture 50 - Direct Methods - Part 1
- Lecture 51 - Direct Methods - Part 2
- Lecture 52 - Sigma 1 and Triplet Relationship
- Lecture 53 - Patterson Method
- Lecture 54 - Powder X-Ray Diffractometer - Theory
- Lecture 55 - Powder X-Ray Diffractometer - Lab
- Lecture 56 - Polymorphs
- Lecture 57 - Polymorphs
- Lecture 58 - Review of Reciprocal Lattice
- Lecture 59 - Review of Reciprocal Lattice
- Lecture 60 - Review of Reciprocal Lattice and Bragg's Law in Reciprocal Lattice
- Lecture 61 - Ewald's Sphere and Limiting Sphere
- Lecture 62 - Origin of/Introduction to Systematic absences

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Advanced Chemical Thermodynamics and Kinetics

Subject Co-ordinator - Prof.Arijit Kumar De

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Review of Classical Thermodynamics - 1  
Lecture 2 - Review of Classical Thermodynamics - 2  
Lecture 3 - Review of Classical Thermodynamics - 3  
Lecture 4 - Review of Classical Thermodynamics - 4  
Lecture 5 - Review of Classical Thermodynamics - 5  
Lecture 6 - Molecular Interactions - 1  
Lecture 7 - Molecular Interactions - 2  
Lecture 8 - Molecular Interactions - 3  
Lecture 9 - Molecular Interactions - 4  
Lecture 10 - Molecular Interactions - 5  
Lecture 11 - Transport Phenomena - 1  
Lecture 12 - Transport Phenomena - 2  
Lecture 13 - Transport Phenomena - 3  
Lecture 14 - Review of Chemical Kinetics - 1  
Lecture 15 - Review of Chemical Kinetics - 2  
Lecture 16 - Review of Chemical Kinetics - 3  
Lecture 17 - Review of Chemical Kinetics - 4  
Lecture 18 - Review of Chemical Kinetics - 5  
Lecture 19 - Advanced Topic in Chemical Kinetics - 1  
Lecture 20 - Advanced Topic in Chemical Kinetics - 2  
Lecture 21 - Advanced Topic in Chemical Kinetics - 3  
Lecture 22 - Introduction to statistical thermodynamics - 1  
Lecture 23 - Introduction to statistical thermodynamics - 2  
Lecture 24 - Introduction to statistical thermodynamics - 3  
Lecture 25 - Introduction to bimolecular reaction dynamics - 1  
Lecture 26 - Introduction to bimolecular reaction dynamics - 2  
Lecture 27 - Introduction to bimolecular reaction dynamics - 3  
Lecture 28 - Introduction to bimolecular reaction dynamics - 4  
Lecture 29 - Unimolecular reaction - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Unimolecular reaction - 2
- Lecture 31 - Introduction to solution phase reactions dynamics - 1
- Lecture 32 - Introduction to solution phase reactions dynamics - 2
- Lecture 33 - Introduction to solution phase reactions dynamics - 3
- Lecture 34 - Introduction to solution phase reactions dynamics - 4
- Lecture 35 - Introduction to solution phase reactions dynamics - 5
- Lecture 36 - Non-ideal solutions, Activity of ions (Debye-Huckel theory) - 1
- Lecture 37 - Non-ideal solutions, Activity of ions (Debye-Huckel theory) - 2
- Lecture 38 - Electrochemistry
- Lecture 39 - Electrochemistry
- Lecture 40 - Reaction Dynamics
- Lecture 41 - Chemical Kinetics
- Lecture 42 - Transport Phenomena
- Lecture 43 - Equilibrium constant using partition method
- Lecture 44 - Photochemistry

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemistry: Atomic Structure and Chemical Bonding

Subject Co-ordinator - Prof. K. Mangala Sunder

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Welcome
- Lecture 2 - Elementary Mathematical Functions Used in Our Course
- Lecture 3 - Schrodinger Equation
- Lecture 4 - Particle in a One dimensional Box
- Lecture 5 - Elementary Mathematics
- Lecture 6 - Elementary Mathematics
- Lecture 7 - Elementary Mathematics
- Lecture 8 - Elementary Mathematics
- Lecture 9 - Particle in a Two Dimensional Box (Infinite Barrier)
- Lecture 10 - Heisenberg's Uncertainty Principle
- Lecture 11 - Expectation Values and Postulates in Quantum Mechanics
- Lecture 12 - Problems and Solutions for Particle in One and Two Dimensional Boxes
- Lecture 13 - Linear Vector Spaces
- Lecture 14 - Linear Vector Spaces and Operators
- Lecture 15 - Simple Harmonic Oscillator
- Lecture 16 - Simple Harmonic Oscillator
- Lecture 17 - Simple Harmonic Oscillator
- Lecture 18 - Simple Harmonic Oscillator
- Lecture 19 - Particle on a Ring
- Lecture 20 - Particle on a Ring
- Lecture 21 - Coordinate Transformation
- Lecture 22 - Problems and Solutions for Harmonic Oscillator
- Lecture 23 - Hydrogen Atom
- Lecture 24 - Hydrogen Atom
- Lecture 25 - Hydrogen Atom
- Lecture 26 - Hydrogen Atom
- Lecture 27 - Hydrogen Atom
- Lecture 28 - Power Series Method for Differential Equation - I
- Lecture 29 - Hermite's Differential Equation

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Legendre and Associated Legendre Equation
- Lecture 31 - Born-Oppenheimer Approximation
- Lecture 32 - Introduction to Angular Momentum
- Lecture 33 - Spin  $\hat{S}$  Angular Momentum
- Lecture 34 - Spin Angular Momentum and Coupling of Two Spin-1/2 Angular Momenta
- Lecture 35 - Coupling of Two Angular Momenta
- Lecture 36 - Video Tutorial for Hermite polynomials and hydrogen atom - Part 1
- Lecture 37 - Video Tutorials - Part 2
- Lecture 38 - Variational Principle in Quantum Chemistry
- Lecture 39 - Introduction to Variational Principle in Quantum Chemistry
- Lecture 40 - Variational Method
- Lecture 41 - Hydrogen Molecule Ion
- Lecture 42 - Hydrogen Molecule Ion
- Lecture 43 - Hydrogen Molecule
- Lecture 44 - Hydrogen Molecule
- Lecture 45 - Video Tutorials on Angular Momentum (Orbital and Spin) and Variational Method - Part 1
- Lecture 46 - Video Tutorials on Angular Momentum (Orbital and Spin) and Variational Method - Part 2
- Lecture 47 - Introduction to Quantum Mechanical Perturbation Theory
- Lecture 48 - First Order Time Independent perturbation Theory for Non-Degenerate states
- Lecture 49 - First and Second Order Time Independent Perturbation Theory for Non-Degenerate States
- Lecture 50 - First and Second Order Time Independent Perturbation Theory
- Lecture 51 - Time Independent Perturbation Theory for Degenerate States
- Lecture 52 - General MO method for Homonuclear Diatomic Molecules
- Lecture 53 - General MO method for Heteronuclear Diatomic Molecules
- Lecture 54 - Introduction to Hybridization and Valence Bond for Polyatomic Molecules
- Lecture 55 - Hückel Molecular Orbital Theory - I
- Lecture 56 - Hückel Molecular Orbital Theory - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Electrochemical Impedance Spectroscopy

Subject Co-ordinator - Dr. S. Ramanathan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Electrochemistry, double layer, 3 electrode systems, supporting electrolyte
- Lecture 2 - Rate constant, concept of impedance, Z of electrical elements, differential impedance
- Lecture 3 - Time domain results
- Lecture 4 - Graphical representation of data (Complex plane, Bode)
- Lecture 5 - Introduction to other techniques
- Lecture 6 - Tutorial 01
- Lecture 7 - Type of analyzers, single and multi sine
- Lecture 8 - FFT details, frequency range and resolution, cross correlation
- Lecture 9 - Multi sine, odd harmonic, non-harmonics, crest factor, spectral leakage
- Lecture 10 - Windowing
- Lecture 11 - Tutorial 02
- Lecture 12 - Introduction to KKT
- Lecture 13 - Linearity, causality, stability, impedance vs. admittance, measurement model
- Lecture 14 - Linear KKT illustration
- Lecture 15 - Tutorial 03
- Lecture 16 - Introduction to EEC, Choice of circuits, confidence intervals, AIC
- Lecture 17 - EEC fitting, initial values, distinguishability
- Lecture 18 - Zero/pole representation,  $R_t$  and  $R_p$
- Lecture 19 - Maxwell, Voigt, Ladder circuits, choice of initial values illustrated
- Lecture 20 - Tutorial 04
- Lecture 21 - Simple electron transfer reaction
- Lecture 22 - Two step reaction with an intermediate (1 of 3)
- Lecture 23 - Two step reaction with an intermediate (2 of 3)
- Lecture 24 - Two step reaction with an intermediate (3 of 3)
- Lecture 25 - E-EAR reaction, negative resistance (1 of 2)
- Lecture 26 - E-EAR reaction, negative resistance (2 of 2)
- Lecture 27 - Three step reaction with two adsorbed intermediates
- Lecture 28 - Catalytic mechanism
- Lecture 29 - Examples with Frumkin or Temkin isotherms

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Challenges in RMA
- Lecture 31 - Patterns Reported in Experiments
- Lecture 32 - Warburg part - 1
- Lecture 33 - Warburg part - 2
- Lecture 34 - Warburg part - 3
- Lecture 35 - Bounded Warburg
- Lecture 36 - CPE
- Lecture 37 - Porous electrodes
- Lecture 38 - Films, PDM
- Lecture 39 - PDM
- Lecture 40 - Applications
- Lecture 41 - NLEIS. Introduction and mathematical background
- Lecture 42 - Electron Transfer reaction
- Lecture 43 - Two step reaction
- Lecture 44 - Two step reaction (Continued...)
- Lecture 45 -  $R_t$  and  $R_p$  estimation
- Lecture 46 - Galvanostatic simulations
- Lecture 47 - Instabilities
- Lecture 48 - Solution resistance effects
- Lecture 49 - Detection on nonlinearities using KKT
- Lecture 50 - Frumkin and Temkin isotherms
- Lecture 51 - NLEIS Experimental aspects. FFT, PSD, THD
- Lecture 52 - Application - other techniques HA, EFM



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Medicinal Chemistry

Subject Co-ordinator - Prof. Harinath Chakrapani

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Medicinal Chemistry - Part I
- Lecture 2 - Introduction to Medicinal Chemistry - Part II
- Lecture 3 - Intermolecular Binding Forces
- Lecture 4 - Protein Structure and Function
- Lecture 5 - Tutorial 1 - Acidity, Basicity and Related concepts
- Lecture 6 - Tutorial 2 - Basic Concepts of Thermodynamics and Kinetics
- Lecture 7 - Enzyme Catalysis - Part I
- Lecture 8 - Enzyme Catalysis - Part II
- Lecture 9 - Tutorial 3 - Binding Forces, Protein Structure and Function
- Lecture 10 - Introduction to Receptors
- Lecture 11 - Receptor Types and Functions
- Lecture 12 - Tutorial 4 - Receptors, Binding Interactions, Ion Channels
- Lecture 13 - Nucleic Acids
- Lecture 14 - RNA and Protein Synthesis
- Lecture 15 - Tutorial 5 - Nucleic acids, and Basics of Molecular Biology
- Lecture 16 - Enzymes as Drug Targets
- Lecture 17 - Enzyme Kinetics and Inhibition
- Lecture 18 - Tutorial 6 - Enzyme Kinetics, Various Modes of Inhibition etc.
- Lecture 19 - Receptors as Drug Targets - Part I
- Lecture 20 - Receptors as Drug Targets - Part II
- Lecture 21 - Tutorial 7 - Receptor-Drug Interactions, Stereochemistry, Chirality, Nomenclature
- Lecture 22 - Receptor-Drug Interactions.
- Lecture 23 - Stereochemistry and Conformation
- Lecture 24 - Tutorial 8 - Determination of Drug-Receptor Interactions, Conformation of Cyclic and Acyclic Str
- Lecture 25 - Nucleic Acids as Drug Targets - Part I
- Lecture 26 - Nucleic Acids as Drug Targets - Part II
- Lecture 27 - Miscellaneous Drug Targets
- Lecture 28 - Tutorial 9 - Nucleic Acids and Related Topics
- Lecture 29 - Mechanisms in Biological Chemistry - Part I

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Mechanisms in Biological Chemistry - Part II
- Lecture 31 - Mechanisms in Biological Chemistry - Part III
- Lecture 32 - Pharmacokinetics - Part I
- Lecture 33 - Pharmacokinetics - Part II
- Lecture 34 - Drug Metabolism - Part I
- Lecture 35 - Drug Metabolism - Part II
- Lecture 36 - Drug Metabolism - Part III
- Lecture 37 - Drug Metabolism - Part IV
- Lecture 38 - Tutorial 10 - ADME
- Lecture 39 - Drug Administration Routes - Part I
- Lecture 40 - Drug Administration Routes - Part II
- Lecture 41 - Finding a Lead - Part I
- Lecture 42 - Finding a Lead - Part II
- Lecture 43 - Drug Screening
- Lecture 44 - Tutorial 11 - Drug administration routes and finding a lead
- Lecture 45 - Optimizing Drug-Target Interactions - Part I
- Lecture 46 - Optimizing Drug-Target Interactions - Part II
- Lecture 47 - Optimizing Drug-Target Interactions - Part III
- Lecture 48 - Optimizing Drug-Target Interactions - Part IV
- Lecture 49 - Tutorial 12
- Lecture 50 - Optimizing Access to the Target
- Lecture 51 - Prodrugs
- Lecture 52 - Prodrugs and Drug Alliances
- Lecture 53 - Endogenous Compounds, Peptidomimetics and Oligonucleotides as Drugs
- Lecture 54 - Tutorial 13- Optimizing Access-Prodrugs
- Lecture 55 - Combinatorial and parallel synthesis
- Lecture 56 - Computer in Medicinal Chemistry
- Lecture 57 - Antibacterial agents - 1
- Lecture 58 - Antibacterial agents - 2
- Lecture 59 - Tutorial14-Combinatorial and parallel synthesis, computers in med chem and anti-bacterial agents
- Lecture 60 - Anti-viral agents - 1
- Lecture 61 - Anti-viral agents - 2
- Lecture 62 - Anti-cancer agents - 1
- Lecture 63 - Anti-cancer agents - 2
- Lecture 64 - Cholinergics
- Lecture 65 - Anti-ulcer agents
- Lecture 66 - QSAR - 1
- Lecture 67 - QSAR - 2
- Lecture 68 - QSAR - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Drug Resistance and Synergy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Chemical Principles-II

Subject Co-ordinator - Prof. Arnab Mukherjee

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to The Thermodynamics  
Lecture 2 - History of Thermodynamic  
Lecture 3 - Thermodynamic Systems and Variables  
Lecture 4 - Zeroth Law of Thermodynamic  
Lecture 5 - Microscopic Definition of Temperature - Part 1  
Lecture 6 - Microscopic Definition of Temperature - Part 2  
Lecture 7 - Different Forms of Energy  
Lecture 8 - Real Gas and Virial Equation  
Lecture 9 - Van der Waals Gas  
Lecture 10 - Work and Heat - Part 1  
Lecture 11 - Work and Heat - Part 2  
Lecture 12 - First Law of Thermodynamics  
Lecture 13 - Microscopic Definition of Heat and Work  
Lecture 14 - Work done at a Constant Temperature  
Lecture 15 - Heat is a path function  
Lecture 16 - Joule-Thomson Effect (For Ideal Gases)  
Lecture 17 - Joule-Thomson Effect (For Van der Waals gas)  
Lecture 18 - Adiabatic Reversible Work  
Lecture 19 - Adiabatic Irreversible Work  
Lecture 20 - Tutorial Problem - 1  
Lecture 21 - Tutorial Problem - 2  
Lecture 22 - Thermochemistry - Part 1  
Lecture 23 - Thermochemistry - Part 2  
Lecture 24 - Second Law of Thermodynamics  
Lecture 25 - Statements of the Second Law of Thermodynamics  
Lecture 26 - Carnot Cycle and Definition of Entropy  
Lecture 27 - Ideal Stirling Engine  
Lecture 28 - Gasoline Engine and Diesel Engine  
Lecture 29 - Carnot's Cycle

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Thermodynamic Temperature
- Lecture 31 - Definition of Entropy
- Lecture 32 - Tutorial Problem - 3
- Lecture 33 - Tutorial Problem - 4
- Lecture 34 - Tutorial Problem - 5
- Lecture 35 - Tutorial Problem - 6
- Lecture 36 - Tutorial Problem - 7
- Lecture 37 - Tutorial Problem - 8
- Lecture 38 - Statistical Formulation of the Second Law
- Lecture 39 - Probability
- Lecture 40 - Microstates and Distributions
- Lecture 41 - Permutation and Combination
- Lecture 42 - Two-Level Systems
- Lecture 43 - Most Probable Distribution
- Lecture 44 - Calculation with Multi-Level systems
- Lecture 45 - Calculation with Multi-Level systems with fixed energy - Part 1
- Lecture 46 - Calculation with Multi-Level systems with fixed energy - Part 2
- Lecture 47 - Calculation with Multi-Level systems with fixed energy - Part 3
- Lecture 48 - Bose-Einstein, Fermi-Dirac and Maxwell-Boltzmann distribution
- Lecture 49 - Most Probable Distribution is the Boltzmann Distribution
- Lecture 50 - Demonstration of Boltzmann Distribution
- Lecture 51 - Estimating Entropy for Various Processes
- Lecture 52 - Microscopic equivalent of Heat and Work
- Lecture 53 - Probability and Boltzmann Distribution
- Lecture 54 - Thermodynamic Observables
- Lecture 55 - Tutorial Problem - 9
- Lecture 56 - Tutorial Problem - 10
- Lecture 57 - Tutorial Problem - 11
- Lecture 58 - Tutorial Problem - 12
- Lecture 59 - Thermodynamic free energy
- Lecture 60 - Condition for Spontaneity
- Lecture 61 - Legendre Transformation of Thermodynamic Potentials
- Lecture 62 - Maxwell Relations and Applications
- Lecture 63 - Thermodynamic Relations using Jacobian Method - Part 1
- Lecture 64 - Thermodynamic Relations using Jacobian Method - Part 2
- Lecture 65 - Tutorial Problem - 13
- Lecture 66 - Tutorial Problem - 14
- Lecture 67 - Tutorial Problem - 15
- Lecture 68 - Tutorial Problem - 16

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Chemical Principle II - Overview and Road Ahead

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Organic Chemistry Lab Certification

Subject Co-ordinator - Prof. Harinath Chakrapani

Co-ordinating Institute - IISER PUNE

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Feedback on Techniques in Organic Chemistry

Lecture 2 - Introduction to Claisen - Condensation

Lecture 3 - Introduction to Claisen - Condensation

Lecture 4 - How to separate different components from a mixture using column chromatography

Lecture 5 - Fluorescence phenomenon

Lecture 6 - Reaction Mechanism and Stereochemistry

Lecture 7 - Chemiluminescence Phenomenon

Lecture 8 - Post Lab Questions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC: Introductory Organic Chemistry-I

Subject Co-ordinator - Prof. Harinath Chakrapani

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction Structure of atom and molecules  
Lecture 2 - Introduction to Molecular Orbital Theory - Part 1  
Lecture 3 - Introduction to Molecular Orbital Theory - Part 2  
Lecture 4 - Tutorial 01  
Lecture 5 - Learning Objectives for week 2  
Lecture 6 - Alkanes and Cycloalkanes - Part 1  
Lecture 7 - Alkanes and Cycloalkanes - Part 2  
Lecture 8 - Conformational Analysis of Cyclohexane - Part 1  
Lecture 9 - Conformational Analysis of Cyclohexane - Part 2  
Lecture 10 - Physical Properties of Alkanes  
Lecture 11 - Nomenclature of Alkanes, Cycloalkanes and Bicycloalkanes  
Lecture 12 - Tutorial 02  
Lecture 13 - Learning Objectives for week 3  
Lecture 14 - Chirality and Stereochemistry - Part 1  
Lecture 15 - Chirality and Stereochemistry - Part 2  
Lecture 16 - Chirality and Stereochemistry - Part 3  
Lecture 17 - Tutorial 03  
Lecture 18 - Learning Objectives for week 4  
Lecture 19 - Acids and Bases - Part 1  
Lecture 20 - Acids and Bases - Part 2  
Lecture 21 - Acids and Bases - Part 3  
Lecture 22 - Tutorial 04  
Lecture 23 - Learning Objectives for week 5  
Lecture 24 - Arrow Pushing mechanism in Organic Chemistry  
Lecture 25 - Alkenes\_Structure, Properties and Nomenclature  
Lecture 26 - Reactions of Alkenes - Part 1  
Lecture 27 - Reactions of Alkenes - Part 2  
Lecture 28 - Reactions of Alkenes - Part 3  
Lecture 29 - Tutorial 05 - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial 05 - Part 2
- Lecture 31 - Learning Objectives for week 6
- Lecture 32 - Reactions of Alkenes - Part 4
- Lecture 33 - Reactions of Alkenes - Part 5
- Lecture 34 - Alkynes
- Lecture 35 - Reactions of Alkynes - Part 1
- Lecture 36 - Reactions of Alkynes - Part 2
- Lecture 37 - Tutorial-6
- Lecture 38 - Learning Objectives for week 7
- Lecture 39 - Substitution and Elimination - Part 1
- Lecture 40 - Substitution and Elimination - Part 2
- Lecture 41 - Substitution and Elimination - Part 3
- Lecture 42 - Substitution and Elimination - Part 4
- Lecture 43 - Substitution and Elimination - Part 5
- Lecture 44 - Tutorial-7
- Lecture 45 - Learning Objectives for week 8
- Lecture 46 - Alcohols - Part 1
- Lecture 47 - Alcohols - Part 2
- Lecture 48 - Alcohols - Part 3
- Lecture 49 - Ethers and Epoxides - Part 1
- Lecture 50 - Ethers and Epoxides - Part 2
- Lecture 51 - Aromaticity
- Lecture 52 - Tutorial-8

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Quantitative Methods in Chemistry

Subject Co-ordinator - Prof. Aasheesh Srivastava, Prof. Bharathwaj Sathyamoorthy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - A brief history of the beginnings of quantitation in Chemistry, defining chemical stoichiometry and
- Lecture 2 - Defining Molality and Normality, relationship with Molarity
- Lecture 3 - Defining other parameters for concentration (% , ppm/ppb, p-value)
- Lecture 4 - Relationship between various concentration parameters
- Lecture 5 - Problems on acid-base equilibria, calculation of pH of strong and weak acids
- Lecture 6 - Brief introduction to normal distribution and statistical analysis
- Lecture 7 - Using a spreadsheet towards basic statistical analysis, exact equation of error propagation, accuracy
- Lecture 8 - Error propagation and its application to a few examples, significant figures
- Lecture 9 - Introduction to use spreadsheets to analyze errors, reiteration of significant figures, repeats a
- Lecture 10 - Classification of errors
- Lecture 11 - A look at uncertainties in a measurement taking an example
- Lecture 12 - A comprehensive and step-wise look at an experimental protocol towards understanding systematic
- Lecture 13 - Introductory Statistics - Part 1
- Lecture 14 - Introductory Statistics - Part 2
- Lecture 15 - Hypothesis testing and Finding Outliers - Part 1
- Lecture 16 - Hypothesis testing and Finding Outliers - Part 2
- Lecture 17 - Pooling of data
- Lecture 18 - Introduction to Analysis of Variance (ANOVA) and comparing precisions
- Lecture 19 - Protocol for undertaking ANOVA - Part 1
- Lecture 20 - Protocol for undertaking ANOVA - Part 2
- Lecture 21 - ANOVA and Least Significant Difference (LSD)
- Lecture 22 - ANOVA and solved Least Significant Difference example
- Lecture 23 - Using spreadsheet software to perform data analysis towards calibrating a burette
- Lecture 24 - Using spreadsheet to analyze linear dependence between two variables
- Lecture 25 - Using spreadsheet and MATLAB towards data analysis with example of rate kinetics
- Lecture 26 - Simulating simple straight lines and kinetic curves using MATLAB
- Lecture 27 - Simulating the Michaelis Menten kinetics using MATLAB
- Lecture 28 - Curve fitting and simulating with variance for the Michaelis Menten kinetics using MATLAB
- Lecture 29 - Standards and Volumetric/Gravimetric titrations - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Standards and Volumetric/Gravimetric titrations - Part 2
- Lecture 31 - Standards and Volumetric/Gravimetric titrations - Part 3
- Lecture 32 - Standards and Volumetric/Gravimetric titrations - Part 4
- Lecture 33 - Standards and Volumetric/Gravimetric titrations - Part 5
- Lecture 34 - Analytical Separations - Multistage extractions - Part 1
- Lecture 35 - Analytical Separations - Multistage extractions - Part 2
- Lecture 36 - Analytical Separations - Chromatography - Part 1
- Lecture 37 - Analytical Separations - Chromatography - Part 2
- Lecture 38 - Analytical Separations - Electrophoresis, Capillary electrophoresis, Isoelectric Focusing
- Lecture 39 - Basics of Chromatography - Part 1
- Lecture 40 - Basics of Chromatography - Part 2
- Lecture 41 - Chromatography - Concept of Theoretical plates
- Lecture 42 - Chromatography - Rate Theory
- Lecture 43 - Practice of Chromatography - HPLC
- Lecture 44 - Practice of Chromatography - Gas Chromatography
- Lecture 45 - Supercritical Fluid Chromatography
- Lecture 46 - Detectors employed during chromatographic separations
- Lecture 47 - Course Revision
- Lecture 48 - Course Revision - Week 1 to 3
- Lecture 49 - Course Revision - Week 4 and 5
- Lecture 50 - Course Revision - Week 6 and 7
- Lecture 51 - Course Revision - Week 8 to 11

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Fundamentals of Spectroscopy

Subject Co-ordinator - Prof. Sayan Bagchi, Prof. Anirban Hazra

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Spectroscopy
- Lecture 2 - Introduction to Quantum Mechanics - I
- Lecture 3 - Introduction to Quantum Mechanics - II
- Lecture 4 - A Simple Quantum Mechanical System
- Lecture 5 - Spectroscopic Transitions
- Lecture 6 - Intensity of a Transition Depends on the Transition Dipole Moment - I
- Lecture 7 - Intensity of a Transition Depends on the Transition Dipole Moment - II
- Lecture 8 - Comparison between Chemical Reactions and Spectroscopic Transitions
- Lecture 9 - Lineshape Analysis
- Lecture 10 - Different Forms of Spectroscopy
- Lecture 11 - Spectroscopic Timescales
- Lecture 12 - Correspondence between Linear Motion and Rotational Motion
- Lecture 13 - Diatomic Rigid Rotor
- Lecture 14 - Selection Rules and Rotational Spectrum
- Lecture 15 - Isotope effect
- Lecture 16 - Degeneracy
- Lecture 17 - Intensities of Rotational Lines
- Lecture 18 - Non Rigid Rotor
- Lecture 19 - Polyatomic Molecules - I
- Lecture 20 - Polyatomic Molecules - II and Numericals
- Lecture 21 - Origin of the Rotational Selection Rule
- Lecture 22 - Simple Harmonic Oscillator
- Lecture 23 - Energy Levels
- Lecture 24 - Selection Rules
- Lecture 25 - Anharmonicity
- Lecture 26 - Effects of Anharmonicity
- Lecture 27 - Ro-vibrational Spectrum - I
- Lecture 28 - Ro-vibrational Spectrum - II
- Lecture 29 - Harmonic Oscillator Eigenvalues and Eigenfunctions - I

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Harmonic Oscillator Eigenvalues and Eigenfunctions - II
- Lecture 31 - Vibration of a Diatomic Molecule and Derivation of the Vibrational Selection Rule
- Lecture 32 - Ro-vibrational Spectrum - III
- Lecture 33 - Vibration of Polyatomic Molecules - I
- Lecture 34 - Vibration of Polyatomic Molecules - II
- Lecture 35 - Vibration of Polyatomic Molecules - III
- Lecture 36 - Normal Mode Coordinates
- Lecture 37 - Introduction to Raman Spectroscopy
- Lecture 38 - Quantum theory of Raman effect
- Lecture 39 - Rotational Raman Spectroscopy
- Lecture 40 - Nuclear Spin Statistics
- Lecture 41 - Polarizability and Polarizability Ellipsoid
- Lecture 42 - Raman Activity of Vibrations
- Lecture 43 - Vibrational Raman Spectroscopy
- Lecture 44 - Polarization Effects and Numericals
- Lecture 45 - Resonance Spectroscopy - Introduction 1
- Lecture 46 - Resonance Spectroscopy - Introduction 2
- Lecture 47 - NMR Spectroscopy - 1
- Lecture 48 - NMR Spectroscopy - 2
- Lecture 49 - NMR Spectroscopy - 3
- Lecture 50 - NMR Spectroscopy - 4
- Lecture 51 - NMR Spectroscopy - 5
- Lecture 52 - NMR Spectroscopy - 6
- Lecture 53 - ESR Spectroscopy - 1
- Lecture 54 - ESR Spectroscopy - 2
- Lecture 55 - ESR Spectroscopy - 3
- Lecture 56 - ESR Spectroscopy - 4
- Lecture 57 - Electronic Spectroscopy - 1
- Lecture 58 - Electronic Spectroscopy - 2
- Lecture 59 - Electronic Spectroscopy - 3
- Lecture 60 - Electronic Spectroscopy - 4
- Lecture 61 - Electronic Spectroscopy - 5

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Symmetry, Stereochemistry and Applications

Subject Co-ordinator - Prof. Angshuman Roy Choudhury

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to stereochemistry
- Lecture 2 - Nomenclature of Various Organic Molecules
- Lecture 3 - Nomenclature of Cyclic molecules and other functional groups
- Lecture 4 - Nomenclature of some complex molecules
- Lecture 5 - Practising naming of molecules
- Lecture 6 - Symmetry, Stereochemistry and Applications
- Lecture 7 - Symmetry elements in organic molecules
- Lecture 8 - Molecular point groups - Part I
- Lecture 9 - Molecular point groups - Part II
- Lecture 10 - Conformations and Configurations
- Lecture 11 - Conformational Analysis - Part I
- Lecture 12 - Conformational Analysis - Part II
- Lecture 13 - Chair and Boat Conformation of Cyclohexane
- Lecture 14 - Conformational Analysis of Disubstituted Cyclohexane Molecules
- Lecture 15 - Isomerism and Representation of Isomers
- Lecture 16 - Stereoisomerism
- Lecture 17 - Drawing One Projection from Another
- Lecture 18 - Optical Activity of Organic Molecules and Isomerism
- Lecture 19 - Allenes and Biphenyls
- Lecture 20 - Absolute Configuration in Biphenyls and D/L Systems
- Lecture 21 - Asymmetry and Dissymmetry Molecules
- Lecture 22 - Stereoisomerism and Local Symmetry
- Lecture 23 - Topicity of Ligands
- Lecture 24 - Topicity of Faces
- Lecture 25 - Problems on Isomers and Topicity
- Lecture 26 - Diastereomerism in Ring System - Part 1
- Lecture 27 - Diastereomerism in Ring System - Part 2
- Lecture 28 - Diastereomerism in Ring System - Part 3
- Lecture 29 - Diastereomerism in PI System

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Nucleophilic Reactions
- Lecture 31 - Mechanism of Nucleophilic Substitution Reaction
- Lecture 32 - Stability of Carbocation
- Lecture 33 - Elimination Reactions
- Lecture 34 - Substitution VS Elimination Reactions
- Lecture 35 - Addition Reactions to Alkenes and Alkynes - Part 1
- Lecture 36 - Addition Reactions to Alkenes and Alkynes - Part 2
- Lecture 37 - Oxidizing Agents in Organic Chemistry and Organometallic Compounds
- Lecture 38 - Some Problems and their Answers in Stereochemistry
- Lecture 39 - Dynamic Stereochemistry - Part 1
- Lecture 40 - Dynamic Stereochemistry - Part 2
- Lecture 41 - Reaction Specificity and Selectivity
- Lecture 42 - Cram's Rule and Felkin-Anh Model
- Lecture 43 - Kinetics of Organic Reactions
- Lecture 44 - Name Reactions and Their Mechanism - Part 1
- Lecture 45 - Name Reactions and Their Mechanism - Part 2
- Lecture 46 - Modifications of Diels-Alder Reaction
- Lecture 47 - Name Reactions and Their Mechanism - Part 3
- Lecture 48 - Name Reactions and Their Mechanism - Part 4
- Lecture 49 - Rearrangement Reactions in Organic Chemistry - Part 1
- Lecture 50 - Rearrangement Reactions in Organic Chemistry - Part 2
- Lecture 51 - Rearrangement Reactions in Organic Chemistry - Part 3
- Lecture 52 - Rearrangement Reactions in Organic Chemistry - Part 4
- Lecture 53 - Brief introduction to crystallographic symmetry
- Lecture 54 - Symmetries in X-ray Crystallography
- Lecture 55 - 2D lattices and space groups
- Lecture 56 - 3D crystallographic point groups and space groups

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Symmetry and Group Theory (2021)

Subject Co-ordinator - Prof. Jeetender Chugh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Contents
- Lecture 2 - Symmetry and Parity Operator
- Lecture 3 - Symmetry Elements and Operations - Part 1
- Lecture 4 - Symmetry Elements and Operations - Part 2
- Lecture 5 - Planes and Reflections
- Lecture 6 - Tutorial - 1
- Lecture 7 - Coordinate System and Inversion Center
- Lecture 8 - Improper axis and improper rotation
- Lecture 9 - Solved Examples of Symmetry Elements and Operations
- Lecture 10 - Product of Symmetry Operations
- Lecture 11 - Tutorial - 2
- Lecture 12 - Symmetry Point Groups - Part 1
- Lecture 13 - Symmetry Point Groups - Part 2
- Lecture 14 - Symmetry Point Groups - Part 3
- Lecture 15 - Dipole Moment and Optical Acitivity
- Lecture 16 - Tutorial - 3
- Lecture 17 - Point Group Definition and Examples
- Lecture 18 - Sub-Group and Classes
- Lecture 19 - Matrix Representation of Symmetry Operations
- Lecture 20 - Matrix Representation of Point Group
- Lecture 21 - Tutorial - 4
- Lecture 22 - Matrix Representation of Point Group
- Lecture 23 - Reducible and Irreducible Representations
- Lecture 24 - Great Orthogonality Theorem
- Lecture 25 - Properties of Great Orthogonality Theorem
- Lecture 26 - Tutorial - 5
- Lecture 27 - Irreducible Representation using GOT
- Lecture 28 - Reducible to Irreducible Representation using GoT
- Lecture 29 - Character Table and Mulliken Symbols

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - How to write a complete character table
- Lecture 31 - Tutorial - 6
- Lecture 32 - Representations of a cyclic group
- Lecture 33 - Group Theory and Quantum Mechanics
- Lecture 34 - 1) Degenerate Eigen Functions 2) Direct Product
- Lecture 35 - Direct Product
- Lecture 36 - Tutorial - 7
- Lecture 37 - Direct Product Applications - Part 1
- Lecture 38 - Direct Product Applications - Part 2
- Lecture 39 - Symmetry Adapted Linear Combinations - Part 1
- Lecture 40 - Symmetry Adapted Linear Combinations - Part 2
- Lecture 41 - Tutorial - 8
- Lecture 42 - Incomplete Projection Operator
- Lecture 43 - SALC using Projection Operator
- Lecture 44 - Symmetry and Chemical Bonding
- Lecture 45 - Valence Bond Theory
- Lecture 46 - Tutorial - 9
- Lecture 47 - Molecular Orbital Theory
- Lecture 48 - Localised MO Theory
- Lecture 49 - Delocalized MO Theory - Part 1
- Lecture 50 - Delocalized MO Theory - Part 2
- Lecture 51 - Ascent and Descent in Symmetry - Part 1
- Lecture 52 - Ascent and Descent in Symmetry - Part 2
- Lecture 53 - Crystal Field Theory - Part 1
- Lecture 54 - Crystal Field Theory - Part 2
- Lecture 55 - Jahn-Teller Distortion - Part 1
- Lecture 56 - Jahn-Teller Distortion - Part 2
- Lecture 57 - Introduction to Spectroscopy - Part 1
- Lecture 58 - Introduction to Spectroscopy - Part 2
- Lecture 59 - Vibrational Spectroscopy
- Lecture 60 - 1) Raman Spectroscopy and 2) Atomic Motions
- Lecture 61 - Symmetry of Normal Modes of Vibration
- Lecture 62 - Visualizing Molecular Vibrations using Internal Coordinates
- Lecture 63 - Spectral Transition Probabilities - Part 1
- Lecture 64 - Spectral Transition Probabilities - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC: Introductory Organic Chemistry - II

Subject Co-ordinator - Prof. Harinath Chakrapani

Co-ordinating Institute - IISER - Pune

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - 1
- Lecture 2 - Essentials of NMR Spectroscopy - Part 1
- Lecture 3 - Essentials of NMR Spectroscopy - Part 2
- Lecture 4 - Essentials of NMR Spectroscopy - Part 3
- Lecture 5 - Electrophilic Aromatic Substitution - Part 1
- Lecture 6 - Electrophilic Aromatic Substitution - Part 2
- Lecture 7 - Electrophilic Aromatic Substitution - Part 3
- Lecture 8 - Tutorial - 1
- Lecture 9 - Introduction - 2
- Lecture 10 - Electrophilic Aromatic Substitution in Phenols
- Lecture 11 - EAS\_Effect of Electron Donating group
- Lecture 12 - EAS\_Effect of Electron Withdrawing group
- Lecture 13 - Nucleophilic aromatic substitution - Part 1
- Lecture 14 - Nucleophilic aromatic substitution - Part 2
- Lecture 15 - Special Topic\_Hammond's Postulate
- Lecture 16 - Tutorial-2 - Part 1
- Lecture 17 - Tutorial-2 - Part 2
- Lecture 18 - Essentials of IR Spectroscopy
- Lecture 19 - Introduction - 3
- Lecture 20 - Basics of Carbonyl Compounds
- Lecture 21 - Addition Reactions on Carbonyl functional group
- Lecture 22 - Addition Reactions on Carbonyl functional group
- Lecture 23 - Nucleophilic Addition Reactions and its stereochemistry
- Lecture 24 - Nucleophilic Addition Reactions and its Stereochemistry
- Lecture 25 - Tutorial - 3
- Lecture 26 - Introduction - 4
- Lecture 27 - Carboxylic acid and its derivatives - Part 1
- Lecture 28 - Carboxylic acid and its derivatives - Part 2
- Lecture 29 - Reactions of Carboxylic acid and its derivatives

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- Lecture 30 - Alcohols, Ethers, and Epoxides
- Lecture 31 - Tutorial - 4
- Lecture 32 - Special Topic - E1CB reaction
- Lecture 33 - Introduction - 5
- Lecture 34 - Enols and Enolates\_Intro
- Lecture 35 - Enols and Enolates\_Molecular Orbital Picture
- Lecture 36 - Reactions of Enols and Enolates
- Lecture 37 - Tutorial - 5A
- Lecture 38 - Tutorial - 5B
- Lecture 39 - Introduction - 6
- Lecture 40 - Active methylene group
- Lecture 41 - Aldol and related Reactions
- Lecture 42 - Aldol Reactions: Specific enol equivalents - Part 1
- Lecture 43 - Aldol Reactions: Specific enol equivalents - Part 2
- Lecture 44 - Tutorial - 6
- Lecture 45 - Introduction - 7
- Lecture 46 - Conjugate Addition:1,2-addition and 1,4-addition
- Lecture 47 - Conjugate Addition: Kinetic versus thermodynamic products
- Lecture 48 - Conjugate Addition: Hard and Soft nucleophiles
- Lecture 49 - Enol and Enolate alkylation
- Lecture 50 - Regioselectivity of alkylation reactions
- Lecture 51 - Acylation of enol/enolates and related Name Reactions
- Lecture 52 - Tutorial-7: Felkin-Ahn Problems
- Lecture 53 - Introduction - 8
- Lecture 54 - Rearrangements - Part 1
- Lecture 55 - Rearrangements - Part 2
- Lecture 56 - Rearrangements - Part 3
- Lecture 57 - Rearrangements - Part 4
- Lecture 58 - Named Reactions - Part 1
- Lecture 59 - Named Reactions - Part 2
- Lecture 60 - Tutorial - 8
- Lecture 61 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Elementary Electrochemistry

Subject Co-ordinator - Prof. Angshuman Roy Choudhury

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Elementary Electrochemistry
- Lecture 2 - The Laws of Electrochemistry and Electrolysis
- Lecture 3 - Applications of Faraday's Laws of Electrolysis
- Lecture 4 - Electrolytic Conduction: Arrhenius Theory of Electrolytic Dissociation
- Lecture 5 - Electrochemical/Galvanic Cell: Construction and Cell Reactions
- Lecture 6 - Numerical Problems on Faraday's Laws of Electrolysis
- Lecture 7 - Estimation of EMF of a Cell Using Potentiometer
- Lecture 8 - EMF of a Cell and Free Energy Change of a Reaction
- Lecture 9 - EMF of a Cell and Equilibrium Constant of a Reaction: The Nernst Equation
- Lecture 10 - Various Types of Electrodes (Glass, SHE, Calomel) in Electrochemistry
- Lecture 11 - Electrode Potential and Applications of Nernst Equation
- Lecture 12 - Numerical Problems: Nernst Equation, EMF of Half Cell Reactions
- Lecture 13 - Measurement of Cell EMF
- Lecture 14 - Electrochemical Cells: Liquid Junction Potential
- Lecture 15 - Electrolytic Solutions: Determination of Activity Coefficient
- Lecture 16 - Theory of Potentiometric Titrations
- Lecture 17 - Preparation of Primary Standard and Standardization of NaOH
- Lecture 18 - Potentiometric Titration of Strong Acid and Strong Base
- Lecture 19 - Potentiometric Titration of Weak Acid with Strong Base
- Lecture 20 - Potentiometric Titration of Dibasic Acid with Strong Base
- Lecture 21 - Experimental Calculation of Potentiometric Titrations
- Lecture 22 - Conductance and Conductivity of the Solution
- Lecture 23 - Experimental Methods to Determine Transport Number
- Lecture 24 - Experimental Method to Calculate Transport Number
- Lecture 25 - Electrolytic Solutions
- Lecture 26 - Conductance Measurement
- Lecture 27 - Variation of Conductance with Concentration
- Lecture 28 - Ionic Mobilities in terms of ion Conductivities
- Lecture 29 - Application of Conductance Measurement - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Application of Conductance Measurement - Part 2
- Lecture 31 - Activities in Electrolytic Solutions
- Lecture 32 - Ionic Strength of an Electrolyte and its Importance
- Lecture 33 - Hydration of Ions and Their Ionic Mobility
- Lecture 34 - Solubility and Activity Product
- Lecture 35 - Applications of EMF and Conductance Measurement
- Lecture 36 - Dissociation Constant of Weak Acids
- Lecture 37 - Conductometric Titrations of Strong Acid with Strong Base
- Lecture 38 - Conductometric Titrations of Weak Acid with Strong Base
- Lecture 39 - Estimation of HCl and Ammonium Chloride in a Triple Mixture using NaOH
- Lecture 40 - Estimation of Total Chloride ion Concentration in Triple Mixture using Primary Standard AgNO<sub>3</sub>
- Lecture 41 - Validation of Ostwald Dilution Law using HCl
- Lecture 42 - Validation of Ostwald Dilution Law using Acetic Acid
- Lecture 43 - Calculation and Graph Plotting for Conductometric Experiments

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Organic Chemistry-I (Tamil)

Subject Co-ordinator - Prof. Srinivasan Venkataraman

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Phenols Structure, Preparation, Properties and Reactions - Part 1
- Lecture 2 - Phenols Structure, Preparation, Properties and Reactions - Part 2
- Lecture 3 - Phenols Structure, Preparation, Properties and Reactions - Part 3
- Lecture 4 - Phenols Structure, Preparation, Properties and Reactions - Part 4
- Lecture 5 - Phenols Structure, Preparation, Properties and Reactions - Part 5
- Lecture 6 - Phenols Structure, Preparation, Properties and Reactions - Part 6
- Lecture 7 - Phenol Assignment I and II - Part 7
- Lecture 8 - Carbonyl Compounds - Part 1
- Lecture 9 - Carbonyl Compounds - Part 2 (Continued...)
- Lecture 10 - Carbonyl Compounds - Part 3 (Continued...)
- Lecture 11 - Carbonyl Compounds - Part 4 (Continued...)
- Lecture 12 - Carbonyl Compounds Assignment I and II - Part 5
- Lecture 13 - Carboxylic Acids - Part 1
- Lecture 14 - Functional Derivatives - Part 2
- Lecture 15 - Appendices I and II - Part 3
- Lecture 16 - Carboxylic Acids - Assignment I and II - Part 4
- Lecture 17 - Nitro Compounds
- Lecture 18 - Amines Structure, Preparation and Properties - Part 1
- Lecture 19 - Amines Appendices I to IV - Part 1 (Continued...)
- Lecture 20 - Assignments I to II - Part 2
- Lecture 21 - Green Chemistry Introduction - Part 1
- Lecture 22 - Green Chemistry Terminologies and strategies in green chemistry - Part 2 (Continued...)
- Lecture 23 - Approches to Less Polluting Reactions - Part 3
- Lecture 24 - Biocatalysis - Part 4
- Lecture 25 - Microwave mediated and photochemical reactions and conclusion - Part 5
- Lecture 26 - Acknowledgement

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Essentials in Immunology

Subject Co-ordinator - Prof. Anjali Karande, Dr. Dipankar Nandi, Dr. R. Manjunath

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the immune system
- Lecture 2 - Cells and Organs of the immune system - Part 1
- Lecture 3 - Cells and Organs of the immune system - Part 2
- Lecture 4 - Cells and Organs of the immune system - Part 3
- Lecture 5 - Innate immunity - Part 1
- Lecture 6 - Innate immunity - Part 2
- Lecture 7 - Development and differentiation of B cells - Part 1
- Lecture 8 - Signaling in B cells
- Lecture 9 - Organization of immunoglobulin genes and Mechanism of immunoglobulin gene rearrangement
- Lecture 10 - Generation of antibody diversity
- Lecture 11 - Immunoglobulin class switching Regulation of Immunoglobulin gene regulation
- Lecture 12 - Structures and functions of Immunoglobulinâ s
- Lecture 13 - The three complement pathways
- Lecture 14 - Hypersensitivity type 1
- Lecture 15 - Hypersensitivity types 2, 3 ,4 and Autoimmunity
- Lecture 16 - Autoimmunity Autoimmuno-deficiencies f the B cells
- Lecture 17 - Autoimmuno-deficiencies f the B cells
- Lecture 18 - Cancer
- Lecture 19 - The major histocompatibility complex - Part 1
- Lecture 20 - The major histocompatibility complex - Part 2
- Lecture 21 - The major histocompatibility complex - Part 3
- Lecture 22 - The Major Histocompatibility Complex
- Lecture 23 - The Major Histocompatibility Complex
- Lecture 24 - The Major Histocompatibility Complex
- Lecture 25 - T cell receptors
- Lecture 26 - T cell Activation
- Lecture 27 - T cell Activation / Differentiation
- Lecture 28 - T cell synapse, motility and subsets
- Lecture 29 - T cell survival

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cytokines - Part 1
- Lecture 31 - Cytokines - Part 2
- Lecture 32 - Autoimmunity
- Lecture 33 - Immunodeficiency
- Lecture 34 - Host response mechanisms during infectious diseases - Part 1
- Lecture 35 - Host response mechanisms during infectious diseases - Part 2
- Lecture 36 - Transplantation immunology
- Lecture 37 - Vaccines
- Lecture 38 - Antigens and Immunogens
- Lecture 39 - Synthetic vaccines
- Lecture 40 - Evolution of the immune system



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Eukaryotic Gene Expression - basics and benefits

Subject Co-ordinator - Prof. P.N. Rangarajan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Eukaryotic RNA polymerases and basal transcription factors
- Lecture 2 - Diversity in core promoter elements
- Lecture 3 - Diversity in general transcription factors
- Lecture 4 - Proximal & Distal Promoter Elements, Enhancers and Silencers, Gene-specific Regulators
- Lecture 5 - Transcription factors - DNA binding domains
- Lecture 6 - Transcription factors - Transcription activation domain
- Lecture 7 - Role of chromatin in eukaryotic gene regulation
- Lecture 8 - Role of histones in eukaryotic gene regulation
- Lecture 9 - Role of DNA methylation in eukaryotic gene regulation
- Lecture 10 - Chromatin remodelling & gene regulation
- Lecture 11 - mRNA processing - Role of RNA Pol II in mRNA capping and mRNA splicing
- Lecture 12 - mRNA processing - Role of RNA Pol II in polyadenylation & mRNA editing
- Lecture 13 - Regulation of RNA Pol I transcription
- Lecture 14 - Regulation of RNA Pol III transcription
- Lecture 15 - Signal Transduction Pathways - Introduction
- Lecture 16 - Regulation of gene expression by cyclicAMP
- Lecture 17 - Regulation of gene expression by second messengers other than cAMP
- Lecture 18 - Regulation of gene expression by Protein Kinase C
- Lecture 19 - Regulation of gene expression by Growth factors
- Lecture 20 - Regulation of gene expression by cytokines
- Lecture 21 - Regulation of gene expression by steroid hormones
- Lecture 22 - Regulation of gene expression by type II nuclear receptors
- Lecture 23 - Mechanism of transcriptional activation by nuclear receptors
- Lecture 24 - Gene Regulation during Drosophila Development
- Lecture 25 - Signal transduction pathways involved in embryonic development
- Lecture 26 - Homeotic genes
- Lecture 27 - Epigenetic regulation of gene expression during development
- Lecture 28 - Embryonic stem cells and Transcription factor-mediated epigenetic reprogramming
- Lecture 29 - Cloning and Expression vectors

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Eukaryotic protein expression systems - I
- Lecture 31 - Eukaryotic protein expression systems - II
- Lecture 32 - Eukaryotic protein expression systems - III
- Lecture 33 - Human Gene Therapy
- Lecture 34 - DNA vaccines
- Lecture 35 - Transgenic animals
- Lecture 36 - Transgenic plants
- Lecture 37 - Knockout mic
- Lecture 38 - Regulation of Eukaryotic Gene Expression by Small RNAs (RNA Interference, RNAi)
- Lecture 39 - Genomics & Proteomics
- Lecture 40 - Metabolic Engineering & Synthetic Biology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Introductory Quantum Chemistry

Subject Co-ordinator - Prof. K.L. Sebastian

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Wave Particle Duality

Lecture 2 - Standing Waves

Lecture 3 - Path Integrals and Schrodinger Equation

Lecture 4 - Postulates - Part 1

Lecture 5 - Postulates - Part 2

Lecture 6 - Postulates - Part 3

Lecture 7 - Separating Variables and Particle in a Box - Part 1

Lecture 8 - Particle in a box - Part 2

Lecture 9 - Particle in a box - Part 3

Lecture 10 - Particle in a box-time dependent states-Expectations values and time dependent states

Lecture 11 - Particle in a 3 dimensional box

Lecture 12 - Particle in a well of finite depth

Lecture 13 - Finite well, Delta and Step Functions

Lecture 14 - Finite well (Continued...)

Lecture 15 - Tunneling - Part 1

Lecture 16 - Tunneling - Part 2

Lecture 17 - Schrodinger equation for Harmonic Oscillator

Lecture 18 - Harmonic Oscillator - The Series Solution

Lecture 19 - Harmonic Oscillator - Generating function

Lecture 20 - Harmonic Oscillator - Orthogonality of Eigenfunctions

Lecture 21 - Hydrogen Atom

Lecture 22 - Hydrogen Atom

Lecture 23 - Hydrogen atom continued

Lecture 24 - Hydrogen atom

Lecture 25 - Finding  $R(r)$

Lecture 26 - Atomic Orbitals - Part 1

Lecture 27 - Atomic Orbitals - Part 2

Lecture 28 - Atomic Orbitals - Part 3

Lecture 29 - Atomic Orbitals - Part 4 and Hermitian Operators

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Measurement, Uncertainty Principle
- Lecture 31 - Generalized Uncertainty Principle
- Lecture 32 - Generalized Uncertainty Principle (Continued...)
- Lecture 33 - Angular Momentum
- Lecture 34 - Angular Momentum (Continued...)
- Lecture 35 - Angular Momentum (Continued...) and Spin
- Lecture 36 - Perturbation Theory
- Lecture 37 - Perturbation Theory (Continued...)
- Lecture 38 - Variation Method - Introduction
- Lecture 39 - Variation Method - Proof and Illustration
- Lecture 40 - He atom wave function with spin included - Pauli's principle
- Lecture 41 - Hydrogen Molecular ion - Linear variation method
- Lecture 42 - Hydrogen Molecular ion (Continued...)
- Lecture 43 - Hydrogen Molecular ion (Continued...)
- Lecture 44 - Molecular Orbitals The Hydrogen Molecule
- Lecture 45 - MO and VB theory
- Lecture 46 - MO theory of diatoms
- Lecture 47 - Di-atomics (Continued...)
- Lecture 48 - Hybridization Huckel theory
- Lecture 49 - Huckel MO Theory (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - Introduction to Organometallic Chemistry

Subject Co-ordinator - Prof. A.G. Samuelson

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Organometallic chemistry
- Lecture 2 - Metal carbonyl complexes
- Lecture 3 - Metal carbonyls - Part II
- Lecture 4 - Ligand substitution reactions
- Lecture 5 - Substitutes for carbonyl ligands
- Lecture 6 - Carbene complexes
- Lecture 7 - Carbene complexes (Continued...)
- Lecture 8 - Non-Carbon Ancillary ligands
- Lecture 9 - Non-Carbon Ancillary ligands (Continued...)
- Lecture 10 - Metal alkyl complexes
- Lecture 11 - Ligand Insertion Reactions
- Lecture 12 - Metal alkene complexes
- Lecture 13 - Alkynes  $\pi$  bonding
- Lecture 14 - Metal dihydrogen and hydrides
- Lecture 15 - Migratory Insertion reaction with alkynes
- Lecture 16 -  $\eta^m$  ( $m=4$  dienes and  $m=2n$ , polyenes)
- Lecture 17 - Oxidative addition & Vaska's complex mechanism
- Lecture 18 - Reductive elimination
- Lecture 19 - Reductive Elimination mechanism
- Lecture 20 - Oxidative coupling with C-C bond formation
- Lecture 21 - Metathesis reactions
- Lecture 22 - Metal-allyls -  $\pi$  3 complexes-synthesis, bonding
- Lecture 23 - Metal-allyls -  $\eta^3$  complexes-fluxionality, reactivity
- Lecture 24 - C-C single bond forming reactions
- Lecture 25 -  $\pi$  5 Cyclopentadienyl - complexes
- Lecture 26 -  $\eta^6$  arene Metal complexes
- Lecture 27 - Half sandwich complexes
- Lecture 28 - Reactivity changes in coordinated ligands
- Lecture 29 - The isolobal analogy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fluxional Properties of Organometallics
- Lecture 31 - Quantifying Steric and electronic factors
- Lecture 32 - Hydrogenation reactions
- Lecture 33 - Addition of HX to olefins
- Lecture 34 - Reactions with CO insertion
- Lecture 35 - Organometallics promoted C-X coupling
- Lecture 36 - Organometallic polymerization
- Lecture 37 - C-H activation
- Lecture 38 - Asymmetric Catalysis
- Lecture 39 - Medicinal applications of organometallic complexes
- Lecture 40 - Special Properties and Applications

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Principles and Applications of NMR Spectroscopy

Subject Co-ordinator - Prof. Hanudatta S. Atreya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to NMR spectroscopy

Lecture 2 - The alignment of nuclear spins in presence of magnetic field

Lecture 3 - Introduction to rotating frame

Lecture 4 - Free induction decay and Fourier transformation of FID

Lecture 5 - NMR Hardware

Lecture 6 - The concept of chemical shift

Lecture 7 - Factors that affect chemical shifts

Lecture 8 - Chemical shift referencing

Lecture 9 - J-coupling

Lecture 10 - Recap of basics

Lecture 11 - Introduction to general one dimensional NMR experiment

Lecture 12 - Practical aspects of recording a 1D NMR experiment - I

Lecture 13 - Practical aspects of recording a 1D NMR experiment - II

Lecture 14 - Practical aspects of recording a 1D NMR experiment - III

Lecture 15 - NMR Data processing

Lecture 16 - Basic aspects of 1D proton NMR analysis

Lecture 17 - Analysis of an example 1D proton spectrum

Lecture 18 - Analysis of 1D  $^1\text{H}$  NMR spectra of molecules - I

Lecture 19 - Analysis of 1D  $^1\text{H}$  NMR spectra of molecules - II

Lecture 20 - 1D  $^{13}\text{C}$  NMR

Lecture 21 - Why do we need 2D NMR

Lecture 22 - A qualitative explanation of how 2D NMR experiment works

Lecture 23 - Principles of 2D COSY and Total correlation spectroscopy (2D TOCSY)

Lecture 24 - 2D NOE-spectroscopy

Lecture 25 - 2D NOESY and 2D ROESY

Lecture 26 - What is heteronuclear correlation NMR spectroscopy

Lecture 27 - Sensitivity enhancement of heteronuclei via polarization transfer

Lecture 28 - Heteronuclear multiple quantum NMR spectroscopy (2D HMQC) and Heteronuclear single quantum NMR sp

Lecture 29 - Practical aspects of recording and processing 2D HMQC or HSQC

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - HMBC and its utility
- Lecture 31 - 2D HSQC TOCSY and its analysis with examples
- Lecture 32 - Structure determination of molecules by NMR
- Lecture 33 - Structure determination of peptides - I
- Lecture 34 - Structure determination of peptides - II
- Lecture 35 - Structure determination of peptides - III
- Lecture 36 - Chemical exchange
- Lecture 37 - Hydrogen or deuterium exchange
- Lecture 38 - Diffusion ordered spectroscopy DOSY I
- Lecture 39 - DOSY II
- Lecture 40 - STD NMR for drug target interactions



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Multidimensional NMR Spectroscopy for Structural Studies

Subject Co-ordinator - Prof. Hanudatta S. Atreya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to NMR spectroscopy

Lecture 2 - Energy levels in NMR spectroscopy

Lecture 3 - Observing the NMR signal

Lecture 4 - Basic concepts in 1D NMR

Lecture 5 - Basic concepts in 1D NMR

Lecture 6 - Basic concepts in 2D NMR spectroscopy

Lecture 7 - Principles of 2D correlation spectroscopy COSY

Lecture 8 - Principles of 2D Total correlation spectroscopy (TOCSY)

Lecture 9 - 2D Nuclear Overhauser Effect Spectroscopy (NOESY)

Lecture 10 - 2D NOESY and 2D ROESY

Lecture 11 - Principles of 2D Heteronuclear NMR

Lecture 12 - 2D Heteronuclear NMR

Lecture 13 - Heteronuclear multiple quantum coherence (HMQC) and single quantum coherence (HSQC) - Part I

Lecture 14 - Heteronuclear multiple quantum coherence (HMQC) and single quantum coherence (HSQC) - Part II

Lecture 15 - 2D HSQC-TOCSY

Lecture 16 - 3D NMR Spectroscopy - Part I

Lecture 17 - 3D NMR Spectroscopy - Part II

Lecture 18 - 3D HNCA and 3D HNCB

Lecture 19 - 3D HNCACB and 3D HN(CO)CACB

Lecture 20 - Protein Backbone resonance assignment and side chain resonance assignment

Lecture 21 - Basic concepts of protein structure

Lecture 22 - Introduction to Structure Determination of Bio-Molecules by NMR

Lecture 23 - Over-expression of proteins in Bacteria

Lecture 24 - Isotope labeling of proteins for NMR studies - Part I

Lecture 25 - Isotope labeling of proteins for NMR studies - Part II

Lecture 26 - Isotope labeling of proteins for NMR studies - Part III

Lecture 27 - Isotope labeling of proteins for NMR studies - Part IV

Lecture 28 - Resonance assignments of Proteins - Part I

Lecture 29 - Resonance assignments of Proteins - Part II

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Resonance assignments of Proteins - Part III
- Lecture 31 - Determination of protein secondary structure from NMR data
- Lecture 32 - Determination of protein secondary structure from NMR data
- Lecture 33 - Determination of protein tertiary structure from NMR data - Part I
- Lecture 34 - 3D NOESY HSQC
- Lecture 35 - Determination of protein tertiary structure from NMR data - Part II
- Lecture 36 - Understanding Protein ligand interaction by NMR
- Lecture 37 - Understanding Protein ligand interaction by NMR
- Lecture 38 - Understanding Protein ligand interaction by NMR
- Lecture 39 - Understanding Protein ligand interaction by NMR
- Lecture 40 - Understanding Protein ligand interaction by NMR
- Lecture 41 - Understanding Protein ligand interaction by NMR
- Lecture 42 - Understanding Protein ligand interaction by NMR

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Symmetry and Structure in the Solid State

Subject Co-ordinator - Prof. T. N. Guru Row

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Symmetry in 3D World
- Lecture 2 - Two Fold Axis Representation with the Help of Esher Diagrams
- Lecture 3 - Pure Rotation Axes
- Lecture 4 - Properties of Crystal
- Lecture 5 - Point Group Generation
- Lecture 6 - Combination of Symmetry Elements
- Lecture 7 - Arrangement of Symmetry Equivalent Objects
- Lecture 8 - Introduction to Plane Lattices
- Lecture 9 - Bravais Lattices
- Lecture 10 - Details of Stereographic Projections
- Lecture 11 - Stereographic Projections (Continued)
- Lecture 12 - Point Group and Crystal Systems - 1
- Lecture 13 - Point Group and Crystal Systems - 2
- Lecture 14 - Point Groups to Space Groups
- Lecture 15 - Translation components in Monoclinic System
- Lecture 16 - Additional Symmetry Elements
- Lecture 17 - Additional Symmetry Elements (Continued...)
- Lecture 18 - Space Groups - 1
- Lecture 19 - Space Groups - 2
- Lecture 20 - Space Groups - 3
- Lecture 21 - Space Groups - 4
- Lecture 22 - Additional Information on Space Groups
- Lecture 23 - Details of Space Groups - 1
- Lecture 24 - Details of Space Groups - 2
- Lecture 25 - Details of Space Groups - 3
- Lecture 26 - Details of Space Groups - 4
- Lecture 27 - Crystal Structure of Calcium Carbonate
- Lecture 28 - Crystal Structure of Some Minerals
- Lecture 29 - Atoms in the Crystal

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Crystallographic Directions and Planes
- Lecture 31 - Interference of Waves
- Lecture 32 - X Ray Scattering ; optical Analogy
- Lecture 33 - X Ray Scattering ; Fourier transforms
- Lecture 34 - X Ray Scattering ; Deriving Laue Conditions from scattering theory
- Lecture 35 - X Ray Scattering ; Laue conditions to Bragg's Law, Introduction to Reciprocal lattice
- Lecture 36 - Bragg's Law in Reciprocal Space - 1
- Lecture 37 - Bragg's Law in Reciprocal Space - 2
- Lecture 38 - Calculation of Intensities - 1
- Lecture 39 - Calculation of Intensities - 2
- Lecture 40 - Conversion from Direct to reciprocal space, the inverse relations
- Lecture 41 - Diffraction and Reciprocal Space (Continued...)
- Lecture 42 - Limits of Resolution
- Lecture 43 - Concept of Structure Factors
- Lecture 44 - Systematic Absences - 1
- Lecture 45 - Systematic Absences - 2
- Lecture 46 - Systematic Absences - 3
- Lecture 47 - Friedel's Law and Laue classes
- Lecture 48 - Experimental Aspects of Data Collection
- Lecture 49 - Structure Determination - 1
- Lecture 50 - Structure Determination - 2
- Lecture 51 - Data Reduction
- Lecture 52 - Fourier Syntheses
- Lecture 53 - Patterson Method - 1
- Lecture 54 - Patterson Method - 2
- Lecture 55 - Direct Method
- Lecture 56 - Powder Diffraction - 1
- Lecture 57 - Powder Diffraction - 2
- Lecture 58 - Powder Diffraction - 3
- Lecture 59 - Quantum Crystallography - 1
- Lecture 60 - Quantum Crystallography - 2
- Lecture 61 - Intermolecular Interactions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Ultrafast Optics and Spectroscopy

Subject Co-ordinator - Prof. Atanu Bhattacharya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8 - Nonlinear Effects

Lecture 9 - Nonlinear Effects (Continued...)

Lecture 10 - Nonlinear Effects (Continued...)

Lecture 11 - Nonlinear Effects (Continued...)

Lecture 12 - Nonlinear Effects (Continued...)

Lecture 13 - Nonlinear Effects (Continued...)

Lecture 14 - Nonlinear Effects (Continued...)

Lecture 15 - Dispersion Effects

Lecture 16 - Nonlinear and Dispersion Effects (Continued...)

Lecture 17 - Nonlinear and Dispersion Effects (Continued...)

Lecture 18 - Transverse Electromagnetic Mode

Lecture 19 - Transverse Electromagnetic Mode (Continued...)

Lecture 20 - Construction of Ultrafast Laser

Lecture 21 - Construction of Ultrafast Laser (Continued...)

Lecture 22 - Construction of Ultrafast Laser (Continued...)

Lecture 23 - Measurement of Ultrafast Pulse

Lecture 24 - Measurement of Ultrafast Pulse (Continued...)

Lecture 25 - Measurement Techniques in Ultrafast Spectroscopy

Lecture 26 - Kinetic Model of Ultrafast Spectroscopy

Lecture 27 - Kinetic Model of Ultrafast Spectroscopy (Continued...)

Lecture 28 - Quantum Mechanical Model of Ultrafast Spectroscopy

Lecture 29 - Ultrafast Physical Chemistry

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ultrafast Physical Chemistry
- Lecture 31 - Ultrafast Physical Chemistry
- Lecture 32 - Maxwell's Equations
- Lecture 33 - Maxwell's Equations (Continued...)
- Lecture 34 - Ab Initio Molecular Dynamics - 1
- Lecture 35 - Ab Initio Molecular Dynamics - 2
- Lecture 36 - Ab Initio Molecular Dynamics - 3
- Lecture 37 - Ab Initio Molecular Dynamics - 4
- Lecture 38 - Attosecond Chemical Dynamics - 1
- Lecture 39 - Attosecond Chemical Dynamics - 2
- Lecture 40 - Attosecond Chemical Dynamics - 3
- Lecture 41 - Attosecond Chemical Dynamics - 4
- Lecture 42 - Femtochemistry of Nanocatalysis - 1
- Lecture 43 - Femtochemistry of Nanocatalysis - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:One and two dimensional NMR Spectroscopy for Chemists

Subject Co-ordinator - Prof. N. Suryaprakash

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - NMR an historical perspective and NMR active nuclei
- Lecture 2 - Spin Angular Momentum and Magnetic moment
- Lecture 3 - Interaction of Spins with the magnetic field
- Lecture 4 - Larmor Precession and Energy of interaction
- Lecture 5 - NMR detection and sensitivity
- Lecture 6 - Inducing Resonance and Bulk Magnetization
- Lecture 7 - Signal detection and Rotating Frame Concept
- Lecture 8 - Pulse phase and signal phase
- Lecture 9 - FID and Fourier Transformation
- Lecture 10 - Selection rules and transitions
- Lecture 11 - External and Internal interactions in NMR
- Lecture 12 - Chemical Shifts
- Lecture 13 - NMR Spectrum and chemical equivalence
- Lecture 14 - Conversion of frequency and ppm
- Lecture 15 - Field dependence and factors affecting chemical shift
- Lecture 16 - Factors contributing to chemical shifts - 1
- Lecture 17 - Factors contributing to chemical shifts - 2
- Lecture 18 - Scalar Couplings - 1
- Lecture 19 - Scalar Couplings - 2
- Lecture 20 - Energy levels of coupled spins
- Lecture 21 - Spin system classification and multiplicity
- Lecture 22 - Multiplicity pattern of coupled spins
- Lecture 23 - Active and passive coupling
- Lecture 24 - Coupling among equivalent spins - 1
- Lecture 25 - Coupling among equivalent spins - 2
- Lecture 26 - Coupling among non-equivalent spins
- Lecture 27 - Geminal and Vicinal couplings
- Lecture 28 - Spin system Nomenclature
- Lecture 29 - Isotope effect

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of Strongly coupled spin systems
- Lecture 31 - Eigen values of A2 and AMX spin systems
- Lecture 32 - Analysis of Three spin coupled systems
- Lecture 33 - Analysis of Proton NMR spectra - 1
- Lecture 34 - Analysis of Proton NMR spectra - 2
- Lecture 35 - Analysis of Proton NMR spectra - 3
- Lecture 36 - Basics of <sup>13</sup>C-NMR
- Lecture 37 - Coupled and Decoupled <sup>13</sup>C-Spectra
- Lecture 38 - Broadband decoupling in <sup>13</sup>C-NMR
- Lecture 39 - Analysis of <sup>13</sup>C spectra and DEPT
- Lecture 40 - Heteronuclear couplings and satellite analysis - 1
- Lecture 41 - Heteronuclear couplings and satellite analysis - 2
- Lecture 42 - Coupling among magnetic equivalent nuclei and isotope effect
- Lecture 43 - Analysis of spectra of other nuclei
- Lecture 44 - Spin Echoes
- Lecture 45 - Polarization transfer techniques
- Lecture 46 - INEPT and DEPT
- Lecture 47 - Decoupling and NOE
- Lecture 48 - NOE-2
- Lecture 49 - Introduction to 2D NMR
- Lecture 50 - Two-dimensional NMR
- Lecture 51 - Two dimensional NMR
- Lecture 52 - Two dimensional COSY
- Lecture 53 - COSY and examples
- Lecture 54 - Variants of COSY and TOCSY spectra
- Lecture 55 - Heteronuclear correlation and inverse detection
- Lecture 56 - Coupled and decoupled HSQC and HMBC
- Lecture 57 - NMR data acquisition - 1
- Lecture 58 - NMR data acquisition - 2
- Lecture 59 - Practical considerations of 1D NMR
- Lecture 60 - NMR Data processing
- Lecture 61 - NMR Data processing
- Lecture 62 - NMR Instrumentation - 1
- Lecture 63 - NMR Instrumentation - 2
- Lecture 64 - Relaxation processes - 1
- Lecture 65 - Relaxation processes - 2



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Time Dependent Quantum Chemistry

Subject Co-ordinator - Prof. Atanu Bhattacharya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to TDSE
- Lecture 2 - Solution to TDSE, Stationary and Non-stationary States
- Lecture 3 - Electron and Vibrational Superposition States
- Lecture 4 - Optical Analogy to Quantum Superposition
- Lecture 5 - Introduction to Python Programming
- Lecture 6 - Simple Computation with Python Programming
- Lecture 7 - Plotting Graph with Python Programming
- Lecture 8 - Meaning of Probability Density
- Lecture 9 - Time Evolution of Normalization Constant
- Lecture 10 - Expectation Value and its Time Evolution
- Lecture 11 - Equation of Continuity
- Lecture 12 - Bohmian Mechanics
- Lecture 13 - Bohmian Mechanics and Standard Interpretation
- Lecture 14 - Grid Representation of Wavefunction
- Lecture 15 - Normalizing the Discretized Wavefunction and Finding Expectation Value
- Lecture 16 - Plane Matter Wave and Wavepacket
- Lecture 17 - Wavepacket
- Lecture 18 - Stationary Gaussian Wavepacket
- Lecture 19 - Travelling Gaussian Wavepacket
- Lecture 20 - General Form of the Gaussian Wavepacket
- Lecture 21 - Fourier Transform of a wavefunction
- Lecture 22 - x-grid to k-grid
- Lecture 23 - Fourier Transform using fft
- Lecture 24 - Hilbert Space and Its Properties
- Lecture 25 - Basis Set Approach to Quantum Mechanics
- Lecture 26 - Matrix Algebra
- Lecture 27 - Eigenvalue and Eigenfunction
- Lecture 28 - Matrix Representation of Operators
- Lecture 29 - Matrix Representation of Hamiltonian Operator

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Python Tutorial 4 (Eigenvalue and Eigenfunction)
- Lecture 31 - Python Tutorial 4 (Eigenvalue and Eigenfunction)
- Lecture 32 - Time Evolution Operator
- Lecture 33 - Split Operator Method
- Lecture 34 - Numerical Implementation of Split Operator Method
- Lecture 35 - Wavepacket Dynamics under zero interaction potential
- Lecture 36 - Wavepacket Dynamics under zero interaction potential (Continued...)
- Lecture 37 - Wavepacket Dynamics under linear interaction potential
- Lecture 38 - Quantum Adiabatic Theory
- Lecture 39 - Formal Derivation of Quantum Adiabatic
- Lecture 40 - Geometric Phase and Dynamical Phase
- Lecture 41 - Nonradiative Transition - Part 1
- Lecture 42 - Nonradiative Transition - Part 2
- Lecture 43 - Nonradiative Transition
- Lecture 44 - Quantum Dissipative Dynamics
- Lecture 45 - Quantum Dissipative Dynamics
- Lecture 46 - Formal Derivation of Dissipative Quantum Dynamics
- Lecture 47 - Classical Description of Light
- Lecture 48 - Vector and Scalar Potential
- Lecture 49 - Vector and Scalar Potential
- Lecture 50 - Master Equation of Light
- Lecture 51 - Hamiltonian for Light-Atom Interaction
- Lecture 52 - Hamiltonian for Light-Atom Interaction
- Lecture 53 - Absorption and Stimulated Emission
- Lecture 54 - Absorption and Stimulated Emission
- Lecture 55 - Time Correlation Function
- Lecture 56 - Fourier Transform of Time Correlation Function

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:One and Two Dimensional NMR Spectroscopy: Concepts and

Subject Co-ordinator - Prof. N. Suryaprakash

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Nuclear Spin
- Lecture 2 - NMR spin physics - I
- Lecture 3 - NMR spin physics - II
- Lecture 4 - Energy levels and allowed transitions
- Lecture 5 - Transitions in coupled spin systems
- Lecture 6 - Interaction parameters
- Lecture 7 - Chemical Shifts
- Lecture 8 - Shielding and deshielding, ppm and frequency scales
- Lecture 9 - Factors affecting the chemical shifts
- Lecture 10 - Scalar couplings
- Lecture 11 - Scalar couplings
- Lecture 12 - Coupling mechanism
- Lecture 13 - Splitting patterns
- Lecture 14 - Multiplicity patterns
- Lecture 15 - Analysis of multiplicity patterns
- Lecture 16 - Coupled spin system
- Lecture 17 - Nomenclature for coupled spins
- Lecture 18 - Energy levels of two and three coupled spins
- Lecture 19 - Analysis of  $^1\text{H}$  NMR spectra - I
- Lecture 20 - Analysis of  $^1\text{H}$  NMR spectra - II
- Lecture 21 - Analysis of  $^1\text{H}$  NMR spectra - III
- Lecture 22 - Coupling of  $^1\text{H}$  with other nuclei - I
- Lecture 23 - Coupling of  $^1\text{H}$  with other nuclei - II
- Lecture 24 -  $^{13}\text{C}$ -NMR - I
- Lecture 25 -  $^{13}\text{C}$ -NMR - II
- Lecture 26 -  $^{13}\text{C}$ -NMR - III
- Lecture 27 -  $^{13}\text{C}$ -NMR - IV
- Lecture 28 - Analysis of  $^{19}\text{F}$  spectra
- Lecture 29 -  $^{31}\text{P}$  NMR

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of spectra of Heteronuclei
- Lecture 31 - Heteronuclear spectral analysis
- Lecture 32 - Spin Echoes - I
- Lecture 33 - Spin Echoes - II
- Lecture 34 - Sensitivity enhancement
- Lecture 35 - Polarization transfer
- Lecture 36 - INEPT
- Lecture 37 - 2D NMR - I
- Lecture 38 - 2D NMR - II
- Lecture 39 - 2D-COSY - I
- Lecture 40 - 2D COSY - II
- Lecture 41 - Types of COSY spectra
- Lecture 42 - TOCSY
- Lecture 43 - HSQC - I
- Lecture 44 - HSQC - II
- Lecture 45 - me-HSQC
- Lecture 46 - HSQC and HMBC
- Lecture 47 - HMBC - II
- Lecture 48 - 2D INADEQUATE
- Lecture 49 - 2D-INADEQUATE and 2D J-Resolved
- Lecture 50 - Homo and Heteronuclear J-resolved
- Lecture 51 - Conceptual understanding of NOE
- Lecture 52 - Positive and negative NOE
- Lecture 53 - NOE and correlation times
- Lecture 54 - Complications in NOE, Steady state NOE
- Lecture 55 - ROESY and Tr NOE
- Lecture 56 - Combined utility of COSY, TOCSY, HSQC, NOESY
- Lecture 57 - Steady State NOE
- Lecture 58 - 1D NOE, 1D TOCSY
- Lecture 59 - 1D-TOCSY, PURESIFT
- Lecture 60 - PURSHIFT NMR

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Advanced Geotechnical Engineering

Subject Co-ordinator - Dr. B.V.S. Viswanadham

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
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Lecture 4  
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Lecture 6  
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Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 60

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Soil Dynamics

Subject Co-ordinator - Dr. Deepankar Choudhury

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Degrees of Freedom, SDOF System, Types of Vibrations

Lecture 3 - SDOF System, Types of Vibrations, Free Vibration

Lecture 4 - Problems on Torsional Motion

Lecture 5 - Damped Free Vibrations

Lecture 6 - Damped Free Vibrations, Definition of Critical Damping and problems

Lecture 7 - Decay of Motion

Lecture 8 - Forced Vibrations, Dynamic Magnification Factor

Lecture 9 - Maxwells Diagram of DMF, Discussion on Phase

Lecture 10 - Transmissibility Ratio, Response to Arbitrary, Step and Pulse Excitations

Lecture 11 - Response to Arbitrary, Step and Pulse Excitations, Response to Impact Load

Lecture 12 - Vibration Isolation, Vibrations Measuring Instruments

Lecture 13 - Solutions of Quiz Questions, Multi-Degree of Freedom (MDOF) Systems

Lecture 14 - (MDOF) System

Lecture 15 - 3 Dimensional Wave Propagation, Waves in semi-infinite media, Rayleigh Wave

Lecture 16 - Love Wave, Waves in layered medium, 3D case-Inclined wave, Earthquake Waves

Lecture 17 - Earthquake Waves; P-waves, S-waves, 3 circle method, Estimation of Earthquake Epicentre

Lecture 18 - Stresses in Soil Element, Field Tests, Seismic Reflection Test

Lecture 19 - Seismic Refraction Test, SASW Test, Laboratory & Model Tests

Lecture 20 - Centrifuge Tests Stress Strain Behavior of Cyclically Loaded Soils

Lecture 21 - Estimation of  $G_{max}$ , Modulus Reduction Curves, Variation of Damping Ratio, Cyclic Plate load Test

Lecture 22 - Liquefaction, Preliminary sceening, Simplified Procedure for Liquefaction

Lecture 23 - Cyclic Stress Ratio, Evaluation of CRR, Correction Factors, Corrections for SPT

Lecture 24 - Becker Penetrometer Test (BPT), Cone Penetrometer Test (CPT), SPT v BPT, SASW Test

Lecture 25 - Types of Machine Foundations, Methods of Analysis, Design of Machine Foundations as per IS

Lecture 26 - Tschebotarioff's

Lecture 27 - Problem on Tschebotarioff's method contd., Mass-Spring-Dashpot (MSD) Model

Lecture 28 - MSD Model- Yawing mode of Vibration, Use of MSD model for analysis

Lecture 29 - Problems on Use of MSD Model for Analysis, Rocking mode of Vibrations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Torsional Mode/Yawing Mode, Constant Force type excitation, EHS Theory
- Lecture 31 - EHS Theory, Vibrational Control
- Lecture 32 - Use of EHS Theory for analysis
- Lecture 33 - Use of EHS Theory for analysis II
- Lecture 34 - Liquefaction mitigation methods, Vibro Compaction, Densification Techniques
- Lecture 35 - Soil Improvement methods, Dynamic Compaction, Reinforcement Techniques
- Lecture 36 - Force-based Analysis, Dynamic analysis using MSD model
- Lecture 37 - Behaviour of Subgrade Soil below Rail Track
- Lecture 38 - Quiz



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Structural Dynamics

Subject Co-ordinator - Dr. P. Banerji

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Inverse Power Method
- Lecture 3 - Dynamics of SDOF Structure
- Lecture 4 - SDOF Response to Harmonic Loads
- Lecture 5 - Response of SDOF Structure to Harmonic Loading
- Lecture 6 - Response to Harmonic Loading
- Lecture 7 - Response to Harmonic Loading (Continue...)
- Lecture 8 - Transmissibility & Base Isolation
- Lecture 9 - Dynamic Characteristics & Periodic Loading
- Lecture 10 - Pulse Loading
- Lecture 11 - Pulse Load Response Characteristics & Impulse Loading
- Lecture 12 - Frequency Domain Response Analysis
- Lecture 13 - Methods of Analysis for General Loading
- Lecture 14 - Numerical Analysis of Response of Single Degree of Freedom Structure & Time Domain Approaches
- Lecture 15 - Response Analysis of Single Degree of Freedom System for Earthquake Loads
- Lecture 16 - Earthquake Response Analysis for Single Degree of Freedom Structures
- Lecture 17 - Generalized Single Degree of Freedom Systems Equations of Motions
- Lecture 18 - Generalized Single Degree of Freedom Systems Equations of Motions
- Lecture 19 - Generalized Single Degree of Freedom Systems Equations of Motions
- Lecture 20 - Generalized Single Degree of Freedom Systems Equations of Motion & Free Vibrations
- Lecture 21 - Equations of Motion for Multi Degree of Freedom Structures
- Lecture 22 - Equations of Motion for Multi Degree of Freedom Systems
- Lecture 23 - Multi Degree of Freedom Structure Equations of Motions
- Lecture 24 - Multi Degree of Freedom Structure Equations of Motions & Free Vibration
- Lecture 25 - Free Vibration for Multi Degree of Freedom Structures
- Lecture 26 - Free Vibration for Multi Degree of Freedom Structures
- Lecture 27 - Practical Free Vibration Analysis
- Lecture 28 - Dynamic Response of Multi Degree of Freedom Systems
- Lecture 29 - Dynamic Response of Multi Degree of Freedom Structures

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Damping for Multi Degree of Freedom Structures
- Lecture 31 - Earthquake Response of Multi Degree of Freedom Structures
- Lecture 32 - Earthquake Response of Multi Degree of Freedom Structures
- Lecture 33 - Dynamic Analysis of Buildings
- Lecture 34 - Introduction to Dynamics of Continuous Systems
- Lecture 35 - Free Vibration Response of Continuous Systems
- Lecture 36 - Free Vibration & Dynamic Response of Continuous Systems
- Lecture 37 - Dynamic Response of Continuous Systems
- Lecture 38 - Examples for Dynamic Response of Continuous Systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Watershed Management

Subject Co-ordinator - Dr. T.I. Eldho

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Watershed Management
- Lecture 2 - Watershed Management & Stakeholder Analysis
- Lecture 3 - Watershed Management Policies
- Lecture 4 - Sustainable Watershed Management
- Lecture 5 - Agricultural Practices & Watershed Management
- Lecture 6 - Soil Erosion & Conservation
- Lecture 7 - Watershed Management in Arid Regions & Strategic Planning
- Lecture 8 - Integrated Water Resources Management
- Lecture 9 - Conjunctive Use of Water Resources
- Lecture 10 - Rainwater Harvesting System
- Lecture 11 - Rainwater Harvesting & Roof Catchment System
- Lecture 12 - Watershed Characteristics
- Lecture 13 - Watershed Delineation & Modeling
- Lecture 14 - Hydrologic Processes
- Lecture 15 - Watershed Modeling
- Lecture 16 - Hydrologic Modeling
- Lecture 17 - Numerical Watershed Modeling
- Lecture 18 - Subsurface & Groundwater Flows
- Lecture 19 - Social & Community Aspects of Watershed Management
- Lecture 20 - Socio-economy, Private Sector Participation & Gender Issues
- Lecture 21 - Integrated Development, Water Legislation & Implementation Issues
- Lecture 22 - GIS & Applications in Watershed Management
- Lecture 23 - Remote Sensing & Applications in Watershed Management
- Lecture 24 - Decision Support Systems & Applications in Watershed Management
- Lecture 25 - Integrated Watershed Modeling Using Numerical Methods, GIS & Remote Sensing
- Lecture 26 - Applications of Knowledge Based Models in Watershed Management
- Lecture 27 - Surface Water Quality & Pollution Issues
- Lecture 28 - Groundwater Pollution Problems & Transport Processes
- Lecture 29 - Water Quality Modeling

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Environmental Guidelines for Water Quality Management
- Lecture 31 - Storm Water Management
- Lecture 32 - Urban Drainage System
- Lecture 33 - Flood Routing
- Lecture 34 - Flood Control & Management
- Lecture 35 - Drought Assessment
- Lecture 36 - Drought Analysis
- Lecture 37 - Drought Mitigation
- Lecture 38 - Water Conservation
- Lecture 39 - Water Recycling
- Lecture 40 - Water Reclamation & Reuse

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Fluid Mechanics

Subject Co-ordinator - Dr. T.I. Eldho

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Fluid Mechanics  
Lecture 2 - Fundamental Concepts of Fluid Flow & Fluid Statics  
Lecture 3 - Fluid Statics  
Lecture 4 - Fluid Statics  
Lecture 5 - Fluid Statics  
Lecture 6 - Kinematics of Fluid Flow  
Lecture 7 - Kinematics of Fluid Flow  
Lecture 8 - Kinematics of Fluid Flow  
Lecture 9 - Kinematics of Fluid Flow  
Lecture 10 - Kinematics of Fluid Flow  
Lecture 11 - Kinematics & Dynamics of Fluid Flow  
Lecture 12 - Dynamics of Fluid Flow  
Lecture 13 - Dynamics of Fluid Flow  
Lecture 14 - Dynamics of Fluid Flow  
Lecture 15 - Dynamics of Fluid Flow  
Lecture 16 - Dynamics of Fluid Flow  
Lecture 17 - Laminar and Turbulent Flows  
Lecture 18 - Laminar and Turbulent Flows  
Lecture 19 - Laminar and Turbulent Flows  
Lecture 20 - Laminar and Turbulent Flows  
Lecture 21 - Laminar and Turbulent Flows  
Lecture 22 - Laminar and Turbulent Flows  
Lecture 23 - Dimensional Analysis  
Lecture 24 - Dimensional Analysis  
Lecture 25 - Dimensional Analysis  
Lecture 26 - Navier-Stokes Equations and Applications  
Lecture 27 - Navier-Stokes Equations and Applications  
Lecture 28 - Navier-Stokes Equations and Applications  
Lecture 29 - Navier-Stokes Equations and Applications

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Boundary Layer Theory and Applications
- Lecture 31 - Boundary Layer Theory and Applications
- Lecture 32 - Boundary Layer Theory and Applications
- Lecture 33 - Boundary Layer Theory and Applications
- Lecture 34 - Boundary Layer Theory and Applications
- Lecture 35 - Boundary Layer Theory and Applications
- Lecture 36 - Pipe Flow Systems
- Lecture 37 - Pipe Flow Systems
- Lecture 38 - Pipe Flow Systems
- Lecture 39 - Pipe Flow Systems
- Lecture 40 - Pipe Flow Systems
- Lecture 41 - Pipe Flow Systems
- Lecture 42 - Pipe Flow Systems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Soil Mechanics

Subject Co-ordinator - Dr. B.V.S. Viswanadham

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Soil Mechanics  
Lecture 2 - Soil Mechanics  
Lecture 3 - Soil Mechanics  
Lecture 4 - Soil Mechanics  
Lecture 5 - Soil Mechanics  
Lecture 6 - Soil Mechanics  
Lecture 7 - Soil Mechanics  
Lecture 8 - Soil Mechanics  
Lecture 9 - Soil Mechanics  
Lecture 10 - Soil Mechanics  
Lecture 11 - Compaction of Soils - I  
Lecture 12 - Soil Mechanics  
Lecture 13 - Soil Mechanics  
Lecture 14 - Compaction of Soils - IV  
Lecture 15 - Compaction of Soils - V  
Lecture 16 - Compaction of Soils - VI  
Lecture 17 - Effective Stress - I  
Lecture 18 - Effective Stress - II  
Lecture 19 - Effective Stress - III  
Lecture 20 - Flow of water through soils - I  
Lecture 21 - Flow of water through soils - II  
Lecture 22 - Flow of water through soils - III  
Lecture 23 - Flow of water through soils - IV  
Lecture 24 - Flow of water through soils - V  
Lecture 25 - Flow of water through soils - VI  
Lecture 26 - Flow of water through soils - VII  
Lecture 27 - Flow of water through soils - VIII  
Lecture 28 - Soil Mechanics  
Lecture 29 - Soil Mechanics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Soil Mechanics  
Lecture 31 - Soil Mechanics  
Lecture 32 - Soil Mechanics  
Lecture 33 - Soil Mechanics  
Lecture 34 - Soil Mechanics  
Lecture 35 - Soil Mechanics  
Lecture 36 - Soil Mechanics  
Lecture 37 - Soil Mechanics  
Lecture 38 - Soil Mechanics  
Lecture 39 - Soil Mechanics  
Lecture 40 - Soil Mechanics  
Lecture 41 - Soil Mechanics  
Lecture 42 - Soil Mechanics  
Lecture 43 - Soil Mechanics  
Lecture 44 - Soil Mechanics  
Lecture 45 - Soil Mechanics  
Lecture 46 - Soil Mechanics  
Lecture 47 - Soil Mechanics  
Lecture 48 - Soil Mechanics  
Lecture 49 - Soil Mechanics  
Lecture 50 - Soil Mechanics  
Lecture 51 - Soil Mechanics  
Lecture 52 - Soil Mechanics  
Lecture 53 - Soil Mechanics  
Lecture 54 - Soil Mechanics  
Lecture 55 - Soil Mechanics  
Lecture 56 - Soil Mechanics  
Lecture 57 - Soil Mechanics



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Structural Analysis II

Subject Co-ordinator - Dr. P. Banerji

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Geotechnical Earthquake Engineering

Subject Co-ordinator - Dr. Deepankar Choudhury

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Geotechnical Earthquake Engineering - Part I
- Lecture 2 - Introduction to Geotechnical Earthquake Engineering - Part II
- Lecture 3 - Basics of Vibration Theory
- Lecture 4 - Engineering Seismology - Part - I
- Lecture 5 - Engineering Seismology - Part - II
- Lecture 6 - Engineering Seismology - Part - III
- Lecture 7 - Engineering Seismology - Part - IV
- Lecture 8 - Engineering Seismology - Part - V
- Lecture 9 - Engineering Seismology - Part - VI
- Lecture 10 - Strong Ground Motion - Part I
- Lecture 11 - Strong Ground Motion - Part II
- Lecture 12 - Strong Ground Motion - Part III
- Lecture 13 - Strong Ground Motion - Part IV
- Lecture 14 - Strong Ground Motion - Part V
- Lecture 15 - Strong Ground Motion - Part VI
- Lecture 16 - Strong Ground Motion - Part VII
- Lecture 17 - Wave Propagation - Part I
- Lecture 18 - Wave Propagation - Part II
- Lecture 19 - Wave Propagation - Part III
- Lecture 20 - Wave Propagation - Part IV
- Lecture 21 - Dynamic Soil Properties - Part I
- Lecture 22 - Dynamic Soil Properties - Part II
- Lecture 23 - Seismic Hazard Analysis - Part I
- Lecture 24 - Seismic Hazard Analysis - Part II
- Lecture 25 - Seismic Hazard Analysis - Part III
- Lecture 26 - Seismic Hazard Analysis - Part IV
- Lecture 27 - Seismic Hazard Analysis - Part V
- Lecture 28 - Seismic Hazard Analysis - Part VI
- Lecture 29 - Seismic Hazard Analysis - Part VII

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Seismic Hazard Analysis - Part VIII
- Lecture 31 - Site Response Analysis - Part I
- Lecture 32 - Site Response Analysis - Part II
- Lecture 33 - Site Response Analysis - Part III
- Lecture 34 - Seismic Analysis and Design of Various Geotechnical Structures - Part I
- Lecture 35 - Seismic Analysis and Design of Various Geotechnical Structures - Part II
- Lecture 36 - Seismic Analysis and Design of Various Geotechnical Structures - Part III
- Lecture 37 - Seismic Analysis and Design of Various Geotechnical Structures - Part IV
- Lecture 38 - Seismic Analysis and Design of Various Geotechnical Structures - Part V
- Lecture 39 - Seismic Analysis and Design of Various Geotechnical Structures - Part VI
- Lecture 40 - Seismic Analysis and Design of Various Geotechnical Structures - Part VII
- Lecture 41 - Seismic Analysis and Design of Various Geotechnical Structures - Part VIII
- Lecture 42 - Quiz
- Lecture 43 - Seismic Analysis and Design of Various Geotechnical Structures - Part IX

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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NPTEL Video Course - Civil Engineering - Geosynthetics Engineering: In Theory and Practice

Subject Co-ordinator - Prof. J.N. Mandal

Co-ordinating Institute - IIT - Bombay

- Lecture 1 - Introduction
- Lecture 2 - Introduction to Reinforced Earth
- Lecture 3 - Introduction to Reinforced Earth
- Lecture 4 - Introduction to Reinforced Earth
- Lecture 5 - Introduction to Reinforced Earth
- Lecture 6 - An Overview of Geosynthetics - Part I
- Lecture 7 - An Overview of Geosynthetics - Part II
- Lecture 8 - An Overview of Geosynthetics - Part III
- Lecture 9 - An Overview of Geosynthetics
- Lecture 10 - Geosynthetic Properties and Test Methods
- Lecture 11 - Geosynthetic Properties and Test Methods
- Lecture 12 - Geosynthetic Properties and Test Methods
- Lecture 13 - Geosynthetic Properties and Test Methods
- Lecture 14 - Geosynthetic Properties and Test Methods
- Lecture 15 - Geosynthetic in Filtration, Drainage and Erosion Control
- Lecture 16 - Geosynthetic in Filtration, Drainage and Erosion Control
- Lecture 17 - Geosynthetic in Filtration, Drainage and Erosion Control
- Lecture 18 - Geosynthetic in Filtration, Drainage and Erosion Control
- Lecture 19 - Geosynthetic in Filtration, Drainage and Erosion Control
- Lecture 20 - Geosynthetic in pavements
- Lecture 21 - Geosynthetic in pavements
- Lecture 22 - Geosynthetic in pavements
- Lecture 23 - Geosynthetic in pavements
- Lecture 24 - Geosynthetic in pavements
- Lecture 25 - Geosynthetic in pavements
- Lecture 26 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 27 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 28 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 29 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 30 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 31 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 32 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 33 - Geosynthetics for Reinforced Soil Retaining Walls

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 34 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 35 - Geosynthetics for Reinforced Soil Retaining Walls
- Lecture 36 - Geosynthetic for Steep Slopes
- Lecture 37 - Geosynthetic for Steep Slopes
- Lecture 38 - Geosynthetic for Steep Slopes
- Lecture 39 - Geosynthetic for Steep Slopes
- Lecture 40 - Geosynthetic for Embankments on Soft Foundations
- Lecture 41 - Geosynthetic for Embankments on Soft Foundations
- Lecture 42 - Geosynthetic for Embankments on Soft Foundations
- Lecture 43 - Geosynthetic for Ground Improvement
- Lecture 44 - Geosynthetic for Ground Improvement
- Lecture 45 - Geosynthetic for Ground Improvement
- Lecture 46 - Geosynthetic for Ground Improvement
- Lecture 47 - Geosynthetic for Ground Improvement
- Lecture 48 - Geosynthetic for Ground Improvement
- Lecture 49 - Geosynthetic for Ground Improvement
- Lecture 50 - Geosynthetic for Improvement in Bearing Capacity
- Lecture 51 - Designing with Geotextile Tube
- Lecture 52 - Designing with Geotextile Tube
- Lecture 53 - Design of Geosynthetic for Landfills
- Lecture 54 - Design of Geosynthetic for Landfills
- Lecture 55 - Design of Geosynthetic for Landfill
- Lecture 56 - Design of Geosynthetic for Landfill
- Lecture 57 - Design of Geosynthetic for Landfill
- Lecture 58 - Designing With Geofoam
- Lecture 59 - Designing With Geofoam
- Lecture 60 - Designing With Geofoam
- Lecture 61 - Designing With Geofoam
- Lecture 62 - Designing With Geofoam
- Lecture 63 - Designing With Geofoam

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geotechnical Engineering Laboratory

Subject Co-ordinator - Prof. J. N. Mandal

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Soil Processing  
Lecture 2 - Specific Gravity and Field Density  
Lecture 3 - Field Density  
Lecture 4 - Grain Size Analysis  
Lecture 5 - Grain Size Analysis (Continued...)  
Lecture 6 - Grain Size Analysis (Continued...)  
Lecture 7 - Atterberg Limit  
Lecture 8 - Compaction  
Lecture 9 - Compaction (Continued...)  
Lecture 10 - Compaction (Continued...)  
Lecture 11 - Compaction and Permeability  
Lecture 12 - Permeability  
Lecture 13 - Permeability and Shear Strength  
Lecture 14 - Shear Strength  
Lecture 15 - Shear Strength (Continued...)  
Lecture 16 - Shear Strength (Continued...)  
Lecture 17 - Shear Strength (Continued...)  
Lecture 18 - Shear Strength (Continued...)  
Lecture 19 - Shear Strength (Continued...)  
Lecture 20 - Consolidation  
Lecture 21 - Consolidation (Continued...)  
Lecture 22 - Consolidation (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geosynthetics Testing Laboratory

Subject Co-ordinator - Prof. J. N. Mandal

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Types of Geosynthetics

Lecture 3 - Functions

Lecture 4 - Tests for Physical Properties and tensile strength of geosynthetics

Lecture 5 - Tensile Modulus

Lecture 6 - Drop Cone Test

Lecture 7 - Puncture Resistance Test

Lecture 8 - Puncture Resistance Test and Burst Strength Test

Lecture 9 - Grab Tensile Test

Lecture 10 - Grab Tensile Test and Triaxial Test

Lecture 11 - Triaxial and Pullout Test

Lecture 12 - Pullout Test

Lecture 13 - Sewn Seam Strength, Permittivity and Transmissivity

Lecture 14 - Hydraulic Properties and abrasion Test of geosynthetics

Lecture 15 - Endurance properties of Geosynthetics

Lecture 16 - Density, Water Absorption and Compressive Properties tests of Geofoam

Lecture 17 - Compressive Properties of Geofoam

Lecture 18 - Compressive and Tensile Properties of Geofoam

Lecture 19 - Tensile and Shear Properties of Geofoam

Lecture 20 - Shear and Flexural Properties of Geofoam

Lecture 21 - Flexural Properties and Flammability Test of Geofoam

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Environmental Geotechnics

Subject Co-ordinator - Prof. Devendra Narain Singh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview - 1  
Lecture 2 - Overview - 2  
Lecture 3 - Overview - 3  
Lecture 4 - Civil Engineering  
Lecture 5 - Recent Trends in civil engineering  
Lecture 6 - Recent Trends and Subject organization  
Lecture 7 - Civil Engineering and Soil Mechanics  
Lecture 8 - Soil mechanics  
Lecture 9 - Recent Trends in Soil mechanics  
Lecture 10 - Soil contamination  
Lecture 11 - Soil Improvement and wastes  
Lecture 12 - Contaminant transport in soils  
Lecture 13 - Soil- water- Environment Interaction  
Lecture 14 - Basic concepts of analysis  
Lecture 15 - Particle Energy Field Theory  
Lecture 16 - Waste and types  
Lecture 17 - Municipal and Industrial solid waste  
Lecture 18 - Industrial non-hazardous and Hazardous wastes  
Lecture 19 - Application of Industrial by-products  
Lecture 20 - Introduction to Characterization of waste  
Lecture 21 - Geomaterial characterization - 1  
Lecture 22 - Geomaterial characterization - 2 (Morphological and physical characterization)  
Lecture 23 - Geomaterial characterization - 3 (Chemical characterization)  
Lecture 24 - Geomaterial characterization - 4 (Mercury Intrusive Porosimeter)  
Lecture 25 - Geomaterial characterization - 5 (Specific Surface Area - I)  
Lecture 26 - Geomaterial characterization - 6 (Specific surface area - II)  
Lecture 27 - Geomaterial characterization - 7  
Lecture 28 - Geomaterial characterization - 8 (Pore solution studies - I)  
Lecture 29 - Geomaterial characterization - 9 (Pore solution studies - II)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Geomaterial characterization - 10 (Assessing soil contamination)
- Lecture 31 - Geomaterial characterization - 11
- Lecture 32 - Contaminant transport through porous media - 1
- Lecture 33 - Contaminant transport through porous media - 2
- Lecture 34 - Contaminant transport through porous media - 3
- Lecture 35 - Contaminant transport through porous media - 4
- Lecture 36 - Contaminant transport through porous media - 5
- Lecture 37 - Sorption and Desorption characteristics of geomaterials - 1
- Lecture 38 - Sorption and Desorption characteristics of geomaterials - 2
- Lecture 39 - Sorption and Desorption characteristics of geomaterials - 3
- Lecture 40 - Thermal Characterisation - 1
- Lecture 41 - Thermal characterization - 2
- Lecture 42 - Thermal characterisation - 3
- Lecture 43 - Electrical characterization - 1
- Lecture 44 - Electrical characterization - 2
- Lecture 45 - Electrical characterization - 3
- Lecture 46 - Electrical characterization - 4
- Lecture 47 - Electrical characterization - 5
- Lecture 48 - Swelling, shrinkage and cracking characteristics of soil - 1
- Lecture 49 - Swelling, shrinkage and cracking characteristics of soil - 2
- Lecture 50 - Swelling, shrinkage and cracking characteristics of soil - 3
- Lecture 51 - Swelling, shrinkage and cracking characteristics of soil - 4
- Lecture 52 - Swelling, shrinkage and cracking characteristics of soil - 5
- Lecture 53 - Swelling, shrinkage and cracking characteristics of soil - 6

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Environmental Geomechanics

Subject Co-ordinator - Prof. Devendra Narain Singh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - I
- Lecture 2 - Introduction - II
- Lecture 3 - Overview
- Lecture 4 - Civil Engineering and Soil Mechanics
- Lecture 5 - Soil mechanics
- Lecture 6 - Environmental Geomechanics
- Lecture 7 - Scope of Environmental Geomechanics - I
- Lecture 8 - Scope of Environmental Geomechanics - II
- Lecture 9 - Scope of Environmental Geomechanics - III
- Lecture 10 - Recent trends - I
- Lecture 11 - Recent trends - II
- Lecture 12 - Energy Geotechnics
- Lecture 13 - Soil
- Lecture 14 - Soil- water- environment interaction - I
- Lecture 15 - Soil- water- environment interaction - II
- Lecture 16 - Soil- water- environment interaction - III
- Lecture 17 - Particle energy field theory - I
- Lecture 18 - Particle energy field theory - II
- Lecture 19 - Particle energy field theory - III
- Lecture 20 - Waste
- Lecture 21 - Waste
- Lecture 22 - Waste
- Lecture 23 - Application of industrial by-products - I
- Lecture 24 - Application of industrial by-products - II
- Lecture 25 - Geomaterial characterization - I (Mineralogical characterization)
- Lecture 26 - Geomaterial characterization - II (Mineralogical characterization)
- Lecture 27 - Geomaterial characterization - III (Morphological characterization)
- Lecture 28 - Geomaterial characterization - IV (Morphological characterization)
- Lecture 29 - Geomaterial characterization - V (Specific surface area)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Geomaterial characterization - VI (Chemical characterization)
- Lecture 31 - Geomaterial characterization - VII (Chemical characterization)
- Lecture 32 - Geomaterial characterization - VIII (Chemical characterization)
- Lecture 33 - Geomaterial characterization - IX (Chemical characterization)
- Lecture 34 - Geomaterial characterization - X (Chemical characterization)
- Lecture 35 - Geomaterial characterization - XI (Chemical characterization)
- Lecture 36 - Geomaterial characterization - XII (Corrosion potential of soils)
- Lecture 37 - Soil characteristics and environmental variables
- Lecture 38 - Corrosion potential of soils
- Lecture 39 - Contaminant transport through porous media - I
- Lecture 40 - Contaminant transport through porous media - II
- Lecture 41 - Contaminant transport through porous media - III
- Lecture 42 - Sorption & desorption characteristics - I
- Lecture 43 - Sorption & desorption characteristics - II
- Lecture 44 - Sorption & desorption characteristics - III
- Lecture 45 - Thermal characterization - I
- Lecture 46 - Thermal characterization - II
- Lecture 47 - Thermal characterization - III
- Lecture 48 - Cracking characteristics of fine-grained soils - I
- Lecture 49 - Cracking characteristics of fine-grained soils - II
- Lecture 50 - Cracking characteristics of fine-grained soils - III
- Lecture 51 - Electrical characterization - I
- Lecture 52 - Electrical characterization - II
- Lecture 53 - Electrical characterization - III
- Lecture 54 - Magnetic characterization
- Lecture 55 - Pore-structure characterization - I
- Lecture 56 - Pore-structure characterization - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geotechnical Engineering - 1

Subject Co-ordinator - Prof. Devendra Narain Singh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Origin and Definition of Soils
- Lecture 3 - Classification of Soils - I
- Lecture 4 - Classification of Soils - II
- Lecture 5 - Classification of Soils - III and Challenging Situations
- Lecture 6 - Soil constituents - I
- Lecture 7 - Soil constituents - II
- Lecture 8 - Particulate Nature of the Soils
- Lecture 9 - Soil Aggregate and Phase Relations
- Lecture 10 - Classification of Soils and Sieve Analysis
- Lecture 11 - Particle Size Analysis of Finegrained Soils
- Lecture 12 - Soil-water Interaction - I
- Lecture 13 - Soil-water Interaction - II
- Lecture 14 - Compaction Characteristics of Soil - I
- Lecture 15 - Compaction Characteristics of Soil - II
- Lecture 16 - Permeability of Soil and Ground Water Flow - I
- Lecture 17 - Permeability of Soil and Ground Water Flow - II
- Lecture 18 - Coefficient of Permeability
- Lecture 19 - Seepage Theory
- Lecture 20 - Applications of Seepage Theory
- Lecture 21 - Flow Net in the Earthen Dam - I
- Lecture 22 - Flow Net in the Earthen Dam - II
- Lecture 23 - Stresses in the Soil Mass due to External Loadings - I
- Lecture 24 - Stresses in the Soil Mass due to External Loadings - II
- Lecture 25 - Compression Characteristics of Soils - I
- Lecture 26 - Compression Characteristics of Soils - II
- Lecture 27 - Consolidation of soils
- Lecture 28 - Coefficient of consolidation

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Remote Sensing: Principles and Applications

Subject Co-ordinator - Prof. Eswar Rajasekaran

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to RS and EMR
- Lecture 2 - Introduction to EMR
- Lecture 3 - Basic Laws of RS
- Lecture 4 - Properties of EMR - Part 1
- Lecture 5 - Properties of EMR - Part 2
- Lecture 6 - Interaction of EMR with atmosphere
- Lecture 7 - Radiometry - Part 1
- Lecture 8 - Radiometry - Part 2
- Lecture 9 - Radiometry - Part 3
- Lecture 10 - Reflectance, albedo and related quantities
- Lecture 11 - Interaction of EMR with terrain features - Part 1
- Lecture 12 - Interaction of EMR with terrain features - Part 2
- Lecture 13 - Radiation reaching sensor - Part 1
- Lecture 14 - Radiation reaching sensor - Part 2
- Lecture 15 - RS data: From Radiance to reflectance - Part 1
- Lecture 16 - RS data: From Radiance to reflectance - Part 2
- Lecture 17 - RS data: From Radiance to reflectance - Part 3
- Lecture 18 - RS image acquisition and RS systems - Part 1
- Lecture 19 - RS image acquisition and RS systems - Part 2
- Lecture 20 - RS image acquisition and RS systems - Part 3
- Lecture 21 - RS image acquisition and RS systems - Part 4
- Lecture 22 - RS image acquisition and RS systems - Part 5
- Lecture 23 - RS image acquisition and RS systems - Part 6
- Lecture 24 - RS image acquisition and RS systems - Part 7
- Lecture 25 - RS image acquisition and RS systems - Part 8
- Lecture 26 - RS image acquisition and RS systems - Part 9
- Lecture 27 - Spectral Properties of few common earth features in the Visible, NIR and SWIR bands - Part 1
- Lecture 28 - Spectral Properties of few common earth features in the Visible, NIR and SWIR bands - Part 2
- Lecture 29 - Spectral Properties of few common earth features in the Visible, NIR and SWIR bands - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Spectral Properties of few common earth features in the Visible, NIR and SWIR bands - Part 4
- Lecture 31 - Spectral Properties of few common earth features in the Visible, NIR and SWIR bands - Part 5
- Lecture 32 - Spectral Properties of few common earth features in the Visible, NIR and SWIR bands - Part 6
- Lecture 33 - Spectral Properties of few common earth features in the Visible, NIR and SWIR bands - Part 7
- Lecture 34 - Spectral Indices
- Lecture 35 - Thermal Infrared Remote Sensing - Part 1
- Lecture 36 - Thermal Infrared Remote Sensing - Part 2
- Lecture 37 - Thermal Infrared Remote Sensing - Part 3
- Lecture 38 - Thermal Infrared Remote Sensing - Part 4
- Lecture 39 - Thermal Infrared Remote Sensing - Part 5
- Lecture 40 - Passive Microwave Remote Sensing - Part 1
- Lecture 41 - Passive Microwave Remote Sensing - Part 2
- Lecture 42 - Passive Microwave Remote Sensing - Part 3
- Lecture 43 - Passive Microwave Remote Sensing - Part 4
- Lecture 44 - Active microwave Remote Sensing - Radar - Part 1
- Lecture 45 - Active microwave Remote Sensing - Radar - Part 2
- Lecture 46 - Active microwave Remote Sensing - Radar - Part 3
- Lecture 47 - Active microwave Remote Sensing - Radar - Part 4
- Lecture 48 - Active microwave Remote Sensing - Radar - Part 5
- Lecture 49 - Active microwave Remote Sensing - Radar - Part 6
- Lecture 50 - Platforms for remote sensing observations - Part 1
- Lecture 51 - Platforms for remote sensing observations - Part 2
- Lecture 52 - Platforms for remote sensing observations - Part 3
- Lecture 53 - Platforms for remote sensing observations - Part 4
- Lecture 54 - Platforms for remote sensing observations - Part 5
- Lecture 55 - Platforms for remote sensing observations - Part 6
- Lecture 56 - LIDAR - Part 1
- Lecture 57 - LIDAR - Part 2
- Lecture 58 - LIDAR - Part 3
- Lecture 59 - RS data, data portals and processing tools - Part 1
- Lecture 60 - RS data, data portals and processing tools - Part 2
- Lecture 61 - RS data, data portals and processing tools - Part 3
- Lecture 62 - Land use, land cover monitoring and change detection - Part 1
- Lecture 63 - Land use, land cover monitoring and change detection - Part 2
- Lecture 64 - Application of RS in water resources management - Part 1
- Lecture 65 - Application of RS in water resources management - Part 2
- Lecture 66 - Application of RS in water resources management - Part 3
- Lecture 67 - Application of RS in water resources management - Part 4

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Dynamics of Structures

Subject Co-ordinator - Prof. Manish Kumar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Structural Dynamics
- Lecture 2 - Idealization of Structures
- Lecture 3 - Components of Dynamic System
- Lecture 4 - Equation of Motion
- Lecture 5 - Free Vibration
- Lecture 6 - Damped Free Vibration - Part 1
- Lecture 7 - Damped Free Vibration - Part 2
- Lecture 8 - Undamped Harmonic Excitations
- Lecture 9 - Damped Harmonic Excitations
- Lecture 10 - Frequency response curves
- Lecture 11 - Transmissibility
- Lecture 12 - Energy in Forced Vibrations
- Lecture 13 - Unit impulse Functions
- Lecture 14 - Step and Ramp Forces
- Lecture 15 - Pulse Excitations
- Lecture 16 - Numerical Response Methods
- Lecture 17 - Seismic Response Spectra
- Lecture 18 - Continuous systems
- Lecture 19 - Lumped mass systems
- Lecture 20 - Equation of motion
- Lecture 21 - Equation of motion - examples
- Lecture 22 - Mode shapes and frequencies
- Lecture 23 - Free vibration - Undamped and Damped
- Lecture 24 - Damping in MDOF Systems
- Lecture 25 - Forced response of MDOF systems
- Lecture 26 - Modal superposition Analysis
- Lecture 27 - Response Spectrum Analysis
- Lecture 28 - Concept of Seismic Isolation
- Lecture 29 - Dynamics of Base-isolation Systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC: Microwave Remote Sensing in Hydrology

Subject Co-ordinator - Prof. J. Indu

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Syllabus
- Lecture 2 - History Of Microwave Remote Sensing
- Lecture 3 - Overview Of Active and Passive Microwave Remote Sensing
- Lecture 4 - Fundamentals Laws Of Remote Sensing
- Lecture 5 - Tutorial 1: Python Programming From Beginner Perspective
- Lecture 6 - Scattering Of Microwaves
- Lecture 7 - Synthetic Aperture Radars - Basics
- Lecture 8 - Sar Image Processing - Fundamental Terminologies
- Lecture 9 - Working With Sar Imagery
- Lecture 10 - Understanding Radar Equation
- Lecture 11 - Tutorial 2 : Exploring Alos Palsar Data In Python
- Lecture 12 - Understanding Radar Imagery
- Lecture 13 - Tutorial 3: Introduction To SNAP
- Lecture 14 - Doppler Shift
- Lecture 15 - Speckle
- Lecture 16 - Speckle - How To Handle
- Lecture 17 - Tutorial 4 Part 1: Plotting In 1 D Using Python
- Lecture 18 - Tutorial 4 Part 2: Plotting In 2 D Using Python
- Lecture 19 - Tutorial 4 Part 3: Statistics Using Python
- Lecture 20 - Tutorial 4 Part 4: Hypothesis Testing Using Python
- Lecture 21 - Sar Image Pre Processing
- Lecture 22 - Sar Image Texture
- Lecture 23 - Texture For Image Classification
- Lecture 24 - Polarization
- Lecture 25 - Tutorial 5 Part 1: Speckle Filtering Using Python
- Lecture 26 - Tutorial 5 Part 2: Speckle Filtering Using Python Using Gaussian Filter
- Lecture 27 - Numerical On Radar Remote Sensing
- Lecture 28 - Numerical On Radar Remote Sensing
- Lecture 29 - Image Classification - Basics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Supervised Classification
- Lecture 31 - Maximum Likelihood Classification
- Lecture 32 - Tutorial 6 Part 1: Sar Image Pre-processing
- Lecture 33 - Tutorial 6 Part 2: Maximum Likelihood Classification In Snap
- Lecture 34 - Unsupervised Classification And Accuracy Assessment
- Lecture 35 - Fuzzy Classification
- Lecture 36 - Tutorial 7 Part 1: Working With Grace Data In Python
- Lecture 37 - Tutorial 7 Part 2: Altimetry Data In Python
- Lecture 38 - Tutorial 7 Part 3: Swot Mission For Altimetry
- Lecture 39 - Radars In Hydrology
- Lecture 40 - Applications Of Radar Remote Sensing In Hydrology
- Lecture 41 - Doppler Weather Radar
- Lecture 42 - Tutorial 8 Part 1: Doppler Weather Radar Data Visualization And Precipitation Estimation
- Lecture 43 - Tutorial 8 Part 2: Doppler Weather Radar Data Visualization And Precipitation Estimation
- Lecture 44 - Radar Altimetry
- Lecture 45 - Measuring Soil Moisture And Terrestrial Water Storage Using Radar Remote Sensing
- Lecture 46 - Tutorial 9: Handling Passive Microwave Observations
- Lecture 47 - Fundamentals Of Passive Microwave Remote Sensing - Part 1
- Lecture 48 - Fundamentals Of Passive Microwave Remote Sensing - Part 2
- Lecture 49 - Applications Of Passive Microwave Remote Sensing In Hydrology
- Lecture 50 - Passive Microwave Radiometers And Their Applications
- Lecture 51 - Tutorial 10: Processing Satellite Precipitation Data Using Python
- Lecture 52 - Introduction To The Basics Of Sar Interferometry
- Lecture 53 - Sar Interferometry (InSAR) And Applications
- Lecture 54 - Introduction To Other Modes Of Sar Interferometry And Applications - DInSAR, PSInSAR and DEM's
- Lecture 55 - Tutorial 11: Sar Interferometry Processing Using Snaphu
- Lecture 56 - Tutorial 12 Part 1: Hydrologic Modelling Using Microwave Remote Sensing
- Lecture 57 - Tutorial 12 Part 2: Introduction To Swat+ Hydrological Model
- Lecture 58 - Tutorial 12 Part 3: Introductory Tutorial On Vic Hydrological Model

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Groundwater Hydrology and Management

Subject Co-ordinator - Prof. Pennan Chinnasamy

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Groundwater - Part 1  
Lecture 2 - Introduction to Groundwater - Part 2  
Lecture 3 - Introduction to Groundwater - Part 3  
Lecture 4 - Introduction to Groundwater - Part 4  
Lecture 5 - Introduction to Groundwater - Part 5  
Lecture 6 - International importance of groundwater and India - Part 1  
Lecture 7 - International importance of groundwater and India - Part 2  
Lecture 8 - International importance of groundwater and India - Part 3  
Lecture 9 - International importance of groundwater and India - Part 4  
Lecture 10 - International importance of groundwater and India - Part 5  
Lecture 11 - Physics and hydrology of Groundwater - Part 1  
Lecture 12 - Physics and hydrology of Groundwater - Part 2  
Lecture 13 - Physics and hydrology of Groundwater - Part 3  
Lecture 14 - Physics and hydrology of Groundwater - Part 4  
Lecture 15 - Physics and hydrology of Groundwater - Part 5  
Lecture 16 - Groundwater governing equations 1 - Part 1  
Lecture 17 - Groundwater governing equations 1 - Part 2  
Lecture 18 - Groundwater governing equations 1 - Part 3  
Lecture 19 - Groundwater governing equations 1 - Part 4  
Lecture 20 - Groundwater governing equations 1 - Part 5  
Lecture 21 - Groundwater governing equations 2 - Part 1  
Lecture 22 - Groundwater governing equations 2 - Part 2  
Lecture 23 - Groundwater governing equations 2 - Part 3  
Lecture 24 - Groundwater governing equations 2 - Part 4  
Lecture 25 - Groundwater governing equations 2 - Part 5  
Lecture 26 - Groundwater recharge and discharge - Part 1  
Lecture 27 - Groundwater recharge and discharge - Part 2  
Lecture 28 - Groundwater recharge and discharge - Part 3  
Lecture 29 - Groundwater recharge and discharge - Part 4

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- Lecture 30 - Groundwater recharge and discharge - Part 5
- Lecture 31 - Constructing aquifers using groundwater data - Part 1
- Lecture 32 - Constructing aquifers using groundwater data - Part 2
- Lecture 33 - Constructing aquifers using groundwater data - Part 3
- Lecture 34 - Constructing aquifers using groundwater data - Part 4
- Lecture 35 - Constructing aquifers using groundwater data - Part 5
- Lecture 36 - Conceptual model for groundwater - Part 1
- Lecture 37 - Conceptual model for groundwater - Part 2
- Lecture 38 - Conceptual model for groundwater - Part 3
- Lecture 39 - Conceptual model for groundwater - Part 4
- Lecture 40 - Conceptual model for groundwater - Part 5
- Lecture 41 - Groundwater data in India - Part 1
- Lecture 42 - Groundwater data in India - Part 2
- Lecture 43 - Groundwater data in India - Part 3
- Lecture 44 - Groundwater data in India - Part 4
- Lecture 45 - Groundwater data in India - Part 5
- Lecture 46 - Application of Groundwater data in India - Part 1
- Lecture 47 - Application of Groundwater data in India - Part 2
- Lecture 48 - Application of Groundwater data in India - Part 2
- Lecture 49 - Application of Groundwater data in India - Part 3
- Lecture 50 - Application of Groundwater data in India - Part 3
- Lecture 51 - Introduction to Groundwater modeling - Part 1
- Lecture 52 - Introduction to Groundwater modeling - Part 2
- Lecture 53 - Introduction to Groundwater modeling - Part 3
- Lecture 54 - Introduction to Groundwater modeling - Part 4
- Lecture 55 - Introduction to Groundwater modeling - Part 5
- Lecture 56 - Case studies of Groundwater in India - Part 1
- Lecture 57 - Case studies of Groundwater in India - Part 2
- Lecture 58 - Case studies of Groundwater in India - Part 3
- Lecture 59 - Case studies of Groundwater in India - Part 4
- Lecture 60 - Case studies of Groundwater in India - Part 5

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Rural Water Resources Management

Subject Co-ordinator - Prof. Pennan Chinnasamy

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Importance of water resource management and Hydrological Cycle and representations - Part 1  
Lecture 2 - Importance of water resource management and Hydrological Cycle and representations - Part 2  
Lecture 3 - Importance of water resource management and Hydrological Cycle and representations - Part 3  
Lecture 4 - Importance of water resource management and Hydrological Cycle and representations - Part 4  
Lecture 5 - Importance of water resource management and Hydrological Cycle and representations - Part 5  
Lecture 6 - Key Hydrological Parameters 1 - Part 1  
Lecture 7 - Key Hydrological Parameters 1 - Part 2  
Lecture 8 - Key Hydrological Parameters 1 - Part 3  
Lecture 9 - Key Hydrological Parameters 1 - Part 4  
Lecture 10 - Key Hydrological Parameters 1 - Part 5  
Lecture 11 - Key Hydrological Parameters 2 - Part 1  
Lecture 12 - Key Hydrological Parameters 2 - Part 2  
Lecture 13 - Key Hydrological Parameters 2 - Part 3  
Lecture 14 - Key Hydrological Parameters 2 - Part 4  
Lecture 15 - Key Hydrological Parameters 2 - Part 5  
Lecture 16 - Introduction to Groundwater hydrology - Part 1  
Lecture 17 - Introduction to Groundwater hydrology - Part 2  
Lecture 18 - Introduction to Groundwater hydrology - Part 3  
Lecture 19 - Introduction to Groundwater hydrology - Part 4  
Lecture 20 - Introduction to Groundwater hydrology - Part 5  
Lecture 21 - Groundwater components - Part 1  
Lecture 22 - Groundwater components - Part 2  
Lecture 23 - Groundwater components - Part 3  
Lecture 24 - Groundwater components - Part 4  
Lecture 25 - Groundwater components - Part 5  
Lecture 26 - Surface water hydrology - Part 1  
Lecture 27 - Surface water hydrology - Part 2  
Lecture 28 - Surface water hydrology - Part 3  
Lecture 29 - Surface water hydrology - Part 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Surface water hydrology - Part 5
- Lecture 31 - Water Mass Balance Equation - Part 1
- Lecture 32 - Water Mass Balance Equation - Part 2
- Lecture 33 - Water Mass Balance Equation - Part 3
- Lecture 34 - Water Mass Balance Equation - Part 4
- Lecture 35 - Water Mass Balance Equation - Part 5
- Lecture 36 - Rural water management issues, data challenges and observation records - Part 1
- Lecture 37 - Rural water management issues, data challenges and observation records - Part 2
- Lecture 38 - Rural water management issues, data challenges and observation records - Part 3
- Lecture 39 - Rural water management issues, data challenges and observation records - Part 4
- Lecture 40 - Rural water management issues, data challenges and observation records - Part 5
- Lecture 41 - Rural water resource management infrastructure (engineered) - Part 1
- Lecture 42 - Rural water resource management infrastructure (engineered) - Part 2
- Lecture 43 - Rural water resource management infrastructure (engineered) - Part 3
- Lecture 44 - Rural water resource management infrastructure (engineered) - Part 4
- Lecture 45 - Rural water resource management infrastructure (engineered) - Part 5
- Lecture 46 - Rural water resource management infrastructure (nature based) - Part 1
- Lecture 47 - Rural water resource management infrastructure (nature based) - Part 2
- Lecture 48 - Rural water resource management infrastructure (nature based) - Part 3
- Lecture 49 - Rural water resource management infrastructure (nature based) - Part 4
- Lecture 50 - Rural water resource management infrastructure (nature based) - Part 5
- Lecture 51 - Solving case studies in rural water resource management - Part 1
- Lecture 52 - Solving case studies in rural water resource management - Part 2
- Lecture 53 - Solving case studies in rural water resource management - Part 3
- Lecture 54 - Solving case studies in rural water resource management - Part 4
- Lecture 55 - Solving case studies in rural water resource management - Part 5
- Lecture 56 - Rural hydrological databases for India - Part 1
- Lecture 57 - Rural hydrological databases for India - Part 2
- Lecture 58 - Rural hydrological databases for India - Part 3
- Lecture 59 - Rural hydrological databases for India - Part 4
- Lecture 60 - Rural hydrological databases for India - Part 5

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geotechnical Engineering-II

Subject Co-ordinator - Prof. Devendra Narain Singh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Shear Strength of Soils - I
- Lecture 3 - Shear Strength of Soils - II
- Lecture 4 - Shear Strength of Soils - III
- Lecture 5 - Shear Strength of Soils - IV
- Lecture 6 - Testing for shear strength parameters: Introduction
- Lecture 7 - Direct shear box test
- Lecture 8 - Direct Shear Interpretation of Test Results - I
- Lecture 9 - Direct Shear Interpretation of Test Results - II
- Lecture 10 - Kf line
- Lecture 11 - Selection of Parameter (Shear Strength,SS) - I
- Lecture 12 - Selection of Parameter (Shear Strength,SS) - II
- Lecture 13 - Shear Strength of Cohesive Soils - I
- Lecture 14 - Shear Strength of Cohesive Soils - II
- Lecture 15 - Triaxial Test - I
- Lecture 16 - Triaxial Test - II
- Lecture 17 - Triaxial Test - III
- Lecture 18 - Interpretation of Triaxial test Results - I
- Lecture 19 - Interpretation of Triaxial test Results - II
- Lecture 20 - Interpretation of Triaxial test Results - III
- Lecture 21 - Pore Pressure Parameters - I
- Lecture 22 - Pore Pressure Parameters - II
- Lecture 23 - Stress Paths - I
- Lecture 24 - Stress Paths - II
- Lecture 25 - Plastic Equilibrium in Soils
- Lecture 26 - Mechanisms of Development of Plastic Equilibrium in Soils - I
- Lecture 27 - Mechanisms of Development of Plastic Equilibrium in Soils - II
- Lecture 28 - Earth Pressure Analysis (Trial Wedge) - I
- Lecture 29 - Earth Pressure Analysis (Trial Wedge) - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Earth Pressure Analysis (Trial Wedge) - III
- Lecture 31 - Analysis of Completely Submerged Retaining wall
- Lecture 32 - Gravity Walls Supporting Cohesive Soil Mass (Backfill)
- Lecture 33 - Sloping Backfill
- Lecture 34 - Earth Pressure Analysis - I
- Lecture 35 - Earth Pressure Analysis - II
- Lecture 36 - Sheet Pile Wall Introduction - I
- Lecture 37 - Sheet Pile Wall Introduction - II
- Lecture 38 - Sheet pile wall Introduction - III
- Lecture 39 - Analysis of sheet piles - I
- Lecture 40 - Analysis of sheet piles - II
- Lecture 41 - Anchored Bulkheads
- Lecture 42 - Cantilever Sheet Piles
- Lecture 43 - Lateral Earth Pressure Braced Sheet Pile Walls
- Lecture 44 - Slope Stability - I
- Lecture 45 - Slope Stability - II
- Lecture 46 - Slope Instability - I
- Lecture 47 - Slope Instability - II
- Lecture 48 - Slope Instability - III
- Lecture 49 - Analysis of Finite Slopes - I Planar Failure Surface
- Lecture 50 - Analysis of Finite Slopes - II Circular Failure Surface
- Lecture 51 - Finite Slopes Friction Circle Method
- Lecture 52 - Slip Circle Method



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Remote Sensing and GIS for Rural Development

Subject Co-ordinator - Prof. Pennan Chinnasamy

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to course - Rural development (RD)
- Lecture 2 - Water security (SF) and Water security (GW) and issues
- Lecture 3 - Food security and issues
- Lecture 4 - Agriculture and rural infrastructure issues
- Lecture 5 - Rural Development
- Lecture 6 - Data and mapping issues for Rural regions
- Lecture 7 - Introduction to Remote Sensing and need
- Lecture 8 - Remote Sensing for Water and Food Security
- Lecture 9 - Remote Sensing for Rural infrastructures
- Lecture 10 - Remote Sensing for Rural Development
- Lecture 11 - Intro to Remote Sensing Data for Rural Development
- Lecture 12 - Intro to Remote Sensing Data for Rural Development : Water
- Lecture 13 - Intro to Remote Sensing Data for Rural Development : Soil and Climate
- Lecture 14 - Intro to Remote Sensing Data for Rural Development : NASA datasets for water
- Lecture 15 - Intro to Remote Sensing Data for Rural Development
- Lecture 16 - Intro to GIS and QGIS
- Lecture 17 - Intro to GIS data types and download
- Lecture 18 - Intro to GIS vector data type and QGIS panel
- Lecture 19 - Vector Tools in QGIS
- Lecture 20 - QGIS tutorials for vector analysis and data searching
- Lecture 21 - Intro to Raster Data type in GIS
- Lecture 22 - Raster data type formats and uses
- Lecture 23 - Raster data and Vector data quality issues
- Lecture 24 - Raster data tools: Raster calculator and Raster Align
- Lecture 25 - Raster data tools: Clip and Masking tools
- Lecture 26 - Intro to GIS Projections and Co-ordinate systems
- Lecture 27 - Intro to digitization of images for raster data
- Lecture 28 - Digitization of scanned maps into raster data
- Lecture 29 - Extracting point and line features from georeferenced data

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Extracting polygon features from georeferenced data
- Lecture 31 - Creating shapefiles from georeferenced maps
- Lecture 32 - Google Earth Pro introduction for extracting data
- Lecture 33 - Ground Control points from Google Earth Pro and Basemaps
- Lecture 34 - Digital Elevation models and sources
- Lecture 35 - Digital Elevation models (hands on example)
- Lecture 36 - Introduction to Land Use Land Cover
- Lecture 37 - Data for LULC and proxy data
- Lecture 38 - Analyzing Bhuvan LULC data - Part 1
- Lecture 39 - Analyzing Bhuvan LULC data - Part 2
- Lecture 40 - Analyzing USGS LULC data
- Lecture 41 - Different types of LULC classifications
- Lecture 42 - Different types of LULC classifications
- Lecture 43 - Remote Sensing for irrigation assessments
- Lecture 44 - Remote Sensing for Groundwater irrigation assessments
- Lecture 45 - Methods for Crop Statistics using Remote Sensing data
- Lecture 46 - Remote Sensing based indicators for rural development
- Lecture 47 - Remote Sensing methods for crop area and health assessments
- Lecture 48 - NDVI data access
- Lecture 49 - NDVI data from NASA platforms
- Lecture 50 - NDVI data from Sentinel and NASA platforms
- Lecture 51 - Remote Sensing based indicators database
- Lecture 52 - Synergized mapping using Remote Sensing and Crowd Sourced data for rural infrastructures
- Lecture 53 - RS and OSM for mapping rural infrastructures: Schools
- Lecture 54 - RS and OSM for mapping rural infrastructures: Hospitals
- Lecture 55 - RS and OSM for mapping rural infrastructures: Adding data, crops and water bodies
- Lecture 56 - RS and GIS application for Rural Development: Monitoring and Evaluation
- Lecture 57 - RS and GIS application for Rural Development: Monitoring and Evaluation using NDVI and NDWI
- Lecture 58 - RS and GIS application for Rural Development: Water Quality Assessment
- Lecture 59 - RS and GIS application for Rural Development: Indicators and Dashboards
- Lecture 60 - RS and GIS for Rural Development - Summary, Wrap and Ways Forward

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Concrete Technology

Subject Co-ordinator - Dr. B. Bhattacharjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Production and Composition  
Lecture 2 - Structure and Hydration  
Lecture 3 - Structure and Hydration  
Lecture 4 - Properties and Tests  
Lecture 5 - Types and Use  
Lecture 6 - Aggregates (Size, Shape)  
Lecture 7 - Packing, FM, SM  
Lecture 8 - Properties  
Lecture 9 - Chemical Admixtures  
Lecture 10 - Chemical Admixtures  
Lecture 11 - Mineral Admixtures  
Lecture 12 - Mineral Admixtures  
Lecture 13 - Mineral Admixtures  
Lecture 14 - Mix Proportioning of Concrete  
Lecture 15 - Mix design of Concrete  
Lecture 16 - Mix Design of Concrete  
Lecture 17 - Mix Design of concrete  
Lecture 18 - Mix Design of concrete  
Lecture 19 - Batching and Mixing of concrete  
Lecture 20 - RMC and Transporting Concrete  
Lecture 21 - Workability and Pumping of Concrete  
Lecture 22 - Compaction and Curing Concrete  
Lecture 23 - Strength of Concrete  
Lecture 24 - Strength of Concrete  
Lecture 25 - Strength of Concrete  
Lecture 26 - Mechanical Properties of Concrete  
Lecture 27 - Creep of Concrete  
Lecture 28 - Creep and Shrinkage of Concrete  
Lecture 29 - Shrinkage of Concrete

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Shrinkage of Concrete
- Lecture 31 - Fundamental Concepts, Degradation Process, Attacks
- Lecture 32 - Frost Action and Rebar Corrosion
- Lecture 33 - Carbonation and Chloride Affect
- Lecture 34 - Rebar Corrosion
- Lecture 35 - Rebar Corrosion and General Strategy
- Lecture 36 - High Strength Concrete
- Lecture 37 - High Strength Matrics and SCC
- Lecture 38 - Self Compacting Concrete
- Lecture 39 - Fiber Concrete
- Lecture 40 - Fiber and Roller Compacted Concrete
- Lecture 41 - Special Concrete and Sustainability

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Seismic Analysis of Structures

Subject Co-ordinator - Dr. T.K. Datta, Dr. Ashok Gupta

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Seismology
- Lecture 2 - Seismology (Continued...)
- Lecture 3 - Seismology (Continued...)
- Lecture 4 - Seismology (Continued...)
- Lecture 5 - Seismic Inputs
- Lecture 6 - Seismic Inputs (Continued...)
- Lecture 7 - Seismic Inputs (Continued...)
- Lecture 8 - Seismic Inputs (Continued...)
- Lecture 9 - Response Analysis for Specified Ground Motion
- Lecture 10 - Response Analysis for Specified Ground Motion (Continued...)
- Lecture 11 - Response Analysis for Specified Ground Motion (Continued...)
- Lecture 12 - Response Analysis for Specified Ground Motion (Continued...)
- Lecture 13 - Response Analysis for Specified Ground Motion (Continued...)
- Lecture 14 - Response Analysis for Specified Ground Motion (Continued...)
- Lecture 15 - Frequency Domain Spectral Analysis
- Lecture 16 - Frequency Domain Spectral Analysis.
- Lecture 17 - Frequency Domain Spectral Analysis (Continued...)
- Lecture 18 - Frequency Domain Spectral Analysis (Continued...)
- Lecture 19 - Frequency Domain Spectral Analysis (Continued...)
- Lecture 20 - Response Spectrum Method of Analysis
- Lecture 21 - Response Spectrum Method of Analysis.
- Lecture 22 - Response Spectrum Method of Analysis (Continued...)
- Lecture 23 - Response Spectrum Method of Analysis (Continued...)
- Lecture 24 - Response Spectrum Method of Analysis (Continued...)
- Lecture 25 - Inelastic Seismic Response of Structures
- Lecture 26 - Inelastic Seismic Response of Structures (Continued...)
- Lecture 27 - Inelastic Seismic Response of Structures (Continued...)
- Lecture 28 - Inelastic Seismic Response of Structures (Continued...)
- Lecture 29 - Inelastic Seismic Response of Structures (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Inelastic Seismic Response of Structures (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Building materials and Construction

Subject Co-ordinator - Dr. B. Bhattacharjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Functions Of Buildings  
Lecture 2 - Role Of Material In Construction  
Lecture 3 - Concrete  
Lecture 4 - Concrete Production (Continued...)  
Lecture 5 - Concrete Production (Continued...)  
Lecture 6 - Concrete  
Lecture 7 - Concrete  
Lecture 8 - Cement  
Lecture 9 - Cement and Cementitious Material  
Lecture 10 - Fresh Concrete  
Lecture 11 - Fresh Concrete  
Lecture 12 - Fresh Concrete  
Lecture 13 - Fresh Concrete  
Lecture 14 - Strength of Concrete - I  
Lecture 15 - Strength of Concrete - II  
Lecture 16 - Strength of Concrete - III  
Lecture 17 - Mechanical Properties of Concrete - I  
Lecture 18 - Mechanical Properties of Concrete - II  
Lecture 19 - Strength of Concrete  
Lecture 20 - Durability of Concrete - I  
Lecture 21 - Durability of Concrete - II  
Lecture 22 - Durability of Concrete - III  
Lecture 23 - Cement Aggregate and Water Selection  
Lecture 24 - Mix Design of Concrete  
Lecture 25 - Mix Design Of concrete IS Method  
Lecture 26 - Mix Design Of Concrete  
Lecture 27 - Masonry  
Lecture 28 - Masonry  
Lecture 29 - Masonry

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Masonry
- Lecture 31 - Walls
- Lecture 32 - Walls
- Lecture 33 - Metals Fundamentals
- Lecture 34 - Metals and Iron Systems
- Lecture 35 - Steel
- Lecture 36 - Steel
- Lecture 37 - Polymer in Construction
- Lecture 38 - Polymer in Construction
- Lecture 39 - Glass and Timber
- Lecture 40 - Glass and Timber
- Lecture 41 - Roof and Floor Construction



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Water Management

Subject Co-ordinator - Dr. A.K. Gosain

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Irrigation Water Management
- Lecture 2 - Soil - Water - Plant Relationships
- Lecture 3 - Soil - Water - Plant Relationships (Continued...)
- Lecture 4 - Soil - Water - Plant Relationships (Continued...)
- Lecture 5 - Soil - Water - Plant Relationships (Continued...)
- Lecture 6 - Soil - Water - Plant Relationships (Continued...) and Infiltration
- Lecture 7 - Crop Water Requirements
- Lecture 8 - Crop Water Requirements (Continued...)
- Lecture 9 - Crop Water Requirements (Continued...)
- Lecture 10 - Crop Water Requirements (Continued...)
- Lecture 11 - Crop Water Requirements (Continued...)
- Lecture 12 - Crop Water Requirements (Continued...)
- Lecture 13 - Crop Water Requirements (continued...)
- Lecture 14 - Irrigation Efficiencies - Part I
- Lecture 15 - Irrigation Efficiencies - Part II and Irrigation Methods and their Suitability
- Lecture 16 - Irrigation Methods - III
- Lecture 17 - Irrigation Methods - IV
- Lecture 18 - Irrigation Methods - V
- Lecture 19 - Irrigation Methods - VI
- Lecture 20 - Irrigation Methods and their Suitability
- Lecture 21 - Border Irrigation System - I
- Lecture 22 - Border Irrigation System - II
- Lecture 23 - Border Irrigation System - III
- Lecture 24 - Border Irrigation System - IV
- Lecture 25 - Furrow Irrigation System - I
- Lecture 26 - Furrow Irrigation System - II
- Lecture 27 - Furrow Irrigation System - III
- Lecture 28 - Furrow Irrigation System - IV
- Lecture 29 - Sprinkler Irrigation System - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sprinkler Irrigation System - II
- Lecture 31 - Sprinkler Irrigation System - III
- Lecture 32 - Sprinkler Irrigation System - IV
- Lecture 33 - Sprinkler Irrigation System - V
- Lecture 34 - Sprinkler Irrigation System - VI
- Lecture 35 - Sprinkler Irrigation System - VII
- Lecture 36 - Sprinkler Irrigation System - VIII
- Lecture 37 - Drip Irrigation System - I
- Lecture 38 - Drip Irrigation System - II
- Lecture 39 - Drip Irrigation System - III
- Lecture 40 - Drip Irrigation System - IV

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geoenvironmental Engineering (Environmental Geotechnology) Landfills

Subject Co-ordinator - Prof. Manoj Datta

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Geoenvironmental Engineering
- Lecture 2 - Sources and Impact of Contamination
- Lecture 3 - Waste-Soil Interaction
- Lecture 4 - Solid Waste Generation and Disposal
- Lecture 5 - Waste Minimization by Integrated Solid Waste Management (ISWM)
- Lecture 6 - Integrated Solid Waste Management (ISWM) - Case Studies
- Lecture 7 - Principles of Landfilling
- Lecture 8 - Planning of Landfills - Part 1
- Lecture 9 - Planning of Landfills - Part 2
- Lecture 10 - Liners for Landfills - Part 1
- Lecture 11 - Liners for Landfills - Part 2
- Lecture 12 - Liners for Landfills - Part 3
- Lecture 13 - Liners for Landfills - Part 4
- Lecture 14 - Covers for Landfills - Part 1
- Lecture 15 - Covers for Landfills - Part 2
- Lecture 16 - Generation and Control of Leachate
- Lecture 17 - Generation and Control of Landfill Gas
- Lecture 18 - Stability of Slopes - Part 1
- Lecture 19 - Stability of Slopes - Part 2
- Lecture 20 - Stability of Slopes - Part 3
- Lecture 21 - (Missing)
- Lecture 22 - Some Solved Examples
- Lecture 23 - Subsurface Monitoring Around Landfills - Part 1
- Lecture 24 - Subsurface Monitoring Around Landfills - Part 2
- Lecture 25 - Cost of Geotechnical Components of Landfills
- Lecture 26 - Construction and Operation of Landfills
- Lecture 27 - Site Selection for Landfills
- Lecture 28 - Closure, Rehabilitation and Expansion of MSW Landfills
- Lecture 29 - Control and Remedial Measures at Contaminated Sites - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Control and Remedial Measures at Contaminated Sites - Part 2
- Lecture 31 - Slurry Disposal on Land
- Lecture 32 - Disposal of Slurry Waste in Ponds and Impoundments and Dry Waste in Mounds
- Lecture 33 - Geotechnical Properties of Coal Ash and Mine Tailings - Part 1
- Lecture 34 - Geotechnical Properties of Coal Ash and Mine Tailings - Part 2
- Lecture 35 - Planning and Design of Slurry Ponds
- Lecture 36 - Stability of Incrementally Raised Embankments - Part 1
- Lecture 37 - Stability of Incrementally Raised Embankments - Part 2
- Lecture 38 - Remedial Measures for Slope Failures in Embankments / Dykes of Slurry Ponds
- Lecture 39 - Environmental Control at Slurry Ponds
- Lecture 40 - Geotechnical Reuse of Waste Materials - Part 1
- Lecture 41 - Geotechnical Reuse of Waste Materials - Part 2
- Lecture 42 - End-of-the-Course Review

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Energy Efficiency, Acoustics and Daylighting in Building

Subject Co-ordinator - Dr. B. Bhattacharjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Environmental Factors - 1  
Lecture 2 - Introduction to Environmental Factors - 2  
Lecture 3 - Introduction to Environmental Factors - 3  
Lecture 4 - Introduction to Environmental Factors - 4  
Lecture 5 - Introduction to Environmental Factors - 5  
Lecture 6 - Introduction to Environmental Factors - 6  
Lecture 7 - Introduction to Environmental Factors - 7  
Lecture 8 - Comfort and Heat Transfer Concepts  
Lecture 9 - Heat Flow in Buildings - 1  
Lecture 10 - Heat Flow in buildings - 2  
Lecture 11 - Heat Flow in buildings - 3  
Lecture 12 - Admittance Method - 1  
Lecture 13 - Admittance Method - 2  
Lecture 14 - Heat Flow in buildings - 1 (Frequency Domain)  
Lecture 15 - Heat Flow in buildings - 2 (Frequency Domain)  
Lecture 16 - Heat Flow in buildings - 2 (Frequency Domain)  
Lecture 17 - Heat flow in buildings  
Lecture 18 - Admittance Method  
Lecture 19 - Comfort - 1  
Lecture 20 - Comfort - 2  
Lecture 21 - Comfort and Thermal Design of Buildings - 1  
Lecture 22 - Comfort and Thermal Design of Buildings - 2  
Lecture 23 - Comfort and Thermal Design of Buildings - 3  
Lecture 24 - Thermal Design of Unconditioned Building  
Lecture 25 - External Shading Multipliers for external suns shading  
Lecture 26 - Passive Concepts  
Lecture 27 - Design for Thermal Efficiency  
Lecture 28 - Ventilation - 1  
Lecture 29 - Ventilation - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Natural ventilation design
- Lecture 31 - Noise and Acoustic Fundamentals - 1
- Lecture 32 - Noise and Acoustic Fundamentals - 2
- Lecture 33 - Noise and Acoustic Fundamentals - 3
- Lecture 34 - Noise and Acoustic Fundamentals, Noise Outdoors
- Lecture 35 - Noise outdoors
- Lecture 36 - Sound within enclosure - 1
- Lecture 37 - Sound within enclosure - 2
- Lecture 38 - Sound within enclosure - 3
- Lecture 39 - Sound within enclosure - 4
- Lecture 40 - Sound within enclosure - 5
- Lecture 41 - Sound within enclosure - 6
- Lecture 42 - Sound within enclosure, isolation
- Lecture 43 - Isolation - 1
- Lecture 44 - Isolation - 2
- Lecture 45 - Auditorium - 1
- Lecture 46 - Auditorium - 2
- Lecture 47 - Daylighting - 1
- Lecture 48 - Daylighting - 2
- Lecture 49 - Daylighting - 3
- Lecture 50 - Daylighting - 4
- Lecture 51 - Daylighting - 5
- Lecture 52 - Daylighting - 6
- Lecture 53 - Artificial Lighting
- Lecture 54 - Design Sky models
- Lecture 55 - Live Session

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Fire Protection, Services and Maintenance Management of Building

Subject Co-ordinator - Dr. B. Bhattacharjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic concepts of Fire Protection - I  
Lecture 2 - Basic concepts of Fire Protection - II  
Lecture 3 - Fire Resistance  
Lecture 4 - Introduction Process of Combustion  
Lecture 5 - ventilation and fuel Process of Combustion controlled fire  
Lecture 6 - Process of Combustion  
Lecture 7 - Effect of Fire on Construction Materials  
Lecture 8 - Design for Fire Resistance  
Lecture 9 - Design for Fire Resistance  
Lecture 10 - Design for Fire Resistance  
Lecture 11 - Fire Safety  
Lecture 12 - Fire Safety  
Lecture 13 - Fire safety  
Lecture 14 - Fire Safety  
Lecture 15 - Introduction to Lift Design  
Lecture 16 - Design of Lift systems  
Lecture 17 - Design of Lift systems  
Lecture 18 - Design of Lift systems  
Lecture 19 - Design of Lift systems  
Lecture 20 - Introduction to System and Flow Systems  
Lecture 21 - Water Supply System  
Lecture 22 - Water Supply System  
Lecture 23 - Diversity factor (Continued...)  
Lecture 24 - Control Systems  
Lecture 25 - Introduction to HVAC  
Lecture 26 - Governing Equations for HVAC Process  
Lecture 27 - Numerical Problem on HVAC System  
Lecture 28 - Numerical Problem on HVAC System (Continued...)  
Lecture 29 - Psychrometric Chart

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Flow in Pipe Networks and Fixture Units
- Lecture 31 - Flow in Pipe Networks (Continued...) and Design of Water Supply Distribution System
- Lecture 32 - Design of Water Supply Distribution System (Continued...) and Flow in Waste Water pipes
- Lecture 33 - Electrical Systems (introduction)
- Lecture 34 - Design of Electrical Systems
- Lecture 35 - Intelligent Building
- Lecture 36 - Life cycle cost and basics of building maintenance
- Lecture 37 - Stages of maintenance management
- Lecture 38 - Planning for building maintenance
- Lecture 39 - Periodicity of maintenance management
- Lecture 40 - Estimation of repair cycle
- Lecture 41 - Cost profile of maintenance
- Lecture 42 - Lamp replacement
- Lecture 43 - Building inspection, Planned and Ad-hoc maintenance
- Lecture 44 - Condition survey and health evaluation of buildings
- Lecture 45 - Diagnosis of building by visual survey
- Lecture 46 - Case studies of visual survey
- Lecture 47 - Effect of corrosion and Alkali Aggregate Reaction
- Lecture 48 - Sampling and choice of test location
- Lecture 49 - Non Destructive Testing - 1
- Lecture 50 - Non Destructive Testing - 2
- Lecture 51 - Core strength test
- Lecture 52 - Carbonation and Chloride measurement
- Lecture 53 - Electrical methods of progress measurement
- Lecture 54 - Repair, Rehabilitation and Retrofit
- Lecture 55 - Periodicity and economics of condition survey
- Lecture 56 - Interpretation of test results



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Sustainable Materials and Green Buildings

Subject Co-ordinator - Dr. B. Bhattacharjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Planet Equivalent

Lecture 2 - Basics of Carbon Cycle

Lecture 3 - Factors Affecting carbon Cycle

Lecture 4 - Fundamentals of Sustainability

Lecture 5 - Role of Materials and Embodied Energy

Lecture 6 - Case Study for Energy in Building

Lecture 7 - Calculation of Ecological Footprint

Lecture 8 - Role of Cement in Sustainability and Calculation of Chemical Exergy

Lecture 9 - Fuel for Cement

Lecture 10 - Cementitious/Supplementary Cementitious Materials and Their Characterization

Lecture 11 - Strength of Concrete With Supplementary Cementitious Materials and Composite Cements

Lecture 12 - Types of Composite Cements

Lecture 13 - Alternative Fuel for cement and Embodied Energy

Lecture 14 - Life Cycle Embodied Energy and Concrete Sustainability

Lecture 15 - Strength of Concrete and Use of Admixtures

Lecture 16 - Curing Methods and Use of Waste Water for Mixing and Curing

Lecture 17 - Modern Composite Concrete

Lecture 18 - Recycled Aggregate-ITZ and Processing

Lecture 19 - Classification of Recycled Aggregate

Lecture 20 - Crushing and Grinding

Lecture 21 - Operational Energy

Lecture 22 - Operational Energy

Lecture 23 - Operational Energy

Lecture 24 - Thermal Diffusivity and Clay Bricks

Lecture 25 - Types of Bricks Kilns and Carbon Balance

Lecture 26 - Carbon Balance, Comparison of Various Types of Brick Kilns and Sealants, Paints, Adhesive

Lecture 27 - Sealants, Health Hazards of Building Materials and Emission Models

Lecture 28 - Emission Models and Testing

Lecture 29 - Energy Efficient Design of Buildings

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design Optimization of Buildings
- Lecture 31 - Building Design Optimization Using Genetic Algorithm
- Lecture 32 - Urban Heat Island
- Lecture 33 - Urban Heat Island
- Lecture 34 - Evapotranspiration
- Lecture 35 - Evapotranspiration
- Lecture 36 - Energy Conservation Building Code (ECBC2007)
- Lecture 37 - Energy Conservation Building Code (ECBC2007) (Continued...)
- Lecture 38 - ECBC Compliant Methodology
- Lecture 39 - OTTV Methodology
- Lecture 40 - Solar Energy and Solar Cells
- Lecture 41 - Solar Photo Volatic Cells
- Lecture 42 - Solar Water Heating
- Lecture 43 - Design Strategies and the Green Design Process
- Lecture 44 - Green Building Rating Systems
- Lecture 45 - Autoclaved Aerated Concrete, Insulated Precast System and Insulated Precast Forms
- Lecture 46 - Insulated Concrete Form and Tunnel Form
- Lecture 47 - Modular Construction

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Scheduling Techniques in Projects

Subject Co-ordinator - Prof. J. Uma Maheswari

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Projects
- Lecture 2 - Inputs to Scheduling
- Lecture 3 - Critical Path Method
- Lecture 4 - Precedence Diagramming Method
- Lecture 5 - Line of Balance Method
- Lecture 6 - Resource-driven Scheduling
- Lecture 7 - Information-driven Scheduling
- Lecture 8 - Dependency Structure Matrix - I
- Lecture 9 - Dependency Structure Matrix - II
- Lecture 10 - Dependency Structure Matrix - III
- Lecture 11 - Beeline Diagramming Method
- Lecture 12 - Other Scheduling Techniques

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Safety in Construction

Subject Co-ordinator - Prof. J. Uma Maheswari

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Safety in Construction
- Lecture 2 - Introduction to Safety Standards; Signs, Signals in Construction
- Lecture 3 - Role of Stakeholders in Construction safety
- Lecture 4 - Cost of Injury Vs Investment in Safety
- Lecture 5 - Safety Program Accident/Incident Investigation
- Lecture 6 - PPE in Construction
- Lecture 7 - A Case Study on Construction Safety
- Lecture 8 - Introduction to Fatal Falls
- Lecture 9 - Fall hazard in Concerting
- Lecture 10 - Fall hazard in Demolition Works
- Lecture 11 - Safety in Demolition Work Practical Examples
- Lecture 12 - Trench Cav-ins
- Lecture 13 - Tunneling Safety
- Lecture 14
- Lecture 15
- Lecture 16
- Lecture 17
- Lecture 18 - Fire Safety and Steel Construction
- Lecture 19 - Electrical Safety
- Lecture 20 - A case Study on Construction Safety - Contractual Provision on Construction Zone Safety
- Lecture 21 - Health Issues in Construction
- Lecture 22 - Ergonomics and Health Issues with Concerting
- Lecture 23 - General Safety Precautions
- Lecture 24 - Safety in MEP Services
- Lecture 25 - Managing Hazards in Construction
- Lecture 26 - BIM for Construction
- Lecture 27 - BIM for Safety

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Advanced Hydraulics

Subject Co-ordinator - Dr. Suresh A Kartha

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - advanced hydraulics & course structure
- Lecture 2 - Various classifications of open channel flows
- Lecture 3 - Flow classifications & velocity distribution
- Lecture 4 - Pressure distribution
- Lecture 5 - Equation of continuity & energy
- Lecture 6 - Specific energy & critical flow
- Lecture 7 - Energy, momentum & specific force
- Lecture 8 - Computation of critical flow - Part 1
- Lecture 9 - Critical flow computations
- Lecture 10 - Introduction to uniform flow
- Lecture 11 - Manning's equation and normal depth
- Lecture 12 - Uniform Flow Computations - Part 1
- Lecture 13 - Uniform flow in compound sections, concept of normal slope
- Lecture 14 - Uniform flow approximation for flood discharge
- Lecture 15 - Design of channels for uniform flow
- Lecture 16 - Design of channels using uniform flow
- Lecture 17 - Design of erodible channels
- Lecture 18 - Introduction to gradually varied flows
- Lecture 19 - Gradually varied flow equations
- Lecture 20 - Classification of gradually varied flow - Part 1
- Lecture 21 - Classification of gradually varied flow - Part 2
- Lecture 22 - Gradually varied flow profiles with change in bed slopes
- Lecture 23 - GVF profile properties and transitional depths
- Lecture 24 - Gradually varied flow computations - Part 1
- Lecture 25 - Gradually varied flow computations RK method - Part 2
- Lecture 26 - Standard step method for gradually varied flow computations
- Lecture 27 - Spatially varied flow
- Lecture 28 - Features on spatially varied flow
- Lecture 29 - Rapidly varied flow - introduction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Theoretical aspects of hydraulic jump
- Lecture 31 - Characteristics of jumps in rectangular channel
- Lecture 32 - Features of hydraulic jumps
- Lecture 33 - Jumps as energy dissipators
- Lecture 34 - Jump controls
- Lecture 35 - Surges - Part 1
- Lecture 36 - Surges - Part 2
- Lecture 37 - Channel transitions - Part 1
- Lecture 38 - Channel transitions - Part 2
- Lecture 39 - Channel transitions - Part 3
- Lecture 40 - Application of momentum principles
- Lecture 41 - Pumps - 1
- Lecture 42 - Turbines - Part 3 (pumps, turbines)
- Lecture 43 - Turbines, cavitation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Design of Steel Structures

Subject Co-ordinator - Prof. Damodar Maity

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Design of Steel Structures
- Lecture 2 - Connections
- Lecture 3 - Riveted Connections
- Lecture 4 - Design of Rivet Joint
- Lecture 5 - Welding
- Lecture 6 - Design of Fillet and Butt Welds
- Lecture 7 - Bolted Connection
- Lecture 8 - Eccentric Connections
- Lecture 9 - Design of Eccentric Connection With Load Lying in Plane of Joint Rivet Bolt
- Lecture 10 - Eccentric Connection With Load Perpendicular to Plane of Riveted Joint
- Lecture 11 - Analysis and Design of Join with Seat Connection
- Lecture 12 - Eccentric Connection
- Lecture 13 - Load Lying Perpendicular to the Plane of Weld Joint
- Lecture 14 - Tension Member
- Lecture 15 - Design of Tension Member
- Lecture 16 - Design of Tension Member
- Lecture 17 - Design of Tension Member
- Lecture 18 - Compression Member
- Lecture 19 - Design of Compression Member
- Lecture 20 - Design of Eccentrically Loaded tension Member
- Lecture 21 - Built up Compression Member
- Lecture 22 - Design of Built up Compression Member
- Lecture 23 - Lacing for Built Up Compression Member
- Lecture 24 - Design of Lacing System
- Lecture 25 - Design of Batten Plates
- Lecture 26 - Introduction to Flexural Members
- Lecture 27 - Design Procedure of Beam Members
- Lecture 28 - Design of Laterally Supported Beams
- Lecture 29 - Design of Laterally Unsupported Beams

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Built-Up Beams
- Lecture 31 - Built-Up Beams
- Lecture 32 - Design of a Built-Up Beams
- Lecture 33 - Design of Shear Connections and Purlins
- Lecture 34 - Gantry Girders
- Lecture 35 - Design of Gantry Girders
- Lecture 36 - Introduction to Plate Girders - Part 1
- Lecture 37 - Introduction to Plate Girders - Part 2
- Lecture 38 - Design of a Plate Girder
- Lecture 39 - Column Base - Part 1
- Lecture 40 - Column Base - Part 2



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Hydraulics

Subject Co-ordinator - Prof. Arup Kumar Sharma

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Hydraulics
- Lecture 2 - Open Channel Hydraulics - Part 1
- Lecture 3 - Open Channel Hydraulics - Part 2
- Lecture 4 - Velocity and Pressure Distribution
- Lecture 5 - Practical use of velocity co-efficient in channel flow
- Lecture 6 - Conservation Principles & Governing Equations
- Lecture 7 - Uniform Flow
- Lecture 8 - Uniform Flow Formula
- Lecture 9 - Computation of Uniform Flow - Part 1
- Lecture 10 - Computation of Uniform Flow - Part 2
- Lecture 11 - Uniform Flow in Mobile Boundary Channel
- Lecture 12 - Incipient Motion Condition and Regime of Flow
- Lecture 13 - Concept of Specific Energy
- Lecture 14 - Computation of Critical Depth
- Lecture 15 - Specific Force, Critical Depth & Sequent Depth
- Lecture 16 - Non-uniform Flow
- Lecture 17 - Classification of Gradually Varied Flow
- Lecture 18 - Characteristic of Gradually Varied Flow
- Lecture 19 - Characteristic of Gradually Varied Flow & its Computation
- Lecture 20 - Gradually Varied Flow & its Computation
- Lecture 21 - Computation of Gradually Varied Flow
- Lecture 22 - Gradually Varied Flow
- Lecture 23 - Rapidly Varied Flow
- Lecture 24 - Hydraulic Jump
- Lecture 25 - Flow Over Hump and Channel Contraction
- Lecture 26 - Canal Design - 1
- Lecture 27 - Canal Design - 2
- Lecture 28 - Design of Alluvial Channel - 1
- Lecture 29 - Design of Alluvial Channel - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design of Alluvial Channel - 3
- Lecture 31 - Unsteady Flow
- Lecture 32 - Unsteady Flow Part - 2
- Lecture 33 - Unsteady Flow Part - 3
- Lecture 34 - Pipe Flow
- Lecture 35 - Pipe Flow
- Lecture 36 - Pipe in Series & Parallel
- Lecture 37 - Pipe Network Analysis
- Lecture 38 - Water Hammer & Surge Tank
- Lecture 39 - Pipe Flow Friction Loss
- Lecture 40 - Pipe Flow

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Higher Surveying

Subject Co-ordinator - Prof. Ajay Dashora

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Higher Surveying
- Lecture 2 - Understanding reference system, reference frame, and coordinate system for Earth
- Lecture 3 - Coordinate and datum transformations
- Lecture 4 - Projected coordinate system
- Lecture 5 - Fundamentals of astronomy
- Lecture 6 - Applications of concepts of astronomy
- Lecture 7 - Time
- Lecture 8 - Application of concepts of astronomy and time
- Lecture 9 - Fundamental concepts of error, accuracy, and error propagation
- Lecture 10 - Applications of error propagation
- Lecture 11 - Observation Equation Method of adjustments
- Lecture 12 - Condition Equation Method and Combined Method of adjustments
- Lecture 13 - Analysis of adjustments and reporting of errors
- Lecture 14 - Global Positioning System (GPS)
- Lecture 15 - Introduction to Photogrammetry
- Lecture 16 - Vertical photogrammetry
- Lecture 17 - Stereo photogrammetry
- Lecture 18 - Analytical photogrammetry - I
- Lecture 19 - Analytical photogrammetry - II
- Lecture 20 - Photogrammetric products
- Lecture 21 - Image matching
- Lecture 22 - Close range photogrammetry
- Lecture 23 - Fundamentals of LiDAR
- Lecture 24 - LiDAR data acquisition
- Lecture 25 - Geolocation and errors of LiDAR data
- Lecture 26 - Information extraction from LiDAR data
- Lecture 27 - RADAR fundamentals - I
- Lecture 28 - RADAR fundamentals - II
- Lecture 29 - RADAR fundamentals - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Radargrammetry
- Lecture 31 - Geoscience perspective for RADAR applications
- Lecture 32 - Fundamental concepts of hydrographic survey
- Lecture 33 - Field procedures for hydrographic Surveying
- Lecture 34 - Modern techniques for hydrographic Survey
- Lecture 35 - Navigation
- Lecture 36 - Conclusive lecture

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Unsaturated Soil Mechanics

Subject Co-ordinator - Dr. Tadikonda Venkata Bharat

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamental Aspects of Unsaturated Soil Mechanics and its Basic Principles
- Lecture 2 - Phases of Unsaturated Soils-I
- Lecture 3 - Phases of Unsaturated Soils-II
- Lecture 4 - Equilibrium between Air and Water Phases
- Lecture 5 - Capillary Phenomenon in Unsaturated Soils - I
- Lecture 6 - Capillary Phenomenon in Unsaturated Soils - II
- Lecture 7 - Summary
- Lecture 8 - Concept of Water Retention and Soil Water Characteristics - I
- Lecture 9 - Concept of Water Retention and Soil Water Characteristics - II
- Lecture 10 - Hydraulic conductivity functions and determination of state variables
- Lecture 11 - Suction Measurement/Control Techniques - I
- Lecture 12 - Suction Measurement/Control Techniques - II
- Lecture 13 - Summary
- Lecture 14 - HCF Determination
- Lecture 15 - SWCC and HCF Models
- Lecture 16 - HCF Modelling
- Lecture 17 - Fitting of SWCC and HCF modelling
- Lecture 18 - Pedo-transfer Functions (PTF)
- Lecture 19 - Steady-State Flow Through Soils
- Lecture 20 - Steady-State and Transient Flow
- Lecture 21 - Analytical Methods for Transient Flow - I
- Lecture 22 - Analytical Methods for Transient Flow - II
- Lecture 23 - Shear Strength of Unsaturated Soils
- Lecture 24 - Suction-Controlled Direct Shear Test
- Lecture 25 - Suction-Controlled Triaxial Test
- Lecture 26 - Extended M-C Criterion - I
- Lecture 27 - Extended M-C Criterion - II
- Lecture 28 - Extended M-C Criterion - III
- Lecture 29 - Concept of Suction Stress - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Concept of Suction Stress - II
- Lecture 31 - Concept of Suction Stress - III
- Lecture 32 - Summary
- Lecture 33 - Swelling Behaviour of Soils
- Lecture 34 - Estimation of Swelling Pressure in the Laboratory and Behaviour of Collapsible soil
- Lecture 35 - Volume Change Behaviour of Bentonite and Kaolin Clay
- Lecture 36 - Demonstration of Various Experiments Related to Unsaturated Soil Mechanics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Subsurface Exploration: Importance and Techniques Involved

Subject Co-ordinator - Prof. Abhishek Kumar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Phases and classification of subsurface Investigation
- Lecture 3 - Test Pits+ Borings
- Lecture 4 - Ground water table and rock drilling
- Lecture 5 - Standard Penetration Test
- Lecture 6 - Cone Penetration Test
- Lecture 7 - Dilatometer Test
- Lecture 8 - Pressuremeter Test
- Lecture 9 - Seismic reflection method
- Lecture 10 - Seismic refraction method
- Lecture 11 - Electrical Resistivity Survey
- Lecture 12 - Magnetic Survey
- Lecture 13 - Surface wave method
- Lecture 14 - Gravity Survey
- Lecture 15 - Offshore Investigation
- Lecture 16 - Geophysical Investigation in Offshore Environment
- Lecture 17 - Sampling and Geotechnical Investigations in Offshore Environment
- Lecture 18 - Important Terminologies in Offshore Environment
- Lecture 19 - Dynamic Testing in Pile Driving
- Lecture 20 - Dynamic Testing in Pile (Low Strain)
- Lecture 21 - Conclusion

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Fluid Mechanics

Subject Co-ordinator - Dr. Subhashisa Dutta

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Concepts of Fluid
- Lecture 2 - Properties of Fluid
- Lecture 3 - Properties of Fluid
- Lecture 4 - Concepts of Hydrostatic
- Lecture 5 - Measurement of Pressure and Hydrostatic forces
- Lecture 6 - Buoyancy, Metacentre, Stability and Rigid body motion
- Lecture 7 - Reynolds Transport Theorem
- Lecture 8 - Conservation of Mass
- Lecture 9 - Conservation of Momentum
- Lecture 10 - Conservation of Momentum Applications
- Lecture 11 - Bernoulli's Equation
- Lecture 12 - Applications of Bernoulli's Equation
- Lecture 13 - Fluid Statics Applications: Example Problems
- Lecture 14 - Conservation of Momentum: Example problems
- Lecture 15 - Bernoulli's Equation: Problems Solving on Black Board
- Lecture 16 - Lagrangian and Eulerian Descriptions
- Lecture 17 - Motion and deformation of fluid elements
- Lecture 18 - Problems Solving on Black Board
- Lecture 19 - Dimensional Homogeneity
- Lecture 20 - Dimensional Analysis and Similarity
- Lecture 21 - Laminar and Turbulent Flows
- Lecture 22 - Losses in Pipe Fittings
- Lecture 23 - Flow in Noncircular Conduits and Multiple Path Pipeflow
- Lecture 24 - Mass Conservation Equation - I
- Lecture 25 - Mass Conservation Equation - II
- Lecture 26 - Stream Function
- Lecture 27 - Cauchy's Equation
- Lecture 28 - The Navier-Stokes Equation - Part I
- Lecture 29 - The Navier-Stokes Equation - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Navier-Stokes Equation - Part III
- Lecture 31 - Approximate solutions of Navier Stokes Equation: Boundary Layer Approximation
- Lecture 32 - Boundary Layer Approximation - II
- Lecture 33 - Boundary Layer Approximation - III
- Lecture 34 - Open Channel Flow - I
- Lecture 35 - Open Channel Flow - II
- Lecture 36 - Open Channel Flow - III
- Lecture 37 - Drag and Lift

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Remote Sensing and GIS

Subject Co-ordinator - Prof. Rishikesh Bharti

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview and Introduction  
Lecture 2 - Basics of Remote Sensing  
Lecture 3 - Error corrections in satellite image  
Lecture 4 - Error Identification and Correction - I  
Lecture 5 - Error Identification and Correction - II  
Lecture 6 - Error Identification and Correction - III  
Lecture 7 - DIP - I  
Lecture 8 - DIP - II  
Lecture 9 - DIP - III  
Lecture 10 - DIP - IV  
Lecture 11 - Image Classification - I  
Lecture 12 - Image Classification - II  
Lecture 13 - Photogrammetry  
Lecture 14 - Thermal Remote Sensing  
Lecture 15 - Microwave Remote Sensing  
Lecture 16 - HRS - I  
Lecture 17 - HRS - II  
Lecture 18 - HRS - III  
Lecture 19 - HRS - IV  
Lecture 20 - HRS - V  
Lecture 21 - GIS - I  
Lecture 22 - GIS - II  
Lecture 23 - Applications of Remote Sensing and GIS - I  
Lecture 24 - Applications of Remote Sensing and GIS - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:River Engineering

Subject Co-ordinator - Dr. Subhashisa Dutta

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to River Engineering
- Lecture 2 - Basic properties of sediment - I
- Lecture 3 - Basic properties of sediment - II
- Lecture 4 - Mass Conservation
- Lecture 5 - Linear Momentum Equation
- Lecture 6 - Navier-Stokes Equations
- Lecture 7 - St. Venant Equation and Solver
- Lecture 8 - Specific Energy and Critical Flow
- Lecture 9 - Hydraulic Jump and Celerity
- Lecture 10 - Floodwave Celerity and Loop Rating Curve
- Lecture 11 - Sediment Transport in River - I
- Lecture 12 - Sediment Transport in River - II
- Lecture 13 - Sediment Transport in River - III
- Lecture 14 - Physical River Models
- Lecture 15 - Bridge Scour
- Lecture 16 - Bridge Scour-II
- Lecture 17 - Jet Scour and River Navigation
- Lecture 18 - River Training Work
- Lecture 19 - Riverbank Stabilization - I
- Lecture 20 - Riverbank Stabilization - II
- Lecture 21 - Riverbank Protection and Control Structures
- Lecture 22 - River Equilibrium - I
- Lecture 23 - River Equilibrium - II
- Lecture 24 - River Equilibrium - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Municipal Solid Waste Management

Subject Co-ordinator - Prof. Ajay Kalamdhad

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to solid waste
- Lecture 2 - Functional elements
- Lecture 3 - Types and sources of solid waste
- Lecture 4 - Sampling and characteristics
- Lecture 5 - Estimation of solid waste quantity
- Lecture 6 - Factors affecting solid waste generation rate
- Lecture 7 - Handling, separation and storage at source
- Lecture 8 - Processing at source
- Lecture 9 - Primary collection
- Lecture 10 - Types of collection system
- Lecture 11 - Analysis of collection system - Part I
- Lecture 12 - Analysis of collection system - Part II
- Lecture 13 - Analysis of collection system - Part III
- Lecture 14 - Need and types of transfer station
- Lecture 15 - Transport means and methods
- Lecture 16 - Unit operation for component separation
- Lecture 17 - Material recovery facilities (MRF)
- Lecture 18 - Recycling of dry waste components
- Lecture 19 - Waste as a fuel
- Lecture 20 - Incineration/Combustion
- Lecture 21 - Flue gas characteristics and treatment
- Lecture 22 - Solid residue generation, characterization and treatment
- Lecture 23 - Waste-to-energy (WtE) plants (case studies) pyrolysis and gasification
- Lecture 24 - Definition and phases of composting
- Lecture 25 - Factors affecting composting process
- Lecture 26 - Types of composting - I
- Lecture 27 - Types of composting - II
- Lecture 28 - Compost quality
- Lecture 29 - Vermicomposting

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Definition, stages and factors affecting anaerobic digestion
- Lecture 31 - Pretreatment and co-digestion for enhancement of biogas production
- Lecture 32 - Types of biogas digesters
- Lecture 33 - Site selection and types of landfill
- Lecture 34 - Leachate collection and treatment
- Lecture 35 - Landfill gas collection and treatment
- Lecture 36 - Design of landfill and Bio-minning of old dumpsite
- Lecture 37 - Construction and demolition waste
- Lecture 38 - Management of bio-mediacal, e-waste and inert waste
- Lecture 39 - Integrated solid waste management (ISWM)
- Lecture 40 - Municipal solid waste management rules
- Lecture 41 - Financing in MSWM projects
- Lecture 42 - Public-Private-Partnership (PPP)
- Lecture 43 - Public-Private-Partnership (PPP) in MSWM projects

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Construction Methods and Equipment Management

Subject Co-ordinator - Prof. Indu Siva Ranjani Gandhi

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Planning process of equipment
- Lecture 2 - Estimation of Ownership cost (Average Annual Investment method)
- Lecture 3 - Estimation of Ownership cost (Time value method)
- Lecture 4 - Operating cost of Equipment
- Lecture 5 - Equipment cost estimation
- Lecture 6 - Equipment life and replacement analysis - Part 1
- Lecture 7 - Equipment life and replacement analysis - Part 2
- Lecture 8 - Equipment life and replacement analysis - Part 3
- Lecture 9 - Engineering Fundamentals of Moving Earth
- Lecture 10 - Bull Dozers
- Lecture 11 - Scrapers - Part 1
- Lecture 12 - Scrapers - Part 2
- Lecture 13 - Front End loaders
- Lecture 14 - Excavators
- Lecture 15 - Trucks
- Lecture 16 - Piles and Pile driving equipment - Part 1
- Lecture 17 - Piles and Pile driving equipment - Part 2
- Lecture 18 - Cranes - Part 1
- Lecture 19 - Cranes - Part 2
- Lecture 20 - Concreting Equipment - Part 1
- Lecture 21 - Concreting Equipment - Part 2
- Lecture 22 - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Advanced Soil Mechanics

Subject Co-ordinator - Prof. Sreedeeep S

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to course content
- Lecture 2 - Stress acting at a point - Cauchy stress
- Lecture 3 - Stress acting at a point - Stress tensor
- Lecture 4 - Stress acting on a plane
- Lecture 5 - Stress acting on a plane example
- Lecture 6 - Transformation of stress tensor
- Lecture 7 - Stress invariants
- Lecture 8 - Relationship between stress invariants
- Lecture 9 - Principle stresses and Eigen vectors
- Lecture 10 - Strain in soils
- Lecture 11 - Cause effect relationship
- Lecture 12 - Important constitutive relationship
- Lecture 13 - 3D to 2D idealization
- Lecture 14 - Mathematical formulation plane stress plane strain
- Lecture 15 - Mathematical formulation axisymmetric
- Lecture 16 - Summary of Module 1
- Lecture 17 - Basics of shear strength
- Lecture 18 - Stress representation
- Lecture 19 - Shear strength granular soil - I
- Lecture 20 - Shear strength granular soil - II
- Lecture 21 - Shear strength cohesive soil
- Lecture 22 - Shear strength cohesive soil - Stress strain
- Lecture 23 - Pore water pressure and Skemptions equation
- Lecture 24 - Overall pore water pressure parameter
- Lecture 25 - Pore water pressure - plane strain-effect of sampling
- Lecture 26 - Pore water pressure estimation
- Lecture 27 - Triaxial test
- Lecture 28 - Interpretation triaxial test - UU UCS
- Lecture 29 - Interpretation triaxial test - CU

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interpretation triaxial test - CD
- Lecture 31 - Some additional aspects of shear strength
- Lecture 32 - Summary of Module 2
- Lecture 33 - Stress path and representation
- Lecture 34 - Failure line in stress path
- Lecture 35 - Stress path-some common cases - I
- Lecture 36 - Stress path-some common cases - II
- Lecture 37 - Stress path-triaxial test-drained
- Lecture 38 - Stress path-triaxial test-undrained
- Lecture 39 - Stress path-additional undrained case
- Lecture 40 - Stress path-field cases - I
- Lecture 41 - Stress path-field cases - II
- Lecture 42 - Stress path problems
- Lecture 43 - Summary of Module 3
- Lecture 44 - Introduction-critical state soil mechanics
- Lecture 45 - Introduction-critical state soil mechanics
- Lecture 46 - CSSM-2 D representation
- Lecture 47 - Peak state
- Lecture 48 - Soil yielding
- Lecture 49 - Cam clay
- Lecture 50 - Modified Cam clay
- Lecture 51 - Prediction of soil behavior from MCCM
- Lecture 52 - Prediction of soil behavior from MCCM
- Lecture 53 - Strain from MCCM
- Lecture 54 - State boundary surface
- Lecture 55 - CSSM problems
- Lecture 56 - Summary of Module 4
- Lecture 57 - Closure of Advanced Soil Mechanics Course



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Plates and Shells

Subject Co-ordinator - Prof. Sudip Talukdar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, classification of plates and some useful relations
- Lecture 2 - Theory of thin plate bending
- Lecture 3 - Plate equations and boundary conditions with examples
- Lecture 4 - Exercises on the plate bending theory
- Lecture 5 - Simply supported plate subjected to distributed loading
- Lecture 6 - Simply supported plate subjected to concentrated load and couple
- Lecture 7 - Simply supported plate resting on elastic foundation and other examples
- Lecture 8 - General formulation for rectangular plate with two opposite edges simply supported
- Lecture 9 - Levy's solution for different loading and boundary conditions
- Lecture 10 - Rectangular plate with Levy's boundary condition subjected to edge moment
- Lecture 11 - Transformation of plate equation from rectangular co-ordinates to polar co-ordinates
- Lecture 12 - Axi-symmetrical bending of circular plate under pure moment and uniformly distributed load
- Lecture 13 - Examples in axisymmetrical bending of solid and annular plate
- Lecture 14 - Variational principle in plate problem
- Lecture 15 - Applications of Rayleigh-Ritz and Gallerkin's method
- Lecture 16 - Finite difference method in plate bending
- Lecture 17 - Plate subjected to inplane forces and transverse load
- Lecture 18 - Buckling load of rectangular plate with Navier's boundary condition
- Lecture 19 - Buckling load of rectangular with Levy's boundary condition
- Lecture 20 - Rayleigh-Ritz and Gallerkin method in buckling of plate
- Lecture 21 - Finite difference method in buckling of plate
- Lecture 22 - Introduction to shell structure and behavior of stretched membrane
- Lecture 23 - Classification of shell structure
- Lecture 24 - Stress resultants and couples in shells
- Lecture 25 - Membrane analysis of shells of surface of revolution
- Lecture 26 - Analysis of Spherical dome
- Lecture 27 - Some examples of axi-symmetrical cases in surface of revolution
- Lecture 28 - Membrane theory in pressure vessels
- Lecture 29 - Membrane theory in pressure vessel in the form a Torus and in a tank of arbitrary meridian

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Membrane theory of hyperboloid of revolution: Application to cooling tower
- Lecture 31 - Differential Equations of Equilibrium in Cylindrical shell using membrane hypothesis
- Lecture 32 - Membrane Analysis of Cylindrical Shell roof subjected to self weight and snow load
- Lecture 33 - Circular Cylindrical Shell for Fourier Loading in a membrane state of stress
- Lecture 34 - Simplified Bending Theory of Cylindrical Shell-Beam and Arch theories
- Lecture 35 - General bending theory of cylindrical shell
- Lecture 36 - Some applications of symmetrical bending of circular cylindrical shell

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Optimization methods for Civil engineering

Subject Co-ordinator - Prof. Rajib Kumar Bhattacharjya

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Optimization
- Lecture 2 - Classical Optimization
- Lecture 3 - Introduction to Linear Problem
- Lecture 4 - General system of equations
- Lecture 5 - Simplex Method
- Lecture 6 - Solution of Linear Problem using Excel Solver
- Lecture 7 - Bracketing Method
- Lecture 8 - Region Elimination Methods
- Lecture 9 - Gradient Based Method and Examples
- Lecture 10 - Convex Function
- Lecture 11 - Line Search Methods for Multi-Variable Problems
- Lecture 12 - Quadratic Approximation Method
- Lecture 13 - Constrained Optimization I: Equality constraints
- Lecture 14 - Constrained Optimization II: Inequality constraints
- Lecture 15 - Constrained Optimization III: Penalty function methods
- Lecture 16 - Introduction to Metaheuristic Optimization
- Lecture 17 - Genetic Algorithms - Part I
- Lecture 18 - Genetic Algorithms - Part II
- Lecture 19 - Genetic Algorithms - Part III
- Lecture 20 - Real Coded Genetic Algorithms
- Lecture 21 - Multi-modal optimization
- Lecture 22 - Introduction to R
- Lecture 23 - GA using R (Unconstrained problem)
- Lecture 24 - GA using R (Constrained problem)
- Lecture 25 - Constraint Handling in GAs
- Lecture 26 - Evolution Strategies (ESs)
- Lecture 27 - Particle swarm optimization
- Lecture 28 - Introduction to R - Part II
- Lecture 29 - Multi-objective Genetic Algorithms

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Differential Evolution
- Lecture 31 - Introduction to Matlab
- Lecture 32 - Optimization using Matlab (Classical methods)
- Lecture 33 - A tutorial on Differential Evolution
- Lecture 34 - NSGA II Using R
- Lecture 35 - Optimization using MATLAB
- Lecture 36 - Optimization using Excel Solver
- Lecture 37 - Multi-objective Genetic Algorithms using MATLAB
- Lecture 38 - Solution of a Design Problem Using MATLAB

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Engineering Hydrology

Subject Co-ordinator - Prof. Sreeja Pekkat

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Contents
- Lecture 2 - Preliminary Concepts
- Lecture 3 - Introduction to Reynolds Transport Theorem
- Lecture 4 - Derivation of Reynolds Transport Theorem - Part I
- Lecture 5 - Derivation of Reynolds Transport Theorem - Part II
- Lecture 6 - Conservation Laws
- Lecture 7 - Numerical Examples
- Lecture 8 - Summary of Module - I
- Lecture 9 - Atmospheric Water
- Lecture 10 - Water Vapor Dynamics
- Lecture 11 - Precipitable Water in the Static Atmospheric Column
- Lecture 12 - Numerical Examples on Basic Atmospheric Parameters
- Lecture 13 - Precipitation-Types and Formation
- Lecture 14 - Terminal Velocity
- Lecture 15 - Thunderstorm Cell Model
- Lecture 16 - Numerical Examples on Terminal Velocity and Thunderstorm Cell
- Lecture 17 - Forms of Precipitation
- Lecture 18 - Measurement of rainfall
- Lecture 19 - Raingauge Network
- Lecture 20 - Presentation of Rainfall Data
- Lecture 21 - Analysis of Rainfall Data
- Lecture 22 - Average Areal Rainfall
- Lecture 23 - Evaporation
- Lecture 24 - Evaporation-Energy Balance Method
- Lecture 25 - Evaporation-Aerodynamic Method
- Lecture 26 - Evaporation-Combined Method
- Lecture 27 - Numerical Examples on Evaporation
- Lecture 28 - Evaporation-Empirical method
- Lecture 29 - Evapotranspiration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Evapotranspiration-Numerical Example
- Lecture 31 - Summary of Module - II
- Lecture 32 - Subsurface Water
- Lecture 33 - 1-D Unsteady Unsaturated Flow Equation
- Lecture 34 - Infiltration
- Lecture 35 - Measurement of Infiltration
- Lecture 36 - Estimation of Infiltration-Empirical Equations
- Lecture 37 - Numerical examples - Infiltration estimation using empirical equations
- Lecture 38 - Estimation of Infiltration-Theoretical Equation
- Lecture 39 - Infiltration-Green Ampt Equation
- Lecture 40 - Ponding time
- Lecture 41 - Numerical Examples on Green Ampt Infiltration Equation
- Lecture 42 - Summary of Module - III
- Lecture 43 - Surface Water
- Lecture 44 - Excess Rainfall and Direct Runoff
- Lecture 45 - Numerical Examples on Direct Runoff
- Lecture 46 - Overland flow
- Lecture 47 - Streamflow Measurement - I
- Lecture 48 - Streamflow Measurement - II
- Lecture 49 - Representation of Streamflow
- Lecture 50 - Numerical Examples on Streamflow Measurement
- Lecture 51 - Summary of Module - IV
- Lecture 52 - Hydrologic Analysis - Introduction
- Lecture 53 - Linear System Theory
- Lecture 54 - Hydrograph Analysis-UH
- Lecture 55 - Hydrograph Analysis-DRH
- Lecture 56 - Numerical examples on UH and DRH
- Lecture 57 - S-Hydrograph
- Lecture 58 - Unit Hydrograph of Different Duration
- Lecture 59 - Numerical examples UH of Different Duration
- Lecture 60 - Instantaneous Unit Hydrograph
- Lecture 61 - Instantaneous Unit Hydrograph-Nash's Model
- Lecture 62 - Numerical Examples on IUH
- Lecture 63 - Synthetic Unit Hydrograph
- Lecture 64 - SCS-Synthetic Unit Hydrograph
- Lecture 65 - Numerical Examples on SUH
- Lecture 66 - Hydrograph Routing
- Lecture 67 - Reservoir Routing
- Lecture 68 - Numerical Example on Reservoir Routing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Hydrologic Channel Routing
- Lecture 70 - Numerical Examples on Channel Routing
- Lecture 71 - Summary of Module - V
- Lecture 72 - Hydrologic Statistics-Preliminary Concepts
- Lecture 73 - Probability Distribution and Basic Descriptive Statistics
- Lecture 74 - Probability Distributions
- Lecture 75 - Frequency Analysis
- Lecture 76 - Extreme Value Analysis
- Lecture 77 - Summary of Module - VI
- Lecture 78 - Hydrologic Design
- Lecture 79 - Numerical examples on probability and risk
- Lecture 80 - Design Storm
- Lecture 81 - Design Flood
- Lecture 82 - Summary of Module - VII
- Lecture 83 - Closure of Engineering Hydrology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Expansive Soil

Subject Co-ordinator - Prof. Anil Kumar Mishra

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Formation of soil
- Lecture 2 - Index properties and classification of soil
- Lecture 3 - Engineering properties of soil - I
- Lecture 4 - Engineering properties of soil - II
- Lecture 5 - Clay mineralogy
- Lecture 6 - Properties of clay particles
- Lecture 7 - Definition, type and behaviour
- Lecture 8 - Mechanism of soil-water interaction
- Lecture 9 - Swelling of expansive soil
- Lecture 10 - Factors controlling DDL thickness
- Lecture 11 - Determination of swelling properties
- Lecture 12 - Classification and prediction
- Lecture 13 - Factors controlling swelling of soil
- Lecture 14 - Shrinkage behaviour of soil
- Lecture 15 - Factors controlling shrinkage behavior of soils
- Lecture 16 - Measurement of various shrinkage characteristics of soil
- Lecture 17 - Cyclic Swelling-Shrinkage Behaviour of Soil
- Lecture 18 - Thermo-Mechanical-Hydraulic-Chemical Behaviour - I
- Lecture 19 - Thermo-Mechanical-Hydraulic-Chemical Behaviour - II
- Lecture 20 - Thermo-Mechanical-Hydraulic-Chemical Behaviour - III
- Lecture 21 - Mechanical Methods
- Lecture 22 - Hydraulic methods
- Lecture 23 - Chemical methods - 1
- Lecture 24 - Chemical methods - 2
- Lecture 25 - By inclusion or confinement
- Lecture 26 - Foundation on expansive soil
- Lecture 27 - Use of expansive soil for various geotechnical engineering applications
- Lecture 28 - Closure lecture

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Vibration of Continuous Systems

Subject Co-ordinator - Prof. Sudip Talukdar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General Introduction and Modelling of Dynamic Systems
- Lecture 2 - Time Domain Analysis of Linear System - Harmonic input
- Lecture 3 - Time Domain Analysis of Linear System - Arbitrary Input
- Lecture 4 - Transformed technique in vibration of linear system
- Lecture 5 - Formulation of problem: Equilibrium Approach
- Lecture 6 - Formulation of problem by Energy Principle
- Lecture 7 - Hamilton's principles for formulating vibration problems
- Lecture 8 - Lagrange's equation for formulating vibration problems
- Lecture 9 - One Dimensional Wave Equation
- Lecture 10 - D'Alembert's Solution of the Wave Equation
- Lecture 11 - Transverse Vibration of String
- Lecture 12 - Forced Transverse Vibration of String
- Lecture 13 - Axial Vibration of Bar
- Lecture 14 - Torsional Vibration of Bar
- Lecture 15 - Some typical problems in axial and torsional vibrations
- Lecture 16 - Transverse vibration of beams
- Lecture 17 - Natural frequencies and mode shapes of beams with various end conditions
- Lecture 18 - Free damped transverse vibration analysis of beam
- Lecture 19 - Forced damped vibration analysis of Euler Bernoulli beam
- Lecture 20 - Vibration of beams subjected to moving load
- Lecture 21 - Some special topics on the transverse vibration of beam
- Lecture 22 - Combination of continuous and lumped parameter system
- Lecture 23 - State space solutions in vibration problems
- Lecture 24 - Beam with moving oscillator, pulsating force and rolling mass
- Lecture 25 - Vibration of membrane
- Lecture 26 - Vibration of Circular membrane
- Lecture 27 - Vibration of Rectangular plate
- Lecture 28 - Free vibration of rectangular plates
- Lecture 29 - Forced vibration of rectangular plates

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Approximate method for vibration analysis
- Lecture 31 - Rayleigh-Ritz method for vibration analysis
- Lecture 32 - Gallerkin's method and Finite difference method
- Lecture 33 - System subjected to support excitation
- Lecture 34 - Response of continuous systems to transient excitations
- Lecture 35 - Shock spectrum due to half sine pulse
- Lecture 36 - Numerical Evaluation of Duhamel Integral
- Lecture 37 - Direct Integration Methods
- Lecture 38 - Spectral Analysis of structures for earthquake excitation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Reliability-Based Structural Design

Subject Co-ordinator - Dr. Arunasis Chakarborty

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Random Variable  
Lecture 3 - Functions of Random Variables  
Lecture 4 - Joint Distributions  
Lecture 5 - Mt. Gen. Func. and CLT  
Lecture 6 - Theory of Estimation  
Lecture 7 - Goodness of Fit  
Lecture 8 - MVFOSM  
Lecture 9 - MVFOSM (Continued...)  
Lecture 10 - Hasofer-Lind Rel. Index  
Lecture 11 - Rackwitz's Algorithm (Continued...)  
Lecture 12 - HL-RF for Non-Normal Problems  
Lecture 13 - HL-RF for Correlated Problems  
Lecture 14 - FORM using MATLAB  
Lecture 15 - FORM using MATLAB (Continued...)  
Lecture 16 - FORM Using FEM  
Lecture 17 - Morgenstern Model  
Lecture 18 - Nataf Model  
Lecture 19 - Rosenblatt Transformation  
Lecture 20 - Brietung's Model  
Lecture 21 - Tvedt's Model  
Lecture 22 - Monte-Carlo Simulation  
Lecture 23 - Importance Sampling  
Lecture 24 - Least Square Curve Fitting  
Lecture 25 - Orthogonal Polynomials  
Lecture 26 - RSM  
Lecture 27 - Stochastic Response Surface Method  
Lecture 28 - Moving Least Square Method  
Lecture 29 - Adaptive-SRSM

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Partial Safety Factors
- Lecture 31 - Optimal Partial Safety Factors
- Lecture 32 - FORM - Revisited
- Lecture 33 - Subset Simulation
- Lecture 34 - Applications
- Lecture 35 - Applications (Continued...)
- Lecture 36 - Introduction to Stochastic FEM

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Applied Seismology for Engineers

Subject Co-ordinator - Prof. Abhishek Kumar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Plate tectonics and continental drift theory
- Lecture 2 - Fault Plane Solution - Part 1
- Lecture 3 - Fault Plane Solution - Part 2
- Lecture 4 - Fault Plane Solution (Stereonet)
- Lecture 5 - Seismic gaps
- Lecture 6 - Analogy of active and inactive fault
- Lecture 7 - Seismic waves and their use in locating EQ epicentre
- Lecture 8 - EQ Intensity, magnitude and wave attenuation
- Lecture 9 - Seismic source characterization and seismic activity
- Lecture 10 - Earthquake catalogue preparation and seismic activity parameters
- Lecture 11 - Ground motion simulation models and GMPEs
- Lecture 12 - Deterministic seismic hazard analysis (DSHA)
- Lecture 13 - Probabilistic seismic hazard analysis (PSHA)
- Lecture 14 - One Dimensional equation of motion: P wave
- Lecture 15 - One Dimensional equation of motion: S wave
- Lecture 16 - Solution to 1D equation of motion: S wave
- Lecture 17 - Local Site Effect (LSE) and Ground Response Analysis - Part I
- Lecture 18 - Local Site Effect (LSE) and Ground Response Analysis - Part II
- Lecture 19 - Ground Response Analysis - Part III
- Lecture 20 - Ground Response Analysis - Part IV
- Lecture 21 - State Criteria for Liquefaction - Part 1
- Lecture 22 - State Criteria for Liquefaction - Part 2
- Lecture 23 - Initiation of Liquefaction
- Lecture 24 - Assessment of Liquefaction Potential
- Lecture 25 - Paleoliquefaction
- Lecture 26 - Seismic Microzonation
- Lecture 27 - Landslides: Introduction and classification
- Lecture 28 - Seismic vulnerability and risk - Part 1
- Lecture 29 - Seismic vulnerability and risk - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Seismic vulnerability and risk - Part 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Structural Vibration

Subject Co-ordinator - Prof. Arunasis Chakarborty

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - D'Alembert Principle and Degrees of Freedom
- Lecture 2 - Simple Harmonic Motion
- Lecture 3 - Examples
- Lecture 4 - Undamped Free Vibration
- Lecture 5 - Damped free vibration
- Lecture 6 - Logarithmic Decrement and Coulomb Damped Free Vibration
- Lecture 7 - Structural Damping
- Lecture 8 - Damped Forced Vibration
- Lecture 9 - Response due to Harmonic Excitation
- Lecture 10 - Response due to Harmonic Excitation (Continued...)
- Lecture 11 - Examples Set 1
- Lecture 12 - Transmissibility and Support Motion Problem
- Lecture 13 - Examples Set 2
- Lecture 14 - Impulse Response function
- Lecture 15 - Duhamel's Integral
- Lecture 16 - Response in Frequency Domain
- Lecture 17 - Response due to Periodic and Non Periodic Excitations
- Lecture 18 - Nigam and Jennings and Central Difference method
- Lecture 19 - Wilson Theta and Newmark Method
- Lecture 20 - MATLAB Examples
- Lecture 21 - Response Spectrum
- Lecture 22 - MATLAB Code Generation
- Lecture 23 - Generalized SDOF system
- Lecture 24 - Rayleigh's Method and Calculus of Variation
- Lecture 25 - Hamilton's Principle to Lagrange Equation
- Lecture 26 - D'Alembert's Principle to Lagrange Equation
- Lecture 27 - Hamilton's Canonical Form
- Lecture 28 - Natural Frequencies and Mode shapes of MDOF system
- Lecture 29 - Modal Orthogonality and Modal Decomposition

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Rayleigh Damping Model and Free Vibration
- Lecture 31 - Response Analysis in Time Domain
- Lecture 32 - Response Analysis in Frequency Domain
- Lecture 33 - Response History Analysis
- Lecture 34 - Response Spectrum Analysis
- Lecture 35 - Model Reduction Techniques
- Lecture 36 - Free Vibration of Beams
- Lecture 37 - Forced Vibration of Beams
- Lecture 38 - FE Modelling and Modal Analysis of a Building
- Lecture 39 - Modal Superposition Analysis of a Building
- Lecture 40 - Response Spectrum Analysis of a Building
- Lecture 41 - Modal Analysis of a Steel Bridge



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Advanced Hydrology

Subject Co-ordinator - Dr. Ashu Jain

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42  
Lecture 43  
Lecture 44

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Concrete Engineering and Technology

Subject Co-ordinator - Dr. Sudhir Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and course overview
- Lecture 2 - Constituents of concrete - Part 1 of 2
- Lecture 3 - Constituents of concrete - Part 2 of 2
- Lecture 4 - Admixtures in concrete â mineral and chemical
- Lecture 5 - Hydration of cement
- Lecture 6 - Basic properties of concrete
- Lecture 7 - Proportioning of concrete mixes - Part 1 of 3
- Lecture 8 - Proportioning of concrete mixes - Part 2 of 3
- Lecture 9 - Proportioning of concrete mixes - Part 3 of 3
- Lecture 10 - Pores and porosity in concrete
- Lecture 11 - Porosimetry â measuring pores in concrete
- Lecture 12 - Principles of quality control in concrete construction
- Lecture 13 - Quality control and acceptance criteria for concrete based on compressive strength
- Lecture 14 - Fibre reinforced concrete
- Lecture 15 - High strength concrete
- Lecture 16 - Mass concrete - Part 1 of 2
- Lecture 17 - Mass concrete - Part 2 of 2
- Lecture 18 - Concreting in cold weather
- Lecture 19 - Concreting in hot weather
- Lecture 20 - Roller compacted concrete
- Lecture 21 - Self-compacting concrete
- Lecture 22 - Testing self-compacting concrete
- Lecture 23 - Shotcrete and underwater concrete
- Lecture 24 - Alkali â aggregate reaction - Part 1 of 2
- Lecture 25 - Alkali â aggregate reaction - Part 2 of 2
- Lecture 26 - Reinforcement corrosion in concrete
- Lecture 27 - Chloride penetration in concrete
- Lecture 28 - Using epoxy-coated bars in concrete structures
- Lecture 29 - Using FRP as reinforcement in concrete structures - Part 1 of 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Using FRP as reinforcement in concrete structures - Part 2 of 2
- Lecture 31 - Grouting and importance of formwork in concrete construction
- Lecture 32 - Carbonation and freezing & thawing in concrete structures
- Lecture 33 - Using recycled aggregates in concrete construction
- Lecture 34 - Basic non-destructive testing for concrete structures
- Lecture 35 - Measuring permeability in concrete
- Lecture 36 - Some additional topics
- Lecture 37 - Considerations in repair of concrete structures - Part 1 of 2
- Lecture 38 - Considerations in repair of concrete structures - Part 2 of 2
- Lecture 39 - Laboratory demonstration
- Lecture 40 - Review of the course

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Environmental Air Pollution

Subject Co-ordinator - Prof. Mukesh Sharma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Atmosphere
- Lecture 2 - Air Pollution Systems
- Lecture 3 - Air Quality Standards
- Lecture 4 - Types and Forms of Air Pollutants
- Lecture 5 - Measurement Units and Particulate classification
- Lecture 6 - Interpretation and Particle size Distribution
- Lecture 7 - Atmospheric formation of Air Pollutants - I
- Lecture 8 - Atmospheric formation of Air Pollutants - II
- Lecture 9 - Atmospheric formation of Air Pollutants - III
- Lecture 10 - Kinetics of Air pollution and combustion processes
- Lecture 11 - Internal Combustion Engine and Air Pollution - I
- Lecture 12 - Internal Combustion Engine and Air Pollution - II
- Lecture 13 - Air Pollution and Health - I
- Lecture 14 - Air Pollution and Health - II
- Lecture 15 - Emission Inventory
- Lecture 16 - Sources of Air Pollution
- Lecture 17 - Emission from Fugitive Sources and Sulfuric Acid Production
- Lecture 18 - Aluminium Production and Air Pollution - I
- Lecture 19 - Aluminium Production and Air Pollution - II
- Lecture 20 - Coke Production and Air Pollution
- Lecture 21 - Examples for Practice
- Lecture 22 - Meteorological Measurements and their interpretation
- Lecture 23 - Examples for Practice - Dispersion Modeling
- Lecture 24 - Vertical Temperature Profile of Atmosphere
- Lecture 25 - Stability, Mixing Height and Plume Behavior - I
- Lecture 26 - Stability, Mixing Height and Plume Behavior - II
- Lecture 27 - Examples - Solar Radiation Based Stability Calculation
- Lecture 28 - Air Quality Modeling - I
- Lecture 29 - Air Quality Modeling - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Derivation of Gaussian Model
- Lecture 31 - Gaussian Model - Useful Formulation
- Lecture 32 - Plume rise, Area and Line Source Model
- Lecture 33 - Air Quality Modeling - Maximum Ground Level concentration
- Lecture 34 - Examples of Air Quality Modeling
- Lecture 35 - Air Pollution Control Devices - I
- Lecture 36 - Air Pollution Control Devices - II
- Lecture 37 - Source Emission Monitoring
- Lecture 38 - Receptor Source Modeling
- Lecture 39 - Environmental laws

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Surveying

Subject Co-ordinator - Dr. Bharat Lohani

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Module 1 - Lecture 1  
Module 2 - Lecture 1  
Module 2 - Lecture 2  
Module 2 - Lecture 3  
Module 2 - Lecture 4  
Module 2 - Lecture 5  
Module 3 - Lecture 1  
Module 3 - Lecture 2  
Module 3 - Lecture 3  
Module 3 - Lecture 4  
Module 4 - Lecture 1  
Module 4 - Lecture 2  
Module 5 - Lecture 1  
Module 5 - Lecture 2  
Module 5 - Lecture 3  
Module 5 - Lecture 4  
Module 5 - Lecture 5  
Module 5 - Lecture 6  
Module 6 - Lecture 1  
Module 6 - Lecture 2  
Module 6 - Lecture 3  
Module 7 - Lecture 1  
Module 7 - Lecture 2  
Module 7 - Lecture 3  
Module 7 - Lecture 4  
Module 7 - Lecture 5  
Module 8 - Lecture 1  
Module 8 - Lecture 2  
Module 9 - Lecture 1

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Module 9 - Lecture 2  
Module 9 - Lecture 3  
Module 9 - Lecture 4  
Module 9 - Lecture 5  
Module 10 - Lecture 1  
Module 11 - Lecture 1  
Module 11 - Lecture 2  
Module 11 - Lecture 3  
Module 12 - Lecture 1  
Module 12 - Lecture 2  
Module 12 - Lecture 3



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Water Resources Engineering

Subject Co-ordinator - Dr. Pranab K Mohapatra, Prof. Rajesh Srivastava

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

Lecture 21

Lecture 22

Lecture 23

Lecture 24

Lecture 25 (Lecture Missing)

Lecture 26

Lecture 27

Lecture 28

Lecture 29

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Geotechnical Measurements and Explorations

Subject Co-ordinator - Dr. Nihar Ranjan Patra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Geotechnical Measurements & Explorations  
Lecture 2 - Geotechnical Measurements & Explorations  
Lecture 3 - Geotechnical Measurements & Explorations  
Lecture 4 - Geotechnical Measurements & Explorations  
Lecture 5 - Geotechnical Measurements & Explorations  
Lecture 6 - Geotechnical Measurements & Explorations  
Lecture 7 - Geotechnical Measurements & Explorations  
Lecture 8 - Geotechnical Measurements & Explorations  
Lecture 9 - Geotechnical Measurements & Explorations  
Lecture 10 - Geotechnical Measurements & Explorations  
Lecture 11 - Geotechnical Measurements & Explorations  
Lecture 12 - Geotechnical Measurements & Explorations  
Lecture 13 - Geotechnical Measurements & Explorations  
Lecture 14 - Geotechnical Measurements & Explorations  
Lecture 15 - Geotechnical Measurements & Explorations  
Lecture 16 - Geotechnical Measurements & Explorations  
Lecture 17 - Geotechnical Measurements & Explorations  
Lecture 18 - Geotechnical Measurements & Explorations  
Lecture 19 - Geotechnical Measurements & Explorations  
Lecture 20 - Geotechnical Measurements & Explorations  
Lecture 21 - Geotechnical Measurements & Explorations  
Lecture 22 - Geotechnical Measurements & Explorations  
Lecture 23 - Geotechnical Measurements & Explorations  
Lecture 24 - Geotechnical Measurements & Explorations  
Lecture 25 - Geotechnical Measurements & Explorations  
Lecture 26 - Geotechnical Measurements & Explorations  
Lecture 27 - Geotechnical Measurements & Explorations  
Lecture 28 - Geotechnical Measurements & Explorations  
Lecture 29 - Geotechnical Measurements & Explorations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Geotechnical Measurements & Explorations  
Lecture 31 - Geotechnical Measurements & Explorations  
Lecture 32 - Geotechnical Measurements & Explorations  
Lecture 33 - Geotechnical Measurements & Explorations  
Lecture 34 - Geotechnical Measurements & Explorations  
Lecture 35 - Geotechnical Measurements & Explorations  
Lecture 36 - Geotechnical Measurements & Explorations  
Lecture 37 - Geotechnical Measurements & Explorations  
Lecture 38 - Geotechnical Measurements & Explorations  
Lecture 39 - Geotechnical Measurements & Explorations  
Lecture 40 - Geotechnical Measurements & Explorations

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Application of Soil Mechanics

Subject Co-ordinator - Dr. Nihar Ranjan Patra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Application of Soil Mechanics  
Lecture 2 - Application of Soil Mechanics  
Lecture 3 - Application of Soil Mechanics  
Lecture 4 - Application of Soil Mechanics  
Lecture 5 - Application of Soil Mechanics  
Lecture 6 - Application of Soil Mechanics  
Lecture 7 - Application of Soil Mechanics  
Lecture 8 - Application of Soil Mechanics  
Lecture 9 - Application of Soil Mechanics  
Lecture 10 - Application of Soil Mechanics  
Lecture 11 - Application of Soil Mechanics  
Lecture 12 - Application of Soil Mechanics  
Lecture 13 - Application of Soil Mechanics  
Lecture 14 - Application of Soil Mechanics  
Lecture 15 - Application of Soil Mechanics  
Lecture 16 - Application of Soil Mechanics  
Lecture 17 - Application of Soil Mechanics  
Lecture 18 - Application of Soil Mechanics  
Lecture 19 - Application of Soil Mechanics  
Lecture 20 - Application of Soil Mechanics  
Lecture 21 - Application of Soil Mechanics  
Lecture 22 - Application of Soil Mechanics  
Lecture 23 - Application of Soil Mechanics  
Lecture 24 - Application of Soil Mechanics  
Lecture 25 - Application of Soil Mechanics  
Lecture 26 - Application of Soil Mechanics  
Lecture 27 - Application of Soil Mechanics  
Lecture 28 - Application of Soil Mechanics  
Lecture 29 - Application of Soil Mechanics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Application of Soil Mechanics  
Lecture 31 - Application of Soil Mechanics  
Lecture 32 - Application of Soil Mechanics  
Lecture 33 - Application of Soil Mechanics  
Lecture 34 - Application of Soil Mechanics  
Lecture 35 - Application of Soil Mechanics  
Lecture 36 - Application of Soil Mechanics  
Lecture 37 - Application of Soil Mechanics  
Lecture 38 - Application of Soil Mechanics  
Lecture 39 - Application of Soil Mechanics  
Lecture 40 - Application of Soil Mechanics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geology and Soil Mechanics

Subject Co-ordinator - Dr. Priyanka Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Description of soil, Engineering Geology Of Soils and Thier Formation
- Lecture 2 - Index Properties Of Soil
- Lecture 3 - Index Properties Of Soil - A
- Lecture 4 - Index Properties Of Soil - B
- Lecture 5 - Index Properties Of Soil - C
- Lecture 6 - Index Properties Of soil - D
- Lecture 7 - Classification Of Soils - A
- Lecture 8 - Classification Of Soils - B
- Lecture 9 - Classification Of Soils And Clay Mineralogy - A
- Lecture 10 - Classification Of Soils And Clay Mineralogy - B
- Lecture 11 - Soil compaction - A
- Lecture 12 - Soil compaction - B
- Lecture 13 - Soil compaction - C
- Lecture 14 - Soil compaction - D
- Lecture 15 - Soil compaction and Permeability
- Lecture 16 - Permeability - A
- Lecture 17 - Permeability - B
- Lecture 18 - Permeability - C
- Lecture 19 - Problems on permeability
- Lecture 20 - Seepage
- Lecture 21 - Seepage - A
- Lecture 22 - Seepage - B
- Lecture 23 - Seepage and In situ stress
- Lecture 24 - In situ stresses - A
- Lecture 25 - In situ stresses - B
- Lecture 26 - In situ stresses - A
- Lecture 27 - In situ stresses - B
- Lecture 28 - In situ stresses - C
- Lecture 29 - Consolidation - A

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Consolidation - B
- Lecture 31 - Consolidation - A
- Lecture 32 - Consolidation - B
- Lecture 33 - Consolidation - C
- Lecture 34 - Consolidation - D
- Lecture 35 - Consolidation - E
- Lecture 36 - Consolidation - F
- Lecture 37 - Shear strength of Soil - A
- Lecture 38 - Shear strength of Soil - B
- Lecture 39 - Shear strength of Soil - C
- Lecture 40 - Shear Strength of Soils
- Lecture 41 - Shear Strength of Soils.
- Lecture 42 - Shear Strength of Soils..
- Lecture 43 - Shear strength of Soil
- Lecture 44 - Shear strength of Soil- e
- Lecture 45 - Shear strength of Soil\_B
- Lecture 46 - Problem on shear strength of soil
- Lecture 47 - Problem on shear strength of soil -a
- Lecture 48 - Problem on shear strength of soil -a
- Lecture 49 - Earth Pressure on retaining wall
- Lecture 50 - Earth Pressure on retaining wall -A
- Lecture 51 - Tutorial on Index properties of soil
- Lecture 52 - Tutorial on compaction
- Lecture 53 - Tutorial on Permeability - a
- Lecture 54 - Tutorial on Permeability - b
- Lecture 55 - Tutorial On Consoildation
- Lecture 56 - Tutorial on consoildation - a
- Lecture 57 - Tutorial on Sheer Strength
- Lecture 58 - Tutorial on Sheer Strength - a
- Lecture 59 - Earth Pressure on Retaining Wall - a
- Lecture 60 - Earth Pressure on Retaining Wall - 1
- Lecture 61 - Earth Pressure Theories and Problems on Earth Pressure on Retaining Wall
- Lecture 62 - Problems on Earth Pressure on Retaining Wall Edit Lesson
- Lecture 63 - Problems on Earth Pressure on Retaining Wall - 2
- Lecture 64 - Problems on Earth Pressure Theories - 3
- Lecture 65 - Problems on Earth Pressure Theories - 4

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Engineering Graphics

Subject Co-ordinator - Dr. Nihar Ranjan Patra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Objectives, Lettering and Numbering
- Lecture 2 - Geometric Constructions - Part I
- Lecture 3 - Geometric Constructions - Part II
- Lecture 4 - Orthographic Projections - Part I
- Lecture 5 - Orthographic Projections - Part II
- Lecture 6 - Orthographic Projections - Part III
- Lecture 7 - Orthographic Projections - Part IV
- Lecture 8 - Orthographic Projections - Part V
- Lecture 9 - Isometric Projections - Part I
- Lecture 10 - Isometric Projections - Part II
- Lecture 11 - Isometric Projections - Part III
- Lecture 12 - Isometric Projections - Part IV
- Lecture 13 - Isometric Projections - Part V and Oblique Projections - Part I
- Lecture 14 - Oblique Projections - Part II
- Lecture 15 - Sectioning
- Lecture 16 - Hatching
- Lecture 17 - Orthographic Projections - Assemblies
- Lecture 18 - Missing Lines and Missing Views
- Lecture 19 - Perspective View - Part I
- Lecture 20 - Perspective View - Part II
- Lecture 21 - Perspective View - Part III
- Lecture 22 - Angular Perspective and Circles in perspective
- Lecture 23 - Perspective View examples and Space Geometry
- Lecture 24 - Space Geometry (Continued...)
- Lecture 25 - True Length, Point View and Slope of Oblique lines
- Lecture 26 - Space Geometry - Introduction
- Lecture 27 - Space Geometry - Part 2
- Lecture 28 - Auxiliary View, Lines, Planes
- Lecture 29 - Relationship between Lines and Planes, Planes and Planes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Intersection of Solids
- Lecture 31 - AUTOCAD
- Lecture 32 - Development of Surfaces

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Earth Sciences for Civil Engineering

Subject Co-ordinator - Prof. Javed N. Malik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Geosciences in Civil Engineering - Part 1

Lecture 2 - Introduction to Geosciences in Civil Engineering - Part 2

Lecture 3 - Plate Tectonics and Continental Drift - Part 2

Lecture 4 - Plate Tectonics and Continental Drift - Part 3

Lecture 5 - Plate Tectonics and Continental Drift - Part 4

Lecture 6 - Rock Forming Minerals and their Properties - Part 1

Lecture 7 - Rock types and their Properties - Part 1

Lecture 8 - Rock types and their Properties - Part 2

Lecture 9 - Rock types and their Properties - Part 3

Lecture 10 - Rock types and their Properties - Part 4

Lecture 11 - Rock types and their properties - Part 5

Lecture 12 - Rock types and their properties - Part 6

Lecture 13 - Rock types and their properties - Part-6 Seismology and the internal structure of the earth - Pa

Lecture 14 - Seismology and the internal structure of the earth - Part 2

Lecture 15 - Seismology and the internal structure of the earth - Part 3 Edit Lesson

Lecture 16 - Seismology and the internal structure of the earth - Part 4

Lecture 17 - Seismology and the internal structure of the earth - Part 5 and Geological Structures - Part 1

Lecture 18 - Geological Structures - Part 2

Lecture 19 - Geological Structures - Part 3

Lecture 20 - Geological Structures - Part 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Earth Sciences for Civil Engineering - Part 2

Subject Co-ordinator - Prof. Javed N. Malik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Geological Hazards and Enviromental Impact - Part 1

Lecture 2 - Introduction to Geological Hazards and Enviromental Impact - Part 2

Lecture 3 - Introduction to Geological Hazards and Enviromental Impact - Part 3

Lecture 4 - Active Faults and its Related Hazards in India - Part 1

Lecture 5 - Active Faults and its Related Hazards in India - Part 2

Lecture 6 - Active faults and its related hazards in India - Part 3

Lecture 7 - Active faults and its related hazards in India - Part 4

Lecture 8 - Active faults its related hazards in India - Part 5

Lecture 9 - Active faults its related hazards in India - Part 6

Lecture 10 - Active faults its related hazards in India - Part 7 and Civil Engineering applications - geologi

Lecture 11 - Civil Engineering applications Â geological considerations in dams, tunnels - Part 2

Lecture 12 - Civil Engineering applications Â geological considerations in dams, tunnels - Part 3 and Tsunan

Lecture 13 - Tsunami and related hazard - Part 2

Lecture 14 - Tsunami and related hazard - Part 3

Lecture 15 - Landslide and subsidence - Part 1

Lecture 16 - Landslide and subsidence - Part 2

Lecture 17 - Landslide and subsidence - Part 3

Lecture 18 - Flood and related hazard - Part 1

Lecture 19 - Flood and related hazard - Part 2

Lecture 20 - Groundwater

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Hydration, Porosity and Strength of Cementitious Materials

Subject Co-ordinator - Dr. Satyaki Roy, Dr. Sudhir Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1 - Introduction to the course  
Lecture 2 - Lecture 2 - Concrete - A Three Phase System  
Lecture 3 - Lecture 3 - Basic Properties of Concrete  
Lecture 4 - Lecture 4 - Portland Cement  
Lecture 5 - Lecture 5 - Portland Cement (Continued...)  
Lecture 6 - Lecture 6 - Introduction (Aggregates) - 1  
Lecture 7 - Lecture 7 - Introduction (Aggregates) - 2  
Lecture 8 - Lecture 8 - Introduction (Aggregates) - 3  
Lecture 9 - Lecture 9 - Introduction (Concrete Mixture Proportioning Strategies)  
Lecture 10 - Lecture 10 - Introduction (Chemical Admixtures)  
Lecture 11 - Lecture-11 - Portland Cement Based Paste Systems - I  
Lecture 12 - Lecture 12 - Portland Cement Based Paste Systems - II  
Lecture 13 - Lecture 13 - Portland Cement Based Paste Systems - III  
Lecture 14 - Lecture 14 - Portland Cement Paste Based Systems - IV  
Lecture 15 - Lecture 15 - Portland Cement Based Paste Systems - V  
Lecture 16 - Lecture 16 - 18 Part 1 - Portland Cement Based Paste Systems - VI  
Lecture 17 - Lecture 16 - 18 Part 2 - Portland Cement Based Paste Systems - VII  
Lecture 18 - Lecture 19 - Heat of hydration of Portland Cement  
Lecture 19 - Lecture 20 - Mass Concrete  
Lecture 20 - Lecture 21-22 - Mineral Admixtures - 1  
Lecture 21 - Lecture 23-24 - Mineral Admixtures - 2  
Lecture 22 - Lecture 25-27 - Mineral Admixtures - 3  
Lecture 23 - Lecture 28-30 - Mineral Admixtures - 4  
Lecture 24 - Lecture 31 - From paste to concrete  
Lecture 25 - Lecture 32 - Demonstration  
Lecture 26 - Lecture 33 - Pores and porosity - A revisit  
Lecture 27 - Lecture 34 - Measuring permeability of concrete  
Lecture 28 - Lecture 35 - Behavior under load  
Lecture 29 - Lecture 36 - Curing of concrete

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Lecture 37 - Stress strain behaviour  
Lecture 31 - Lecture 38 - Durability of concrete - I  
Lecture 32 - Lecture 39 - Durability of concrete - II - Specifications

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Mechanics of Solids

Subject Co-ordinator - Dr. Priyanka Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Handout
- Lecture 2 - Analysis of Mechanical System
- Lecture 3 - Conditions of equilibrium in 2D and 3D
- Lecture 4 - FBD with examples on modelling of typical supports and joints
- Lecture 5 - Support Conditions
- Lecture 6 - FBD of Frame Structures
- Lecture 7 - Stability of Truss
- Lecture 8 - Solutions of Plane Truss
- Lecture 9 - Method of Sections
- Lecture 10 - Friction 2
- Lecture 11 - Tutorial on Truss
- Lecture 12 - Tutorial on Friction
- Lecture 13 - Force Displacement Relationship
- Lecture 14 - Hoop Stresses
- Lecture 15 - Mechanism of belt around wheel
- Lecture 16 - Tutorial on Force Displacement Relationship and Geometric Compatibility - 1
- Lecture 17 - Tutorial on Force Displacement Relationship and Geometric Compatibility - 2
- Lecture 18 - Tutorial on Force Displacement Relationship and Geometric Compatibility - 3
- Lecture 19 - Concept of Stress
- Lecture 20 - Plane Stress
- Lecture 21 - State of Stresses
- Lecture 22 - Mohrs Circle representation of plane stress
- Lecture 23 - Construction of Mohrs Circle
- Lecture 24 - Principal Stresses and Introduction to Concept of Strain
- Lecture 25 - Normal Strain and Shear Strain
- Lecture 26 - Strain Transformation
- Lecture 27 - Strain Measurement
- Lecture 28 - Tutorial
- Lecture 29 - Tutorial on Concept of Strain.

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Elastic Stress Strain Relationship
- Lecture 31 - Von Mises Yield Criteria
- Lecture 32 - Tresca Criteria
- Lecture 33 - True Stress Strain
- Lecture 34 - Tutorial 2
- Lecture 35 - Forces and Moments Transmitted by Slender Members
- Lecture 36 - Bending Moment
- Lecture 37 - Shear Force and Bending Moment Diagrams
- Lecture 38 - Differential Equation Relationship
- Lecture 39 - Tutorial 3
- Lecture 40 - Tutorial 4
- Lecture 41 - Torsion
- Lecture 42 - Stress Components
- Lecture 43 - Tutorial A
- Lecture 44 - Tutorial B
- Lecture 45 - Stresses due to Bending
- Lecture 46 - Equilibrium Requirements
- Lecture 47 - Beam Transmitting both Shear Force and Bending Moment
- Lecture 48 - Shear Stress Distribution
- Lecture 49 - Distribution of Shear Stress in I Beam
- Lecture 50 - Tutorial 1
- Lecture 51 - Deflections due to Bending
- Lecture 52 - Integration of Moment Curvature Relation
- Lecture 53 - Superposition Continued
- Lecture 54 - Load Deflection Differential Equation
- Lecture 55 - Castigliano's Theorem
- Lecture 56 - Strain Energy Methods
- Lecture 57 - Introduction to Concept of Elastic Instability
- Lecture 58 - Critical Load
- Lecture 59 - Critical Load for Flexible Columns
- Lecture 60 - Concluding Lecture

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Principles of Construction Management

Subject Co-ordinator - Dr. Sudhir Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Interdisciplinary nature of modern construction projects
- Lecture 3 - Overview of steps in execution of a project
- Lecture 4 - Illustrative examples for evaluation of bids based on different schemes
- Lecture 5 - Resource management in construction projects
- Lecture 6 - Estimating quantities
- Lecture 7 - Description of items
- Lecture 8 - Estimation of project cost
- Lecture 9 - Discussion on the case study of boundary wall
- Lecture 10 - Running account bills
- Lecture 11 - Economic decision making in construction projects
- Lecture 12 - Depreciation of construction equipment
- Lecture 13 - Repayment of a loan
- Lecture 14 - Introduction to planning and scheduling
- Lecture 15 - Introduction to planning and scheduling (Continued...)
- Lecture 16 - Project scheduling
- Lecture 17 - Uncertainties in duration of activities -Using PERT in scheduling
- Lecture 18 - Project monitoring and control systems
- Lecture 19 - Resource leveling and allocation
- Lecture 20 - Crashing of networks
- Lecture 21 - Introduction to construction safety
- Lecture 22 - Accidents in construction industry - I
- Lecture 23 - Accidents in construction industry - II
- Lecture 24 - Personal protective equipment
- Lecture 25 - Implications of construction accidents
- Lecture 26 - Safety organization and safety officer
- Lecture 27 - Quality control in construction
- Lecture 28 - Quality in construction - welding
- Lecture 29 - Epoxy coated bars

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quality control of grouts in ducts of post-tensioned PC members
- Lecture 31 - Quality control (QC) issues in concrete

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Foundation Design

Subject Co-ordinator - Dr. Nihar Ranjan Patra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - (1A) Subsoil Investigation or Site Investigation - Part 1
- Lecture 2 - (1B) Subsoil Investigation or Site Investigation - Part 2
- Lecture 3 - (2A) Subsoil Investigation or Site Investigation - Part 3
- Lecture 4 - (2B) Subsoil Investigation or Site Investigation - Part 4
- Lecture 5 - (3A) Subsoil Investigation or Site Investigation - Part 5
- Lecture 6 - (3B) Subsoil Investigation or Site Investigation - Part 6
- Lecture 7 - (4A) Subsoil Investigation or Site Investigation - Part 7
- Lecture 8 - (4B) Foundations
- Lecture 9 - (5A) Bearing Capacity Of Shallow Foundations - Part 1
- Lecture 10 - (5B) Bearing Capacity Of Shallow Foundations - Part 2
- Lecture 11 - (6A) Bearing Capacity Of Shallow Foundations - Part 3
- Lecture 12 - (6B) Bearing Capacity Of Shallow Foundations - Part 4
- Lecture 13 - (7A) Bearing Capacity Of Shallow Foundations - Part 5
- Lecture 14 - (7B) Bearing Capacity Of Shallow Foundations - Part 6
- Lecture 15 - (8A) Settlement Analysis - Part 1
- Lecture 16 - (8B) Settlement Analysis - Part 2
- Lecture 17 - (9A) Settlement Analysis - Part 3
- Lecture 18 - (9B) Stress distribution in soils - Part 1
- Lecture 19 - (10A) Stress distribution in soils - Part 2
- Lecture 20 - (10B) Stress distribution in soils - Part 3
- Lecture 21 - (11A) Stress distribution in soils - Part 4
- Lecture 22 - (11B) Stress distribution in soils - Part 5
- Lecture 23 - (12A) Examples based on bearing capacity and settlement
- Lecture 24 - (12B) Design of foundation - Part 1
- Lecture 25 - (13A) Design of Foundation - Part 2
- Lecture 26 - (13B) Design of Foundation - Part 3
- Lecture 27 - (14A) Design of Foundation - Part 4
- Lecture 28 - (14B) Design of Foundation - Part 5
- Lecture 29 - (15A) Types of foundations (Combined Footing)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - (15B) Design of Raft Foundation
- Lecture 31 - (16A) Earth Pressure Theories - Part 1
- Lecture 32 - (16B) Earth Pressure Theories - Part 2
- Lecture 33 - (17A) Earth Pressure Theories - Part 3
- Lecture 34 - (17B) Earth Pressure Theories - Part 4
- Lecture 35 - (18A) Earth Pressure Theories - Part 5
- Lecture 36 - (18B) Deep Foundation - Part 1
- Lecture 37 - (18C) Deep Foundation - Part 2
- Lecture 38 - (18D) Deep Foundation - Part 3
- Lecture 39 - (20A) Deep Foundation - Part 4
- Lecture 40 - (20B) Deep Foundation - Part 5

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Photogeology In Terrain Evaluation

Subject Co-ordinator - Prof. Javed N. Malik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Remote Sensing - Photogeology
- Lecture 2 - Introduction to Remote Sensing - Photogeology
- Lecture 3 - Fundamental Principle in Remote Sensing
- Lecture 4 - Aerial Photography
- Lecture 5 - Stereo-photos and their Importance
- Lecture 6 - Photo-interpretation Techniques
- Lecture 7 - Photogrammetry and its Significance
- Lecture 8 - Sensors, Cameras and Panchromatic Data
- Lecture 9 - Stereoscopy and Methods
- Lecture 10 - Relief Displacement on Aerial Photographs
- Lecture 11 - Fluvial Processes and Landforms
- Lecture 12 - Geomorphology of River Channels
- Lecture 13 - Drainage Basins and their Features
- Lecture 14 - Morphometric Parameters of Fluvial Channels
- Lecture 15 - Drainage Patterns and their Morphology
- Lecture 16 - Determination of Flightline (Lab)
- Lecture 17 - Determination of Flightline (Lab)
- Lecture 18 - Exercise on Relief Displacement
- Lecture 19 - Exercise on Stereoscopic Parallax
- Lecture 20 - Exercise on Stereoscopic Parallax
- Lecture 21 - Generation of Digital Elevation Model and Anaglyph

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Photogeology In Terrain Evaluation - Part 2

Subject Co-ordinator - Prof. Javed N. Malik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Geological Structures, Photo interpretation and Terrain evaluation

Lecture 2 - Photo interpretation/identification of Landforms associated with Folds - 1

Lecture 3 - Photo interpretation/identification of Landforms associated with Folds - 2

Lecture 4 - Identification of features related to ongoing Crustal Deformation and Mountain Building process

Lecture 5 - Identification of Fault Topography

Lecture 6 - Photogeology

Lecture 7 - Photo Interpretations

Lecture 8 - Photo Interpretations

Lecture 9 - Photo Interpretations

Lecture 10 - Photo-Interpretations

Lecture 11 - Photo Interpretations

Lecture 12 - Photo Interpretations

Lecture 13 - Photo Interpretations

Lecture 14 - Photo Interpretations

Lecture 15 - Photo Interpretations

Lecture 16 - Exercise on Identification of Geological Structures and related Landforms

Lecture 17 - Exercise on Identification of Geomorphic Features related to Various Environments

Lecture 18 - Exercise on Identification of Tectonic Features and Geomorphic Mapping using Satellite Data

Lecture 19 - Exercise on Identification of Geological Structures and Geomorphic Landforms on Aerial/Satellite

Lecture 20 - Exercise on Morphometric Parameters and 3D observation of the Earth Surface Features

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Introduction to Accounting and Finance for Civil Engineers

Subject Co-ordinator - Dr. Sudhir Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview of the Course

Lecture 2 - Introduction

Lecture 3 - General Discussion on Construction Projects

Lecture 4 - Time value of money

Lecture 5 - Economic Decision Making - I

Lecture 6 - Economic decision making - II

Lecture 7 - Incremental Rate of Return (IROR)

Lecture 8 - Benefit cost ratio

Lecture 9 - Sensitivity analysis - Part 1

Lecture 10 - Sensitivity analysis - Part 2

Lecture 11 - Break-even analysis - Part 1

Lecture 12 - Break-even analysis - Part 2

Lecture 13 - Depreciation of construction equipment

Lecture 14 - Effect of depreciation on cash flows

Lecture 15 - Effect of depreciation and inflation on economic decision making

Lecture 16 - Replacement analysis

Lecture 17 - Risk analysis - Part 1

Lecture 18 - Risk analysis - Part 2

Lecture 19 - Risk analysis - Part 3

Lecture 20 - Simulation - Part 1

Lecture 21 - Simulation - Part 2

Lecture 22 - Bidding - Part 1

Lecture 23 - Bidding - Part 2

Lecture 24 - Bidding - Part 3

Lecture 25 - Bidding - Part 4

Lecture 26 - Bidding - Part 5

Lecture 27 - Bidding - Part 6

Lecture 28 - Bidding - Part 7

Lecture 29 - Introduction to accounting - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to accounting - Part 2
- Lecture 31 - Introduction to accounting - Part 3
- Lecture 32 - Revenue recognition
- Lecture 33 - Construction Contract Status Reports
- Lecture 34 - Assets and Liabilities
- Lecture 35 - Accounting statements - case study
- Lecture 36 - Working capital
- Lecture 37 - Financing resources for working capital
- Lecture 38 - Ratio analysis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Natural Hazards - Part 1

Subject Co-ordinator - Prof. Javed N. Malik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Natural Hazards
- Lecture 2 - Introduction to Natural Hazards (Types of Hazard)
- Lecture 3 - Introduction to Natural Hazards (Earth as a system)
- Lecture 4 - Introduction to Natural Hazards (Cyclones and Earthquakes - Part I)
- Lecture 5 - Introduction to Natural Hazards (Cyclones and Earthquakes - Part II)
- Lecture 6 - Introduction to Natural Hazards (Disaster Management)
- Lecture 7 - Introduction to Natural Hazards (Seismic Zonation of India and Landslide)
- Lecture 8 - Introduction to Natural Hazards (Flood and Tsunami)
- Lecture 9 - Introduction to Natural Hazards (Disaster Prediction and Warning)
- Lecture 10 - Introduction to Natural Hazards (Recent Natural Calamities in India and Worldwide)
- Lecture 11 - Plate tectonics and related hazards - Part I
- Lecture 12 - Plate tectonics and related hazards - Part II
- Lecture 13 - Plate tectonics and related hazards - Part III
- Lecture 14 - Active fault and Paleoseismology
- Lecture 15 - Case study on 2015 Gorkha Earthquake
- Lecture 16 - Earthquake and related hazard - Part I
- Lecture 17 - Earthquake and related hazard - Part II
- Lecture 18 - Earthquake and related hazard - Part III
- Lecture 19 - Ground Effects and Evaluation of Earthquake Hazards - Part I
- Lecture 20 - Ground Effects and Evaluation of Earthquake Hazards - Part II
- Lecture 21 - Ground Effects and Evaluation of Earthquake Hazards - Part III
- Lecture 22 - Liquefaction and Related Geological Features
- Lecture 23 - Motoring Seismic Activity - Part I
- Lecture 24 - Motoring Seismic Activity - Part II
- Lecture 25 - Volcano and Related Hazard - Part I
- Lecture 26 - Volcano and Related Hazard - Part II
- Lecture 27 - Introduction to Landslides
- Lecture 28 - Types of Landslide and Related Hazards
- Lecture 29 - Civil Engineering applications geological considerations in dams, tunnels - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Civil Engineering applications geological considerations in dams, tunnels - Part 3 and Tsunami a
- Lecture 31 - Tsunami and related hazard - Part 2
- Lecture 32 - Tsunami and related hazard - Part 3
- Lecture 33 - Landslide and subsidence - Part I
- Lecture 34 - Flood and Related Hazards - Part I
- Lecture 35 - Flood and Related Hazards - Part II
- Lecture 36 - Flood and Related Hazards - Part III
- Lecture 37 - Flood and Related Hazards - Part IV
- Lecture 38 - Flood and Related Hazards - Part V
- Lecture 39 - Introduction to Tsunami
- Lecture 40 - Tsunami and Related Hazards - Part I
- Lecture 41 - Tsunami and Related Hazards - Part II
- Lecture 42 - Tsunami and Related Hazards - Part III
- Lecture 43 - Tsunami Modelling

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Structural Dynamics for Civil Engineers - SDOF Systems

Subject Co-ordinator - Prof. Riya Catherine George

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Structural Dynamics

Lecture 2 - Modelling of Dynamic System

Lecture 3 - Undamped Free vibration

Lecture 4 - Damped Free Vibrations

Lecture 5 - Coulomb Damped Free Vibrations

Lecture 6 - Forced Vibrations - Part 1

Lecture 7 - Forced Vibrations - Part 2

Lecture 8 - Examples

Lecture 9 - Harmonic Vibration Examples

Lecture 10 - Vibrations under Periodic Forces

Lecture 11 - Energy and Damping

Lecture 12 - Response to Arbitrary excitations

Lecture 13 - Response to Pulse Excitations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geomorphic Processes: Landforms and Landscapes

Subject Co-ordinator - Prof. Javed N. Malik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Geomorphic processes- Landforms and Landscapes - Part I
- Lecture 2 - Introduction to Geomorphic Processes- Landforms and Landscapes - Part II
- Lecture 3 - Introduction to Geomorphic Processes- Landforms and Landscapes - Part III
- Lecture 4 - Earth Energy Budget - Part I
- Lecture 5 - Earth Energy Budget - Part II
- Lecture 6 - Earth and Environment
- Lecture 7 - Surface and Ground Water System and Management - Part I
- Lecture 8 - Surface and Ground Water System and Management - Part II
- Lecture 9 - Surface and Ground Water System and Management - Part III
- Lecture 10 - Interior of the Earth and Plate Tectonics - Part I
- Lecture 11 - Interior of the Earth and Plate Tectonics - Part II
- Lecture 12 - Interior of the Earth and Plate Tectonics - Part III
- Lecture 13 - Interior of the Earth and Plate Tectonics - Part IV
- Lecture 14 - Interior of the Earth and Plate Tectonics - Part V
- Lecture 15 - Fluvial Processes and Related Landforms - Part I
- Lecture 16 - Fluvial Processes and Related Landforms - Part II
- Lecture 17 - Fluvial Processes and Related Landforms - Part III
- Lecture 18 - Fluvial Processes and Related Landforms - Part IV
- Lecture 19 - Fluvial Processes and Related Landforms - Part V
- Lecture 20 - Fluvial Processes and Related Landforms - Part VI
- Lecture 21 - Fluvial Processes and Related Landforms - Part VII
- Lecture 22 - Fluvial Processes and Related Landforms - Part VIII
- Lecture 23 - Fluvial Processes and Related Landforms - Part IX
- Lecture 24 - Tectonic Geomorphology - Part I
- Lecture 25 - Tectonic Geomorphology - Part II
- Lecture 26 - Tectonic Geomorphology - Part III
- Lecture 27 - Tectonic Geomorphology - Part IV
- Lecture 28 - Tectonic Geomorphology - Part V
- Lecture 29 - Glacial Landforms - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Glacial Landforms - Part II
- Lecture 31 - Glacial Landforms - Part III
- Lecture 32 - Coastal Processes and Landforms - Part I
- Lecture 33 - Coastal Processes and Landforms - Part II
- Lecture 34 - Coastal Processes and Landforms - Part III
- Lecture 35 - Aeolian Processes and Landforms - Part I
- Lecture 36 - Aeolian Processes and Landforms - Part II
- Lecture 37 - Tectonic Geomorphology of Kachchh - Part I
- Lecture 38 - Tectonic Geomorphology of Kachchh - Part II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Structural Geology

Subject Co-ordinator - Prof. Santanu Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - I
- Lecture 2 - Introduction - II
- Lecture 3 - Structural Elements and Measurements
- Lecture 4 - How to measure strike-dip-pitch/rake-plunge
- Lecture 5 - Stereographic Projection in Structural Geology
- Lecture 6 - Concept of Strain and Deformation - Part I
- Lecture 7 - Concept of Strain and Deformation - Part II
- Lecture 8 - Strain Measurement
- Lecture 9 - Stress - Part I
- Lecture 10 - Stress - Part II
- Lecture 11 - Basics of Rheology - Part I
- Lecture 12 - Basics of Rheology - Part II
- Lecture 13 - Basics of Rheology - Part III
- Lecture 14 - Complex Rheology
- Lecture 15 - Role of External Parameters
- Lecture 16 - Crystal Defects and associated structures
- Lecture 17 - Cataclastic Deformation
- Lecture 18 - Intracrystalline Deformation
- Lecture 19 - Diffusive Mass Transfer
- Lecture 20 - Planar Fabrics (Foliation/ Cleavage/ Schistosity) - I
- Lecture 21 - Planar Fabrics (Foliation/ Cleavage/ Schistosity) - II
- Lecture 22 - Linear Fabrics (Lineation)
- Lecture 23 - Folds and Folding
- Lecture 24 - Folds and Folding
- Lecture 25 - Folds and Folding
- Lecture 26 - Folds and Folding
- Lecture 27 - Porphyroblasts
- Lecture 28 - Boudinage and Pinch-and-Swell Structures - I
- Lecture 29 - Boudinage and Pinch-and-Swell Structures - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Stereonet Problem I
- Lecture 31 - Stereonet Problem II
- Lecture 32 - Stereonet Problem III
- Lecture 33 - Stereonet Problem IV
- Lecture 34 - Stereonet Problem V
- Lecture 35 - Fractures and Joints - I
- Lecture 36 - Fractures and Joints - II
- Lecture 37 - Faults and Faulting - I
- Lecture 38 - Stereonet Problem VI - Fold geometry from interlimb angle and fold axes
- Lecture 39 - Stereonet Problem VII - Fold geometry from pitch of the limbs on another plane
- Lecture 40 - Faults and Faulting - II
- Lecture 41 - Ductile Shear Zones - I
- Lecture 42 - Ductile Shear Zones - II
- Lecture 43 - Basic of Litho-Structural Mapping
- Lecture 44 - Paleostress analysis
- Lecture 45 - Graphical Problem
- Lecture 46 - Three point problem
- Lecture 47 - Construction of Topographic Profile
- Lecture 48 - Construction of Geological Cross-section

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Earthquake Geology: A tool for Seismic Hazard Assessment

Subject Co-ordinator - Prof. Javed N. Malik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Earthquake Geology - Part I
- Lecture 2 - Introduction to Earthquake Geology - Part II
- Lecture 3 - Introduction to Earthquake Geology - Part III
- Lecture 4 - Introduction to Earthquake Geology - Part IV
- Lecture 5 - Fundamentals Related to Paleoseismology - Part I
- Lecture 6 - Fundamentals Related to Paleoseismology - Part II
- Lecture 7 - Fundamentals Related to Paleoseismology - Part III
- Lecture 8 - Plate Tectonics - Part I
- Lecture 9 - Plate Tectonics - Part II
- Lecture 10 - Plate Tectonics - Part III
- Lecture 11 - Plate tectonics - Part IV
- Lecture 12 - Plate Tectonics - Part V
- Lecture 13 - Seismic Zonation of India
- Lecture 14 - Interior of the Earth - Part I
- Lecture 15 - Interior of the Earth - Part II
- Lecture 16 - Earthquake Forecasting and Prediction Model - Part I
- Lecture 17 - Earthquake Forecasting and Prediction Model - Part II
- Lecture 18 - Earthquake Forecasting and Prediction Model - Part III
- Lecture 19 - Earthquake in Interplate and Intraplate Region
- Lecture 20 - Earthquake Magnitude and Intensity Scale - Part I
- Lecture 21 - Earthquake Magnitude and Intensity Scale - Part II
- Lecture 22 - Fundamentals Related to Active Faults - Part I
- Lecture 23 - Fundamentals Related to Active Faults - Part II
- Lecture 24 - Fundamentals Related to Active Faults - Part III
- Lecture 25 - Fundamentals Related to Active Faults - Part IV
- Lecture 26 - Lab and Field Techniques in Active Fault Mapping and Paleoseismic studies - Part I
- Lecture 27 - Lab and Field Techniques in Active Fault Mapping and Paleoseismic studies - Part II
- Lecture 28 - Lab and Field Techniques in Active Fault Mapping and Paleoseismic studies - Part III
- Lecture 29 - Lab and Field Techniques in Active Fault Mapping and Paleoseismic studies - Part IV

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lab and Field Techniques in Active Fault Mapping and Paleoseismic studies - Part V
- Lecture 31 - Extensional Tectonic Environments and Related Landforms - Part I
- Lecture 32 - Extensional Tectonic Environments and Related Landforms - Part II
- Lecture 33 - Extensional Tectonic Environments and Related Landforms - Part III
- Lecture 34 - Extensional Tectonic Environments and Related Landforms - Part IV
- Lecture 35 - Compressional Tectonic Environments and Related Landforms - Part I
- Lecture 36 - Compressional Tectonic Environments and Related Landforms - Part II
- Lecture 37 - Compressional Tectonic Environments and Related Landforms - Part III
- Lecture 38 - Compressional Tectonic Environments and Related Landforms - Part IV
- Lecture 39 - Compressional Tectonic Environments and Related Landforms - Part V
- Lecture 40 - Compressional Tectonic Environments and Related Landforms - Part VI
- Lecture 41 - Compressional Tectonic Environments and Related Landforms - Part VII
- Lecture 42 - Strike-Slip Tectonic Environments and Related Landforms - Part I
- Lecture 43 - Strike-Slip Tectonic Environments and Related Landforms - Part II
- Lecture 44 - Strike-Slip Tectonic Environments and Related Landforms - Part III
- Lecture 45 - Strike-Slip Tectonic Environments and Related Landforms - Part IV
- Lecture 46 - Geomorphologic Markers for Fluvial Environment - Part I
- Lecture 47 - Geomorphologic Markers for Fluvial Environment - Part II
- Lecture 48 - Geomorphologic Markers - Part III
- Lecture 49 - Tectonic Geomorphology - Part I
- Lecture 50 - Tectonic Geomorphology - Part II
- Lecture 51 - Coastal Geomorphologic Markers - Part I
- Lecture 52 - Coastal Geomorphologic Markers - Part II
- Lecture 53 - Coastal Geomorphologic Markers - Part III
- Lecture 54 - Tsunami and Paleotsunami signatures Investigation - Part I
- Lecture 55 - Tsunami and Paleotsunami signatures Investigation - Part II
- Lecture 56 - Tsunami and Paleotsunami signatures Investigation - Part III
- Lecture 57 - Field Documentary



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Development and Applications of Special Concretes

Subject Co-ordinator - Prof. Sudhir Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Some starting points
- Lecture 2 - Concrete - A composite material
- Lecture 3 - Basic properties (Fresh concrete)
- Lecture 4 - Basic properties (Hardened concrete)
- Lecture 5 - Fundamentals of proportioning concrete mixes
- Lecture 6 - Proportioning of normal concrete mixes
- Lecture 7 - Concrete mix proportions: Analysis and adjustments
- Lecture 8 - Pores and porosity in concrete
- Lecture 9 - Admixtures in concrete
- Lecture 10 - Curing of Concrete
- Lecture 11 - Cold weather Concreting
- Lecture 12 - Hot Weather Concreting
- Lecture 13 - Special Topics I - Importance of Right Methods and Specifications
- Lecture 14 - Heat of Hydration of Cement and Thermal Stresses
- Lecture 15 - Antiwashout Underwater Concrete
- Lecture 16 - Concreting Underwater
- Lecture 17 - Roller Compacted Concrete
- Lecture 18 - Self Compacting Concrete - I
- Lecture 19 - Self Compacting Concrete - II
- Lecture 20 - Self Compacting Concrete - III
- Lecture 21 - Special Topics - Rheology
- Lecture 22 - Fibre-Reinforced Concrete - I
- Lecture 23 - Fibre-Reinforced Concrete - II
- Lecture 24 - Fibre-Reinforced Concrete - III
- Lecture 25 - Mixing of Concrete
- Lecture 26 - Shotcrete
- Lecture 27 - High Strength Concrete
- Lecture 28 - Using Polymers in Concrete
- Lecture 29 - Improving the Quality of Cover Concrete

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Compaction of Concrete
- Lecture 31 - Precast Concrete
- Lecture 32 - Closing the Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC: Introductory Field Structural Geology

Subject Co-ordinator - Prof. Santanu Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Earth Sciences for Civil Engineering (Hindi)

Subject Co-ordinator - Prof. Javed N Malik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Geosciences in Civil Engineering - I  
Lecture 2 - Introduction to Geosciences in Civil Engineering - II  
Lecture 3 - Introduction to Geosciences in Civil Engineering - III  
Lecture 4 - Plate Tectonics and Continental Drift - I  
Lecture 5 - Plate Tectonics and Continental Drift - II  
Lecture 6 - Plate Tectonics and Continental Drift - III  
Lecture 7 - Plate Tectonics and Continental Drift - IV  
Lecture 8 - Plate Tectonics and Continental Drift - V  
Lecture 9 - Plate Tectonics and Continental Drift - VI  
Lecture 10 - Plate Tectonics and Continental Drift - VII  
Lecture 11 - Plate Tectonics and Continental Drift - VIII  
Lecture 12 - Rock-Forming Minerals and their Properties - I  
Lecture 13 - Rock-Forming Minerals and their Properties - II  
Lecture 14 - Rock-Forming Minerals and their Properties - III  
Lecture 15 - Igneous Rocks and their Properties - I  
Lecture 16 - Igneous Rocks and their Properties - II  
Lecture 17 - Igneous Rocks and their Properties - III  
Lecture 18 - Sedimentary Rocks and their Properties - I  
Lecture 19 - Sedimentary Rocks and their Properties - II  
Lecture 20 - Sedimentary Rocks and their Properties - III  
Lecture 21 - Metamorphic Rocks and their Properties - I  
Lecture 22 - Metamorphic Rocks and their Properties - II  
Lecture 23 - Seismology and Internal Structure of the earth - Part 1  
Lecture 24 - Seismology and Internal Structure of the earth - Part 2  
Lecture 25 - Seismology and Internal Structure of the earth - Part 3  
Lecture 26 - Seismology and Internal Structure of the earth - Part 4  
Lecture 27 - Seismology and Internal Structure of the earth - Part 5  
Lecture 28 - Seismic Events and Sediments Amplification - I  
Lecture 29 - Seismic Events and Sediments Amplification - II

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- Lecture 30 - Geological Structures - I
- Lecture 31 - Geological Structures - II
- Lecture 32 - Geological Structures - III
- Lecture 33 - Geological Structures - IV
- Lecture 34 - Sterographic Projection of Geological Strata
- Lecture 35 - Faults and its Characteristics
- Lecture 36 - Active Faults and Associated Hazard - I
- Lecture 37 - Active Faults and Associated Hazard - II
- Lecture 38 - Active Faults and Associated Hazard - III
- Lecture 39 - Rivers and Associated Landforms - I
- Lecture 40 - Rivers and Associated Landforms - II
- Lecture 41 - Shear Strength of Soil and its Implications towards Hazard
- Lecture 42 - Landslides and Associated Hazard
- Lecture 43 - Rock Mass Classification System
- Lecture 44 - Dam and Tunnels

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Construction Management

Subject Co-ordinator - Prof. Sudhir Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Laboratory Practices in Earth Sciences: Landscape Mapping

Subject Co-ordinator - Prof. Javed N Malik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Introduction about the Course
- Lecture 2 - Generation Introduction to the Remote Sensing - Part 1
- Lecture 3 - Generation Introduction to the Remote Sensing - Part 2
- Lecture 4 - Aerial Photogrammetry - Part 1
- Lecture 5 - Aerial Photogrammetry - Part 2
- Lecture 6 - Stereoscopy
- Lecture 7 - Relief Displacement
- Lecture 8 - Exploring the Remote Sensing Data and GIS Software - Part 1
- Lecture 9 - Exploring the Remote Sensing Data and GIS Software - Part 2
- Lecture 10 - Exploring the Remote Sensing Data and GIS Software - Part 3
- Lecture 11 - Georeferencing of Toposheets on QGIS
- Lecture 12 - Georeferencing of Remote Sensing Data on QGIS
- Lecture 13 - Mosaicking, Merging and Generation of Shape Files on QGIS
- Lecture 14 - Fluvial Systems and Associated Landforms - Part 1
- Lecture 15 - Fluvial Systems and Associated Landforms - Part 2
- Lecture 16 - Fluvial Systems and Associated Landforms - Part 3
- Lecture 17 - Fluvial Systems and Associated Landforms - Part 4
- Lecture 18 - Fluvial Systems and Associated Landforms - Part 5
- Lecture 19 - Fluvial Systems and Associated Landforms - Part 6
- Lecture 20 - Tectonic Geomorphology - Part 1
- Lecture 21 - Tectonic Geomorphology - Part 2
- Lecture 22 - Tectonic Geomorphology - Part 3
- Lecture 23 - Tectonic Geomorphology - Part 4
- Lecture 24 - Anaglyph and DEM Generation of Cartosat-1 data on ENVI
- Lecture 25 - Tectono-Geomorphic Mapping on QGIS - Part 1
- Lecture 26 - Tectono-Geomorphic Mapping on QGIS - Part 2
- Lecture 27 - Tectono-Geomorphic Mapping on QGIS - Part 3
- Lecture 28 - Tectono-Geomorphic Mapping on QGIS - Part 4
- Lecture 29 - Total Station (TS) and Real Time Kinematics (RTK) and its Applications

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- Lecture 30 - Field Demonstration of Real Time Kinematics (RTK) - Part 1
- Lecture 31 - Field Demonstration of Real Time Kinematics (RTK) - Part 2
- Lecture 32 - Field Demonstration of Total Station (TS) - Part 1
- Lecture 33 - Field Demonstration of Total Station (TS) - Part 2
- Lecture 34 - Ground Penetrating Radar (GPR) and its Applications - Part 1
- Lecture 35 - Ground Penetrating Radar (GPR) and its Applications - Part 2
- Lecture 36 - Field Demonstration of GPR - Part 1
- Lecture 37 - Field Demonstration of GPR - Part 2
- Lecture 38 - Optically Stimulated Luminescence (OSL) Dating technique and its Applications
- Lecture 39 - Optically Stimulated Luminescence (OSL) Dating Lab

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Advanced Foundation Engineering

Subject Co-ordinator - Dr. Kousik Deb

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Soil Exploration  
Lecture 3 - Soil Exploration - Penetration Tests  
Lecture 4 - Soil Exploration - Geophysical Exploration  
Lecture 5 - Shallow Foundation - Introduction  
Lecture 6 - Shallow Foundation  
Lecture 7 - Shallow Foundation  
Lecture 8 - Shallow Foundation  
Lecture 9 - Shallow Foundation  
Lecture 10 - Shallow Foundation  
Lecture 11 - Shallow Foundation - Settlement Calculation - I  
Lecture 12 - Shallow Foundation - Settlement Calculation - II  
Lecture 13 - Shallow Foundation - Settlement Calculation - III  
Lecture 14 - Design of Shallow Foundation  
Lecture 15 - Design of Raft Foundation  
Lecture 16 - Deep Foundation - Introduction  
Lecture 17 - Pile Foundation - Load Carrying Capacity - I  
Lecture 18 - Pile Foundation - Load Carrying Capacity - II  
Lecture 19 - Pile Foundation - Load Carrying Capacity - III and Settlement Calculation  
Lecture 20 - Tension and Lateral Loaded Piles  
Lecture 21 - Well Foundation  
Lecture 22 - Well Foundation (Continued...)  
Lecture 23 - Design of Retaining Wall  
Lecture 24 - Design of Retaining Wall (Continued...)  
Lecture 25 - Design of Sheet Piles  
Lecture 26 - Design of Sheet Piles (Continued...)  
Lecture 27 - Design of Sheet Piles (Continued...)  
Lecture 28 - Design of Sheet Piles (Continued...)  
Lecture 29 - Reinforced Earth

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Reinforced Retaining Wall
- Lecture 31 - Seismic Design of Retaining Wall
- Lecture 32 - Seismic Design of Retaining Walls (Continued...)
- Lecture 33 - Soil - Foundation Interaction
- Lecture 34 - Soil - Foundation Interaction (Continued...)
- Lecture 35 - Soil - Foundation Interaction (Continued...)
- Lecture 36 - Soil - Foundation Interaction (Continued...)
- Lecture 37 - Soil - Foundation Interaction (Continued...)
- Lecture 38 - Soil - Foundation Interaction (Continued...)
- Lecture 39 - Soil - Foundation Interaction (Continued...)
- Lecture 40 - Soil - Foundation Interaction (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Ground Water Hydrology

Subject Co-ordinator - Dr. Anirban Dhar, Dr. V.R. Desai

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Ground Water in Hydrologic Cycle (Continued...), Ground Water Budget, Ground Water Level Fluctuations

Lecture 3 - Ground water Level Fluctuations and Environmental Influence (Continued...) Literature/Data/Intern

Lecture 4 - Ground water Level Fluctuations and Environmental Influence (Continued...) Literature/Data/Intern

Lecture 5 - Occurrence and Movement of Ground Water

Lecture 6 - Zones of Aeration and Saturation; Aquifers and their characteristics/classification

Lecture 7 - Aquifer Classification (Continued...), Ground water Basins and Springs; Darcy's Law; Permeability

Lecture 8 - Determination of Permeability

Lecture 9 - Ground Water (GW) flowrates and flow directions; general flow equations through porous media

Lecture 10 - General Flow Equations Through Porous Media (Continued...), Dupuit's Assumptions

Lecture 11 - 1-D Unconfined Ground water Flows; Steady Flow into Wells

Lecture 12 - Steady Flow into Wells (Continued...); Unsteady Flow into Wells

Lecture 13 - Unsteady Flow into Wells (Continued...)

Lecture 14 - Unsteady Radial Flow in Confined and Unconfined Aquifers

Lecture 15 - Unsteady Radial Flow in Leaky Aquifers (Continued...); Well Flow Near Aquifer Boundaries

Lecture 16 - Well Flow for Special Conditions; Partially Penetrating Wells; Horizontal Wells and Collector Wells

Lecture 17 - Well Completion; Well Development; Well Protection; Well Rehabilitation; Well testing for Yields

Lecture 18 - Well Protection/Rehabilitation/Testing for yield (Continued...); Artificial Ground Water Recharge

Lecture 19 - Concept and methods of Artificial Ground Water Recharge (Continued...); Recharge Mounds and Induced

Lecture 20 - Induced Recharge (Continued...); Wastewater recharge for reuse; Water spreading

Lecture 21 - Pollution and Quality Analysis of Ground Water

Lecture 22 - Ground Water Pollution from Industrial, Agricultural and Miscellaneous Sources (Continued...)

Lecture 23 - Ground Water Pollution from Miscellaneous Sources (Continued...), Attenuation and Underground Dis

Lecture 24 - Potential Evaluation of Ground water Pollution; Physical/Chemical/Biological analysis of Ground

Lecture 25 - Ground water salinity and samples ; Graphical representations of ground water quality

Lecture 26 - Graphical representations of ground water quality (Continued...), SURFACE/SUB-SURFACE INVESTIGATION

Lecture 27 - Surface Investigation of ground water (Continued...)

Lecture 28 - Seismic refraction/gravity/magnetic methods (Continued...); Sub-surface investigation of ground w

Lecture 29 - Sub-surface investigation of ground water (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Radiation method of logging (Continued...); Temperature/caliper/fluid conductivity/fluid velocity
- Lecture 31 - Saline Water Intrusion in Aquifers
- Lecture 32 - Saline Water Intrusion in Aquifers
- Lecture 33 - Saline Water Intrusion in Aquifers
- Lecture 34 - Saline Water Intrusion in Aquifers
- Lecture 35 - Modeling and Management of Ground Water
- Lecture 36 - Modeling and Management of Ground Water
- Lecture 37 - Modeling and Management of Ground Water
- Lecture 38 - Modeling and Management of Ground Water
- Lecture 39 - Modeling and Management of Ground Water
- Lecture 40 - Modeling and Management of Ground Water

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Numerical Methods in Civil Engineering

Subject Co-ordinator - Dr. A. Deb

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Numerical Methods
- Lecture 2 - Error Analysis
- Lecture 3 - Introduction to Linear Systems - I
- Lecture 4 - Linear Systems - II
- Lecture 5 - Linear Systems - III
- Lecture 6 - Linear Systems - Error Bounds
- Lecture 7 - Error Bounds and Iterative Methods for Solving Linear Systems
- Lecture 8 - Iterative Methods for Solving Linear Systems - I
- Lecture 9 - Iterative Methods - II
- Lecture 10 - Iterative Methods - III
- Lecture 11 - Iterative Methods for Eigen Value Extraction
- Lecture 12 - Solving Nonlinear Equations - I
- Lecture 13 - Solving Nonlinear Equations - II
- Lecture 14 - Solving Multi Dimensional Nonlinear Equations - I
- Lecture 15 - Solving Multi Dimensional Nonlinear Equations - II
- Lecture 16 - ARC Length and Gradient Based Methods
- Lecture 17 - Gradient Based Methods
- Lecture 18 - Conjugate Gradient Method - I
- Lecture 19 - Conjugate Gradient Method - II
- Lecture 20 - Nonlinear Conjugate Gradient and Introduction to PDEs
- Lecture 21 - Eigenfunction Solutions for the Wave Equation
- Lecture 22 - Analytical Methods for Solving the Wave Equation
- Lecture 23 - Analytical Methods for Hyperbolic and Parabolic PDEs
- Lecture 24 - Analytical Methods for Parabolic and Elliptic PDEs
- Lecture 25 - Analytical Methods for Elliptic PDE's
- Lecture 26 - Series Solutions for Elliptic PDE's and Introduction to Differential Operators
- Lecture 27 - Differential Operators - I
- Lecture 28 - Differential Operators - II
- Lecture 29 - Differential Operators - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interpolation
- Lecture 31 - Polynomial Fitting
- Lecture 32 - Orthogonal Polynomials - I
- Lecture 33 - Orthogonal Polynomials - II
- Lecture 34 - Orthogonal Polynomials - III
- Lecture 35 - Spline Functions
- Lecture 36 - Orthogonal Basis Functions for Solving PDE\'s - I
- Lecture 37 - Orthogonal Basis Functions for Solving PDE\'s - II
- Lecture 38 - Integral Equations - I
- Lecture 39 - Integral Equations - II
- Lecture 40 - Integral Equations - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Probability Methods in Civil Engineering

Subject Co-ordinator - Dr. Rajib Maity

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - Role of Probability in Civil Engineering
- Lecture 2 - Random Events and Probability Concept
- Lecture 3 - Set Theory and Set Operations
- Lecture 4 - Axioms of Probability
- Lecture 5 - Probability of Events
- Lecture 6 - Concept and Definition of Random Variables
- Lecture 7 - Probability Distribution of Random Variables
- Lecture 8 - CDF and Descriptors of Random Variables
- Lecture 9 - Further Descriptors of Random Variables
- Lecture 10 - Discrete Probability Distribution
- Lecture 11 - Probability Distribution of Continuous RVs
- Lecture 12 - Probability Distribution of Continuous RVs (Continued...1)
- Lecture 13 - Probability Distribution of Continuous RVs (Continued...2)
- Lecture 14 - Functions of Single Random Variables
- Lecture 15 - Functions of Random Variables - Different Methods
- Lecture 16 - Functions of Random Variables - Different Methods (Continued...)
- Lecture 17 - Expectation and Moments of Functions of RV
- Lecture 18 - Expectation and Moments of Functions of RV (Continued...)
- Lecture 19 - Joint Probability Distribution
- Lecture 20 - Marginal Probability Distribution
- Lecture 21 - Conditional Probability Distribution
- Lecture 22 - Conditional Probability Distribution (Continued...)
- Lecture 23 - Properties of Multiple Random Variables
- Lecture 24 - Properties of Multiple Random Variables (Continued...)
- Lecture 25 - MGF of Multivariate RVs and Multivariate Probability Distributions
- Lecture 26 - Multivariate Distribution and Functions of Multiple Random Variables
- Lecture 27 - Functions of Multiple Random Variables (Continued...1)
- Lecture 28 - Functions of Multiple Random Variables (Continued...2)
- Lecture 29 - Introduction to Copulas

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Copulas (Continued...)
- Lecture 31 - Probability Models using Normal Distribution
- Lecture 32 - Probability Models using Log Normal and Exponential Distribution
- Lecture 33 - Probability Models using Gamma and Extreme Value Distribution
- Lecture 34 - Probability Models using Discrete Probability Distributions
- Lecture 35 - Sampling Distribution and Parameter Estimation
- Lecture 36 - Sampling Distribution and Parameter Estimation (Continued...)
- Lecture 37 - Hypothesis Testing
- Lecture 38 - Goodness - of - fit tests
- Lecture 39 - Regression Analyses and Correlation
- Lecture 40 - Regression Analyses and Correlation (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Design of Reinforced Concrete Structures

Subject Co-ordinator - Prof. N. Dhang

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - I
- Lecture 2 - Materials
- Lecture 3 - Different Methods of Design of Reinforced Concrete Structures
- Lecture 4 - Working Stress Method
- Lecture 5 - Working Stress Method (Continued...)
- Lecture 6 - Limit State of Collapse Flexure - I
- Lecture 7 - Limit State of Collapse Flexure - II
- Lecture 8 - Design of Doubly Reinforced Beam Flexure - I
- Lecture 9 - Design of Doubly Reinforced Beam Flexure - II
- Lecture 10 - Design of Doubly Reinforced Beam Flexure
- Lecture 11 - Limit State of Collapse Shear
- Lecture 12 - Design for Shear
- Lecture 13 - Design for Shear (Continued...)
- Lecture 14 - Design of Slabs - Part I
- Lecture 15 - Design of Slabs - Part II
- Lecture 16 - Design of Slabs - Part III
- Lecture 17 - Design of Slabs - Part IV
- Lecture 18 - Design of Slabs - Part V
- Lecture 19 - Design of Columns - Part I
- Lecture 20 - Design of Columns - Part II
- Lecture 21 - Design of Columns - Part III
- Lecture 22 - Design of Columns - Part IV
- Lecture 23 - Design of Columns - Part V
- Lecture 24 - Design of Footings - Part I
- Lecture 25 - Design of Footings - Part II
- Lecture 26 - Design of Staircases
- Lecture 27 - Design for Torsion - Part I
- Lecture 28 - Design for Torsion - Part II
- Lecture 29 - Design of RC Slender Columns

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Deflection of RC Beams

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Engineering Geology

Subject Co-ordinator - Dr. Debasis Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Engineering Geology
- Lecture 2 - Geologic Structures
- Lecture 3 - Geologic Maps and Stratigraphic Sections
- Lecture 4 - Remote Sensing in Engineering Geology
- Lecture 5 - Physical Properties of Minerals
- Lecture 6 - Crystallography and Optical Properties
- Lecture 7 - Chemical Characteristics of Minerals
- Lecture 8 - Origin And Types of Rocks
- Lecture 9 - Origin And Types of Soils
- Lecture 10 - Igneous Rocks
- Lecture 11 - Sedimentary Rocks
- Lecture 12 - Metamorphic Rocks
- Lecture 13 - Weathering
- Lecture 14 - Sediment Transport and Deposition
- Lecture 15 - Introduction to Subsurface Exploration
- Lecture 16 - Introduction to Subsurface Exploration
- Lecture 17 - Sampling and Non - Intrusive Methods
- Lecture 18 - Index Properties and Classification of Soils
- Lecture 19 - Index Properties of Rock and Rock Mass
- Lecture 20 - Stress-Strain Behavior of Soil and Rock - I
- Lecture 21 - Stress-Strain Behavior of Soil and Rock - II
- Lecture 22 - In-situ State of Stress
- Lecture 23 - Geologic Considerations in Tunneling
- Lecture 24 - Geologic Considerations in Dam Construction
- Lecture 25 - Groundwater - Preliminaries
- Lecture 26 - Groundwater Flow - I
- Lecture 27 - Groundwater Flow - II
- Lecture 28 - Groundwater Related Engineering Issues
- Lecture 29 - Groundwater Over Utilization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Plate Tectonics
- Lecture 31 - Plate Tectonics - 2 and Earthquake
- Lecture 32 - Earthquake Hazard Assessment
- Lecture 33 - Geologic Hazards - Seismicity and Volcanism
- Lecture 34 - Geologic Hazards - Shoreline Processes
- Lecture 35 - Geologic Hazards - Shoreline Processes
- Lecture 36 - Geologic Hazards - Landslide Hazards - Zoning
- Lecture 37 - Geologic Hazards Subsidence , Collapsible Soils
- Lecture 38 - Preparation of Geologic Sections
- Lecture 39 - Index testing of soil & rocks
- Lecture 40 - Identification of minerals and rock samples

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Introduction to Transportation Engineering

Subject Co-ordinator - Dr. K.S. Reddy, Dr. Bhargab Maitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Transportation Engineering
- Lecture 2 - Elements of Concern and Components
- Lecture 3 - Traffic Stream Characteristics
- Lecture 4 - Traffic Studies
- Lecture 5 - Traffic Studies
- Lecture 6 - Highway Capacity and Level of Service
- Lecture 7 - Intersection Control and Signalization
- Lecture 8 - Functional Classification, Design Elements
- Lecture 9 - Cross Section Elements
- Lecture 10 - Stopping Sight Distance And Decision Sight
- Lecture 11 - Overtaking, Intermediate and Headlight Sight
- Lecture 12 - Intersection Sight Distance - I
- Lecture 13 - Intersection Sight Distance - II
- Lecture 14 - Horizontal Alignment - I
- Lecture 15 - Horizontal Alignment - II
- Lecture 16 - Horizontal Alignment - III
- Lecture 17 - Horizontal Alignment - IV
- Lecture 18 - Horizontal Alignment - V
- Lecture 19 - Horizontal Alignment - VI
- Lecture 20 - Vertical Alignment - I
- Lecture 21 - Vertical Alignment - II
- Lecture 22 - Vertical Alignment - III
- Lecture 23 - Highway Alignment
- Lecture 24 - Principles of Pavement Design
- Lecture 25 - Traffic Loading - I
- Lecture 26 - Traffic Loading - II
- Lecture 27 - Pavement Materials - I
- Lecture 28 - Pavement Materials - II
- Lecture 29 - Pavement Materials - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pavement Materials - IV
- Lecture 31 - Pavement Materials - V
- Lecture 32 - Design of Bituminous Mixes - I
- Lecture 33 - Design of Bituminous Mixes - II
- Lecture 34 - Analysis of Flexible Pavements
- Lecture 35 - Analysis of Concrete Pavements
- Lecture 36 - Flexible Pavement Design Indian Roads Congress
- Lecture 37 - Flexible Pavement Design AASHTO Method - 1993
- Lecture 38 - Concrete Pavement Design Indian Congress Method
- Lecture 39 - Concrete Pavement Design PCA and AASHTO Methods
- Lecture 40 - Pavement Evaluation and Rehabilitation
- Lecture 41 - Overlay Design - IRC Method

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Strength of Materials

Subject Co-ordinator - Prof. S.K. Bhattacharyya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Strength of Materials

Lecture 2 - Analysis of Stress - I

Lecture 3 - Analysis of Stress - II

Lecture 4 - Analysis of Stress - III

Lecture 5 - Analysis of Stress - IV

Lecture 6 - Analysis of Stress - V

Lecture 7 - Analysis of Strain - I

Lecture 8 - Analysis of Strain - II

Lecture 9 - Analysis of Strain - III

Lecture 10 - Analysis of Strain - IV

Lecture 11 - Analysis of Strain - V

Lecture 12 - Analysis of Strain - VI

Lecture 13 - Analysis of Strain - VII

Lecture 14 - Analysis of Strain - VIII

Lecture 15 - Application of Stress/Strain

Lecture 16 - Application of Stress / Strain

Lecture 17 - Application of Stress / Strain

Lecture 18 - Torsion - I

Lecture 19 - Torsion - II

Lecture 20 - Torsion - III

Lecture 21 - Torsion - IV

Lecture 22 - Bending of Beams - I

Lecture 23 - Bending of Beams - II

Lecture 24 - Bending of Beams - III

Lecture 25 - Bending of Beams - IV

Lecture 26 - Stresses in Beams - I

Lecture 27 - Stresses in Beams - II

Lecture 28 - Stresses in Beams - III

Lecture 29 - Stresses in Beams - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Deflection of Beams - I
- Lecture 31 - Deflection of Beams - II
- Lecture 32 - Deflection of Beams - III
- Lecture 33 - Deflection of Beams - IV
- Lecture 34 - Combined Stresses - I
- Lecture 35 - Combined Stresses - II
- Lecture 36 - Combined Stresses - III
- Lecture 37 - Stability of Columns - I
- Lecture 38 - Stability of Columns - II
- Lecture 39 - Springs - I
- Lecture 40 - Springs - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Probability Methods in Civil Engineering

Subject Co-ordinator - Dr. Rajib Maity

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Random Events and Probability Concept
- Lecture 2 - Set Theory and Set Operations
- Lecture 3 - Axioms of Probability
- Lecture 4 - Probability of Events
- Lecture 5 - Concept and definition of Random variables
- Lecture 6 - Probability distribution of random variables
- Lecture 7 - CDF and Descriptors of Random Variables
- Lecture 8 - Further Descriptors of Random Variables
- Lecture 9 - Discrete Probability Distribution
- Lecture 10 - Probability Distribution of Continuous RVs
- Lecture 11 - Probability Distribution of Continuous RVs (Continued.....1)
- Lecture 12 - Probability Distribution of Continuous RVs (Continued.....2)
- Lecture 13 - Functions of Single Random Variables
- Lecture 14 - Functions of Different Variables - Different Methods
- Lecture 15 - Functions of Random Variables
- Lecture 16 - Probability Models using Normal Distribution
- Lecture 17 - Probability Models using Log Normal and Exponential Distribution
- Lecture 18 - Probability Models using Gamma and Extreme Value Distribution
- Lecture 19 - Probability Models using Discrete Probability Distributions
- Lecture 20 - Sampling Distribution and Parameter Estimation
- Lecture 21 - Sampling Distribution and Parameter Estimation (Continued...)
- Lecture 22 - Hypothesis Testing
- Lecture 23 - Goodness of Fit-Tests
- Lecture 24 - Regression Analyses and Correlation
- Lecture 25 - Regression Analyses and Correlation (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Visual Semiotics for Visual Communication

Subject Co-ordinator - Prof. Mainak Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Visual Semantics for Visual Communication  
Lecture 2 - Visual Semantics for Visual Communication (Continued...)  
Lecture 3 - Visual Semantics for Visual Communication (Continued...)  
Lecture 4 - Visual Semantics for Visual Communication (Continued...)  
Lecture 5 - Introduction to Millimeter-Wave Technology (Continued...)  
Lecture 6 - Visual Semantics for Visual Communication (Continued...)  
Lecture 7 - Visual Semantics for Visual Communication (Continued...)  
Lecture 8 - Visual Semantics for Visual Communication (Continued...)  
Lecture 9 - Introduction to Millimeter-Wave Technology  
Lecture 10 - Visual Semantics for Visual Communication (Continued...)  
Lecture 11 - Visual Semantics for Visual Communication (Continued...)  
Lecture 12 - Visual Semantics for Visual Communication (Continued...)  
Lecture 13 - Conceptual Model and Affordances  
Lecture 14 - Visual Semantics for Visual Communication (Continued...)  
Lecture 15 - Visual Semantics for Visual Communication (Continued...)  
Lecture 16 - Visual Semantics for Visual Communication (Continued...)  
Lecture 17 - Visual Semantics for Visual Communication (Continued...)  
Lecture 18 - Visual Semantics for Visual Communication (Continued...)  
Lecture 19 - Visual Semantics for Visual Communication (Continued...)  
Lecture 20 - Visual Semantics for Visual Communication (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Life Cycle Assessment

Subject Co-ordinator - Prof. Brajesh Kumar Dubey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Life Cycle Assessment - Introduction  
Lecture 2 - Life Cycle Assessment - Introduction  
Lecture 3 - LCA and Sustainability  
Lecture 4 - LCA and Environmental Systems  
Lecture 5 - LCA and Water, Food and Energy  
Lecture 6 - RISK Assessment and LCA Frameworks  
Lecture 7 - RISK Assessment - Toxicology  
Lecture 8 - RISK Assessment Methods  
Lecture 9 - RISK Assessment Methods (Continued...)  
Lecture 10 - Environmental Risk Assessment  
Lecture 11 - Environmental Data Collection and LCA Methodology  
Lecture 12 - Environmental Data Collection and LCA Methodology (Continued...)  
Lecture 13 - Environmental Data Collection and LCA Methodology (Continued...)  
Lecture 14 - Environmental Data Collection and LCA Methodology (Continued...)  
Lecture 15 - LCA Methodology  
Lecture 16 - LCA - A Detailed Methodology  
Lecture 17 - LCA - A Detailed Methodology (Continued...)  
Lecture 18 - LCA Benefits and Drawbacks  
Lecture 19 - History of LCA  
Lecture 20 - The ISO Framework  
Lecture 21 - Unit Process, Data and LCI Databases  
Lecture 22 - Unit Process and System Boundary (Continued...)  
Lecture 23 - Inventory Data and LCIA  
Lecture 24 - LCIA  
Lecture 25 - LCA Interpretation  
Lecture 26 - ISO 14040  
Lecture 27 - Key Points of a Good LCA and Example LCA  
Lecture 28 - Chemical Release in Environment  
Lecture 29 - Green Sustainable Materials

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Green Sustainable Materials (Continued...)
- Lecture 31 - Design for Sustainability
- Lecture 32 - Design for Sustainability (Continued...)
- Lecture 33 - Design for Sustainability (Continued...)
- Lecture 34 - Sustainable Engineering Design Principles
- Lecture 35 - Sustainable Engineering Design Principles (Continued...)
- Lecture 36 - Summary and Case Studies
- Lecture 37 - Summary and Case Studies (Continued...)
- Lecture 38 - Summary and Case Studies (Continued...)
- Lecture 39 - Tutorial I
- Lecture 40 - Tutorial II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC: Integrated Waste Management for a Smart City

Subject Co-ordinator - Prof. Brajesh Kumar Dubey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Introduction (Continued...)
- Lecture 4 - Introduction (Continued...)
- Lecture 5 - Introduction (Continued...)
- Lecture 6 - Introduction (Continued...)
- Lecture 7 - Municipal Solid Waste Characteristics and Quantities
- Lecture 8 - Municipal Solid Waste Characteristics and Quantities (Continued...)
- Lecture 9 - Municipal Solid Waste Characteristics and Quantities (Continued...)
- Lecture 10 - Municipal Solid Waste Characteristics and Quantities (Continued...)
- Lecture 11 - MSW Characteristics - Thermal Properties and Chemical Composition
- Lecture 12 - Chemical Analysis Procedure
- Lecture 13 - Chemical Analysis Procedure (Continued...)
- Lecture 14 - Working with Data and Statistical Methods
- Lecture 15 - Waste Management Rules 2016
- Lecture 16 - Waste Management Rules 2016 (Continued...)
- Lecture 17 - Swachh Bharat Mission and Smart Cities Program Overview
- Lecture 18 - Storage of Solid Waste
- Lecture 19 - MSW Collection System
- Lecture 20 - MSW Collection System (Continued...)
- Lecture 21 - Waste Collection and Transport
- Lecture 22 - Waste Collection and Transport (Continued...)
- Lecture 23 - Waste Collection and Transport (Continued...)
- Lecture 24 - Waste Collection and Transport (Continued...)
- Lecture 25 - Waste Collection and Transport (Continued...)
- Lecture 26 - Collection System
- Lecture 27 - Collection System (Continued...)
- Lecture 28 - Review of MSW Management in Proposed Smart Cities
- Lecture 29 - Biological Treatment of Waste

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Biological Treatment of Waste (Continued...)
- Lecture 31 - Biological Treatment of Waste (Continued...)
- Lecture 32 - Biological Treatment of Waste (Continued...)
- Lecture 33 - Biological Treatment of Waste (Continued...)
- Lecture 34 - Thermal Treatment
- Lecture 35 - Thermal Treatment (Continued...)
- Lecture 36 - Thermal Treatment (Continued...)
- Lecture 37 - Thermal Treatment (Continued...)
- Lecture 38 - Thermal Treatment (Continued...)
- Lecture 39 - Thermal Treatment (Continued...)
- Lecture 40 - Landfill Disposal
- Lecture 41 - Landfill Disposal (Continued...)
- Lecture 42 - Landfill Disposal (Continued...)
- Lecture 43 - Landfill Disposal (Continued...)
- Lecture 44 - Landfill Disposal (Continued...)
- Lecture 45 - Landfill Disposal (Continued...)
- Lecture 46 - Landfill Disposal (Continued...)
- Lecture 47 - Landfill Disposal (Continued...)
- Lecture 48 - Construction and Demolition Waste Management
- Lecture 49 - Construction and Demolition Waste Management (Continued...)
- Lecture 50 - Construction and Demolition Waste Management (Continued...)
- Lecture 51 - Construction and Demolition Waste Management (Continued...)
- Lecture 52 - Construction and Demolition Waste Management (Continued...)
- Lecture 53 - E-Waste Management
- Lecture 54 - E-Waste Management (Continued...)
- Lecture 55 - E-Waste Management (Continued...)
- Lecture 56 - E-Waste Management (Continued...)
- Lecture 57 - E-Waste Management (Continued...)
- Lecture 58 - E-Waste Management (Continued...)
- Lecture 59 - E-Waste Management (Continued...)
- Lecture 60 - E-Waste Management (Continued...)
- Lecture 61 - Tutorial - I
- Lecture 62 - Tutorial - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Computational Hydraulics

Subject Co-ordinator - Dr. Anirban Dhar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Computational Hydraulics
- Lecture 2 - Problem Definition and Governing Equations (GE)
- Lecture 3 - Classification of Problems based on Initial Condition (IC) and/or Boundary Conditions (BC)
- Lecture 4 - Classification of Differential Equations
- Lecture 5 - Numerical Methods
- Lecture 6 - Finite Difference Approximation
- Lecture 7 - Ordinary Differential Equation
- Lecture 8 - Ordinary Differential Equation
- Lecture 9 - Partial Differential Equation
- Lecture 10 - Partial Differential Equation
- Lecture 11 - Partial Differential Equation
- Lecture 12 - Partial Differential Equation
- Lecture 13 - Finite Volume Method - Overview
- Lecture 14 - Finite Volume Method - BVP
- Lecture 15 - Finite Volume Method - IBVP
- Lecture 16 - Finite Volume Method - Conservation Law
- Lecture 17 - Upwind Approach
- Lecture 18 - Godunov Approach
- Lecture 19
- Lecture 20
- Lecture 21 - Mesh-Tree Method
- Lecture 22 - Mesh-Free Method
- Lecture 23 - Mesh-Free Method
- Lecture 24 - Numerical Method
- Lecture 25 - Algebraic Equation
- Lecture 26 - Algebraic Equation
- Lecture 27 - Algebraic Equation
- Lecture 28 - Algebraic Equation
- Lecture 29 - Algebraic Equation

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- Lecture 30 - Algebraic Equation
- Lecture 31 - One-Dimensional Flow
- Lecture 32 - Steady Two-Dimensional Flow
- Lecture 33 - Unsteady Two-Dimensional Flow using Finite Difference Method
- Lecture 34
- Lecture 35
- Lecture 36
- Lecture 37
- Lecture 38
- Lecture 39
- Lecture 40 - Steady Channel Flow
- Lecture 41 - Steady Channel Flow
- Lecture 42 - Steady Channel Flow
- Lecture 43 - Steady Channel Flow
- Lecture 44
- Lecture 45
- Lecture 46
- Lecture 47
- Lecture 48
- Lecture 49 - Unsteady Flow in Pipes
- Lecture 50 - Surface Water and Ground Water Interaction
- Lecture 51 - Course Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Design of Steel Structures

Subject Co-ordinator - Prof. Damodar Maity

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Design of Steel Structures (Limit State Method)
- Lecture 2 - Steel as a Structural Material
- Lecture 3 - Limit State Design
- Lecture 4 - Introduction to Connections
- Lecture 5 - Introduction to Bolt Connections
- Lecture 6 - Design of Ordinary Black Bolts
- Lecture 7 - Worked out Examples on Design of Ordinary Black Bolts
- Lecture 8 - Design of High Strength Friction Grip Bolts
- Lecture 9 - Weld connection
- Lecture 10 - Design of Fillet Welds
- Lecture 11 - Design of Butt Welds
- Lecture 12 - Design of Plug and Slot Weld
- Lecture 13 - Eccentric Connection (Load Lying in Plane of Bolted Joint)
- Lecture 14 - Design of Eccentric Connection (Load Lying in Plane of Bolted Joint)
- Lecture 15 - Eccentric Connection (Load Lying in Plane of Welded Joint)
- Lecture 16 - Eccentric Connection (Load Lying Perpendicular to Plane of Bolted Joint)
- Lecture 17 - Design of Eccentric Connection (Load Lying Perpendicular to Plane of Bolted Joint)
- Lecture 18 - Eccentric Connection (Load Lying Perpendicular to Plane of Welded Joint)
- Lecture 19 - Tension Members and Net Area
- Lecture 20 - Calculation of Net Area in Tension Members
- Lecture 21 - Net area, Staggered bolt, Chain bolt, Staggered pitch, Deduction of area
- Lecture 22 - Strength Calculation of Tension Members
- Lecture 23 - Strength of Tension Members with Weld Connection
- Lecture 24 - Steps for Design of Tension Members
- Lecture 25 - Design Calculation for Tension Members
- Lecture 26 - Design of Gusset Plate
- Lecture 27 - Lug Angles
- Lecture 28 - Splices in Tension Members
- Lecture 29 - Compression Members

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design Strength of Compression Members
- Lecture 31 - Compressive Strength
- Lecture 32 - Compressive Strength of Angle Struts
- Lecture 33 - Compressive Strength of Double Angles
- Lecture 34 - Design of Compression Members
- Lecture 35 - Design of Builtup Compression Members
- Lecture 36 - Lacing Systems
- Lecture 37 - Design of Lacing Systems
- Lecture 38 - Connection Design of Lacing Systems
- Lecture 39 - Design of Double Lacing System
- Lecture 40 - Batten Plates
- Lecture 41 - Design of Batten Plates using Bolt Connection
- Lecture 42 - Design of Batten Plates using Weld Connection
- Lecture 43 - Design of Column Splices
- Lecture 44 - Design of Column Splices due to Shear
- Lecture 45 - Introduction to Flexural Members
- Lecture 46 - Failure Modes of Flexural Members
- Lecture 47 - Laterally Supported Beams
- Lecture 48 - Design of Laterally Supported Beams
- Lecture 49 - Laterally Supported Beams with High Shear
- Lecture 50 - Laterally Unsupported Beams
- Lecture 51 - Strength Calculation of Laterally Unsupported Beams
- Lecture 52
- Lecture 53
- Lecture 54
- Lecture 55
- Lecture 56
- Lecture 57
- Lecture 58 - Worked out Example for Gantry Girder
- Lecture 59 - Slab Base
- Lecture 60 - Design of Slab Base
- Lecture 61 - Eccentrically Loaded Base Plate
- Lecture 62 - Gusset Base
- Lecture 63 - Design of Gusset Base

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Reinforced Concrete Road Bridges

Subject Co-ordinator - Prof. Nirjhar Dhang

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Classification of Bridges
- Lecture 3 - General Features of Design
- Lecture 4 - IRC Loading
- Lecture 5 - Design Codes
- Lecture 6 - Working Stress Method
- Lecture 7 - Limit State Method of Design as per IS456
- Lecture 8 - Limit State Method of Design as per IRC 112
- Lecture 9 - Design of Slab Bridges - Part I
- Lecture 10 - Design of Slab Bridges - Part II
- Lecture 11 - Design of Slab Bridges - Part III
- Lecture 12 - Design of Slab Bridges - Part IV
- Lecture 13 - Design of Slab Bridges - Part V
- Lecture 14 - Design of Slab Bridges - Part VI
- Lecture 15 - Abutment
- Lecture 16 - Design of RCC T Beam Bridge - Part I
- Lecture 17 - Design of RCC T Beam Bridge - Part II
- Lecture 18 - Design of RCC T Beam Bridge - Part III
- Lecture 19 - Design of RCC T Beam Bridge - Part IV
- Lecture 20 - Summary and Closure

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Structural Analysis - I

Subject Co-ordinator - Prof. Amit Shaw

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Idealization of Structures, Threats and Responses
- Lecture 3 - Static Equilibrium
- Lecture 4 - Determinate and Indeterminate Structures
- Lecture 5 - Review of Bending Moment and Shear Force Diagram of Beam
- Lecture 6 - Tutorial - I
- Lecture 7 - Analysis of Statically Determinate Structures
- Lecture 8 - Analysis of Truss
- Lecture 9 - Analysis of Truss
- Lecture 10 - Analysis of Truss
- Lecture 11 - Analysis of Truss
- Lecture 12 - Analysis of Statically Determinate Structures
- Lecture 13 - Analysis of Statically Determinate Structures
- Lecture 14 - Analysis of Statically Determinate Structures
- Lecture 15 - Analysis of Statically Determinate Structures
- Lecture 16 - Analysis of Statically Determinate Structures
- Lecture 17 - Deflection of Beams and Frames
- Lecture 18 - Deflection of Beams and Frames (Continued...)
- Lecture 19 - Deflection of Beams and Frames (Continued...)
- Lecture 20 - Deflection of Beams and Frames (Continued...)
- Lecture 21 - Deflection of Beams and Frames (Continued...)
- Lecture 22 - Deflection of Beams and Frames (Continued...)
- Lecture 23 - Deflection of Beams and Frames (Continued...)
- Lecture 24 - Deflection of Beams and Frames (Continued...)
- Lecture 25 - Deflection of Beams and Frames (Continued...)
- Lecture 26 - Deflection of Beams and Frames (Continued...)
- Lecture 27 - Deflection of Beams and Frames (Continued...)
- Lecture 28 - Influence Line Diagram and moving Loads
- Lecture 29 - Influence Line Diagram and moving Loads (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Influence Line Diagram and moving Loads (Continued...)
- Lecture 31 - Influence Line Diagram and moving Loads (Continued...)
- Lecture 32 - Influence Line Diagram and moving Loads (Continued...)
- Lecture 33 - Analysis of Statically Indeterminate Structures
- Lecture 34 - Analysis of Statically Indeterminate Structures (Continued...)
- Lecture 35 - Analysis of Statically Indeterminate Structures (Continued...)
- Lecture 36 - Analysis of Statically Indeterminate Structures (Continued...)
- Lecture 37 - Analysis of Statically Indeterminate Structures (Continued...)
- Lecture 38 - Analysis of Statically Indeterminate Structures
- Lecture 39 - Analysis of Statically Indeterminate Structures
- Lecture 40 - Analysis of Statically Indeterminate Structures
- Lecture 41 - Analysis of Statically Indeterminate Structures
- Lecture 42 - Analysis of Statically Indeterminate Structures by Force Method
- Lecture 43 - Analysis of Statically Indeterminate Structures by Force Method (Continued...)
- Lecture 44 - Analysis of Statically Indeterminate Structures by Force Method (Continued...)
- Lecture 45 - Analysis of Statically Indeterminate Structures by Force Method (Continued...)
- Lecture 46 - Analysis of Statically Indeterminate Structures by Force Method (Continued...)
- Lecture 47 - Analysis of Indeterminate Structures by Displacement Methods
- Lecture 48 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 49 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 50 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 51 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 52 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 53 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 54 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 55 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)
- Lecture 56 - Analysis of Indeterminate Structures by Displacement Methods (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Soil Mechanics, Geotechnical Engineering-I

Subject Co-ordinator - Prof. Dilip Kumar Baidya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Rock cycle
- Lecture 2 - Soil Formation
- Lecture 3 - Soil Classification
- Lecture 4 - Soil Classification (Continued...)
- Lecture 5 - Soil Classification (Continued...)
- Lecture 6 - Three-phase diagram
- Lecture 7 - Three-phase diagram (Continued...)
- Lecture 8 - Permeability and seepage
- Lecture 9 - Permeability and Seepage (Continued...)
- Lecture 10 - Permeability and seepage (Continued...)
- Lecture 11 - Permeability And Seepage
- Lecture 12 - Permeability And Seepage (Continued...)
- Lecture 13 - Permeability And Seepage (Continued...)
- Lecture 14 - Compaction Of Soils
- Lecture 15 - Compaction Of Soils (Continued...)
- Lecture 16 - Deep Dynamic Compaction
- Lecture 17 - Permeability/Compaction (Continued...)
- Lecture 18 - Effective Stress
- Lecture 19 - Effective Stress (Continued...)
- Lecture 20 - Effective Stress Application
- Lecture 21 - Vertical Stress Distribution
- Lecture 22 - Boussinesq Point Load Formula
- Lecture 23 - Vertical Stress For Distributed Load
- Lecture 24 - Vertical Stress
- Lecture 25 - Vertical Stress (Continued...)
- Lecture 26 - Vertical Stress (Continued...)
- Lecture 27 - Shear Strength
- Lecture 28 - Shear Strength (Continued...)
- Lecture 29 - Shear Strength (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Shear Strength (Continued...)
- Lecture 31 - Shear Strength (Continued...)
- Lecture 32 - Shear Strength (Continued...)
- Lecture 33 - Shear Strength (Continued...)
- Lecture 34 - Shear Strength (Continued...)
- Lecture 35 - Shear Strength (Continued...)
- Lecture 36 - Shear Strength (Continued...)
- Lecture 37 - Compressibility Of Soils
- Lecture 38 - Compressibility Of Soils (Continued...)
- Lecture 39 - Compressibility Of Soils (Continued...)
- Lecture 40 - Compressibility Of Soils (Continued...)
- Lecture 41 - Compressibility Of Soils (Continued...)
- Lecture 42 - Compressibility Of Soils (Continued...)
- Lecture 43 - Compressibility Of Soils (Continued...)
- Lecture 44 - Compressibility And Settlement Of Soil
- Lecture 45 - Compressibility And Settlement (Continued...)
- Lecture 46 - Compressibility And Secondary Compression
- Lecture 47 - Earth Pressure
- Lecture 48 - Earth Pressure (Continued...)
- Lecture 49 - Earth Pressure (Continued...)
- Lecture 50 - Earth Pressure (Continued...)
- Lecture 51 - Earth Pressure (Continued...)
- Lecture 52 - Earth Pressure (Continued...)
- Lecture 53 - Earth Pressure (Continued...)
- Lecture 54 - Earth Pressure (Continued...)
- Lecture 55 - Stability Of Slopes
- Lecture 56 - Stability Of Slopes (Continued...)
- Lecture 57 - Stability Of Slopes (Continued...)
- Lecture 58 - Slope Stability
- Lecture 59 - Slope Stability
- Lecture 60 - Concluding Remarks
- Lecture 61 - Live Session



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Electronic Waste Management - Issues and Challenges

Subject Co-ordinator - Prof. Brajesh Kumar Dubey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - E-Waste Overview
- Lecture 2 - E-waste Overview
- Lecture 3 - E-waste Overview
- Lecture 4 - E-waste Management Overview
- Lecture 5 - E-waste Management Overview
- Lecture 6 - Environmental and Public Health Issues
- Lecture 7 - Environmental and Public Health Issues (Continued...)
- Lecture 8 - E-waste Health Risk Assessment
- Lecture 9 - Environmental and Public Health Issues (Continued...)
- Lecture 10 - Environmental and Public Health Issues (Continued...)
- Lecture 11 - Recovery of Materials from E-Waste
- Lecture 12 - Metal Recovery Process
- Lecture 13 - Recovery of Metals from Electronic Waste
- Lecture 14 - Recovery of Metals from Electronic Waste
- Lecture 15 - Recovery of Metals from Electronic Waste
- Lecture 16 - E-waste Management
- Lecture 17 - E-waste Management
- Lecture 18 - E-waste Management
- Lecture 19 - Electronics and LCA
- Lecture 20 - LCA applications for Electronics
- Lecture 21 - Tutorial-I
- Lecture 22 - Tutorial-II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Mineral Resources - Geology, Exploration, Economics and Environment

Subject Co-ordinator - Prof. M.K.Panigrahi

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Mineral Deposits in Space and Time
- Lecture 3 - Mineral Deposits in Space and Time (Continued...)
- Lecture 4 - Mineral Deposits in Time, Attributes of Mineral Deposits and Theories of Mineral Deposits
- Lecture 5 - Classification of Mineral Deposits
- Lecture 6 - Magmatic Processes
- Lecture 7 - Magmatic Processes
- Lecture 8 - Magmatic Processes
- Lecture 9 - Magmatic Processes
- Lecture 10 - Sedimentary Processes and Resultant Mineral Deposits
- Lecture 11 - Sedimentary Processes and Resultant Deposits
- Lecture 12 - Sedimentary Processes and Resultant Deposits
- Lecture 13 - Sedimentary Processes and Resultant Deposits
- Lecture 14 - Sedimentary Processes and Resultant Deposits
- Lecture 15 - Morphology of Ore Deposits
- Lecture 16 - Hydrothermal Processes
- Lecture 17 - Hydrothermal Processes (Continued...)
- Lecture 18 - Hydrothermal Processes
- Lecture 19 - Hydrothermal Processes
- Lecture 20 - Hydrothermal Processes
- Lecture 21 - Hydrothermal Processes (Continued...)
- Lecture 22 - Hydrothermal Processes (Continued...)
- Lecture 23 - Hydrothermal Processes (Continued...)
- Lecture 24 - Hydrothermal Systems
- Lecture 25 - Hydrothermal Systems (Continued...)
- Lecture 26 - Hydrothermal Processes and Resultant Deposits
- Lecture 27 - Hydrothermal Processes and Resultant Deposits (Continued...)
- Lecture 28 - Hydrothermal Processes and Resultant Mineralization
- Lecture 29 - Indian Mineral Deposits

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Indian Mineral Deposits (Continued...)
- Lecture 31 - Indian Mineral Deposits (Continued...)
- Lecture 32 - Mineral Exploration
- Lecture 33 - Mineral Exploration (Continued...)
- Lecture 34 - Mineral Exploration (Continued...)
- Lecture 35 - Mineral Exploration (Continued...)
- Lecture 36 - Mineral Exploration (Continued...)
- Lecture 37 - Mineral Exploration (Continued...)
- Lecture 38 - Mineral Exploration (Continued...)
- Lecture 39 - Mineral Exploration (Continued...)
- Lecture 40 - Mineral Exploration (Continued...)
- Lecture 41 - Mineral Exploration (Continued...)
- Lecture 42 - Mineral Exploration (Continued...)
- Lecture 43 - Mineral Exploration (Continued...)
- Lecture 44 - Mineral Exploration (Continued...)
- Lecture 45 - Mineral Inventory Estimation
- Lecture 46 - Mineral Inventory Estimation (Continued...)
- Lecture 47 - Mineral Inventory Estimation (Continued...)
- Lecture 48 - Mineral Inventory Estimation (Continued...)
- Lecture 49 - Geostatistical Method of Mineral Inventory Estimation
- Lecture 50 - Geostatistical Method of Mineral Inventory Estimation (Continued...)
- Lecture 51 - Mineral Economics
- Lecture 52 - Mineral Economics (Continued...)
- Lecture 53 - Mineral Economics (Continued...)
- Lecture 54 - Mineral Economics (Continued...)
- Lecture 55 - Mineral Economics (Continued...)
- Lecture 56 - Environmental Impact of Mineral Resource Exploitation
- Lecture 57 - Environmental Impact of Mineral Resource Exploitation (Continued...)
- Lecture 58 - Environmental Impact of Mineral Resource Exploitation (Continued...)
- Lecture 59 - Environmental Impact of Mineral Resource Exploitation (Continued...)
- Lecture 60 - Environmental Impact of Mineral Resource Exploitation (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Introduction to Mineral Processing

Subject Co-ordinator - Prof. Arun Kumar Majumder

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Importance of Mineral Processing  
Lecture 2 - Importance to Mineral Processing (Continued...)  
Lecture 3 - Importance of Mineral Processing (Continued...)  
Lecture 4 - Importance of Mineral Processing (Continued...)  
Lecture 5 - Importance of Mineral Processing (Continued...)  
Lecture 6 - Particle Characterization  
Lecture 7 - Particle Characterization (Continued...)  
Lecture 8 - Particle Characterization (Continued...)  
Lecture 9 - Particle Characterization (Continued...)  
Lecture 10 - Particle Characterization (Continued...)  
Lecture 11 - Particle Characterization (Continued...)  
Lecture 12 - Sampling  
Lecture 13 - Sampling (Continued...)  
Lecture 14 - Plant Sampling  
Lecture 15 - Plant Sampling (Continued...)  
Lecture 16 - Comminution  
Lecture 17 - Comminution (Continued...)  
Lecture 18 - Comminution Fundamentals  
Lecture 19 - Comminution Fundamentals (Continued...)  
Lecture 20 - Crushers  
Lecture 21 - Crushers (Continued...)  
Lecture 22 - Crushers (Continued...)  
Lecture 23 - Grinding  
Lecture 24 - Grinding (Continued...)  
Lecture 25 - Grinding (Continued...)  
Lecture 26 - Grinding (Continued...)  
Lecture 27 - Grinding (Continued...)  
Lecture 28 - Industrial Screening  
Lecture 29 - Industrial Screening (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Industrial Screening (Continued...)
- Lecture 31 - Industrial Screening (Continued...)
- Lecture 32 - Industrial Screening (Continued...)
- Lecture 33 - Industrial Screening (Continued...)
- Lecture 34 - Industrial Screening (Continued...)
- Lecture 35 - Movement of Solids in Fluids
- Lecture 36 - Movement of Solids in Fluids (Continued...)
- Lecture 37 - Movement of Solids in Fluids (Continued...)
- Lecture 38 - Classifier
- Lecture 39 - Classifier (Continued...)
- Lecture 40 - Hydrocyclone
- Lecture 41 - Hydrocyclone (Continued...)
- Lecture 42 - Hydrocyclone (Continued...)
- Lecture 43 - Hydrocyclone (Continued...)
- Lecture 44 - Hydrocyclone (Continued...)
- Lecture 45 - Mass Balancing
- Lecture 46 - Mass Balancing (Continued...)
- Lecture 47 - Closed-Circuit Grinding
- Lecture 48 - Gravity Concentration
- Lecture 49 - Gravity Concentration (Continued...)
- Lecture 50 - Gravity Concentration (Continued...)
- Lecture 51 - Gravity Concentration (Continued...)
- Lecture 52 - Gravity Concentration (Continued...)
- Lecture 53 - Flotation
- Lecture 54 - Flotation (Continued...)
- Lecture 55 - Flotation (Continued...)
- Lecture 56 - Flotation Chemicals
- Lecture 57 - Flotation Chemicals (Continued...)
- Lecture 58 - Flotation Chemicals (Continued...)
- Lecture 59 - Flotation Machines
- Lecture 60 - Flotation Machines (Continued...)
- Lecture 61 - Magnetic Separation
- Lecture 62 - Electric Separation
- Lecture 63 - Flow Sheets
- Lecture 64 - Flow Sheets (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Foundation Engineering

Subject Co-ordinator - Prof. Koushik Deb

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Shear Strength  
Lecture 4 - Soil Exploration - Boring  
Lecture 5 - Standard Penetration Test  
Lecture 6 - Standard Penetration Test and Cone Penetration Test  
Lecture 7 - Cone Penetration Test and Other In-Situ Tests  
Lecture 8 - Types of Samples  
Lecture 9 - Geophysical Exploration - I  
Lecture 10 - Geophysical Exploration - II  
Lecture 11 - Shallow Foundation - Bearing Capacity I  
Lecture 12 - Shallow Foundation - Bearing Capacity II  
Lecture 13 - Shallow Foundation - Bearing Capacity III  
Lecture 14 - Shallow Foundation - Bearing Capacity IV  
Lecture 15 - Shallow Foundation - Bearing Capacity V  
Lecture 16 - Shallow Foundation - Settlement I  
Lecture 17 - Shallow Foundation - Settlement II  
Lecture 18 - Shallow Foundation - Settlement III  
Lecture 19 - Shallow Foundation - Settlement IV  
Lecture 20 - Shallow Foundation - Settlement V  
Lecture 21 - Shallow Foundation - Design I  
Lecture 22 - Shallow Foundation - Design II  
Lecture 23 - Shallow Foundation - Design III  
Lecture 24 - Shallow Foundation - Design IV  
Lecture 25 - Shallow Foundation - Design V  
Lecture 26 - Shallow Foundation - Design VI  
Lecture 27 - Pile Foundation - I  
Lecture 28 - Pile Foundation - II  
Lecture 29 - Pile Foundation - III

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pile Foundation - IV
- Lecture 31 - Pile Foundation - V
- Lecture 32 - Pile Foundation - VI
- Lecture 33 - Pile Foundation - VII
- Lecture 34 - Pile Foundation - VIII
- Lecture 35 - Pile Foundation - IX
- Lecture 36 - Pile Foundation - X
- Lecture 37 - Pile Foundation - XI
- Lecture 38 - Pile Foundation - XII
- Lecture 39 - Pile Foundation - XIII
- Lecture 40 - Pile Foundation - XIV
- Lecture 41 - Earth Pressure - I
- Lecture 42 - Earth Pressure - II
- Lecture 43 - Earth Pressure - III
- Lecture 44 - Earth Pressure - IV
- Lecture 45 - Earth Pressure - V
- Lecture 46 - Earth Pressure - VI
- Lecture 47 - Earth Pressure - VII
- Lecture 48 - Earth Pressure and Retaining Wall
- Lecture 49 - Retaining Wall - II
- Lecture 50 - Retaining Wall - III
- Lecture 51 - Retaining Wall - IV
- Lecture 52 - Retaining Wall - V and Sheet Piles - I
- Lecture 53 - Sheet Piles - II
- Lecture 54 - Sheet Piles - III
- Lecture 55 - Sheet Piles - IV
- Lecture 56 - Sheet Piles - V
- Lecture 57 - Sheet Piles - VI
- Lecture 58 - Sheet Piles and Braced Excavation
- Lecture 59 - Braced Excavation and Underground Conduits
- Lecture 60 - Underground Conduits - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Theory of Elasticity

Subject Co-ordinator - Prof. Biswanath Banjerjee, Prof. Amit Shaw

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction to Tensor
- Lecture 3 - Introduction to Tensor (Continued...)
- Lecture 4 - Introduction to Tensor (Continued...)
- Lecture 5 - Introduction to Tensor (Continued...)
- Lecture 6 - Introduction to Tensor (Continued...)
- Lecture 7 - Concept of Stress and Strain
- Lecture 8 - Concept of Stress and Strain (Continued...)
- Lecture 9 - Concept of Stress and Strain (Continued...)
- Lecture 10 - Concept of Stress and Strain (Continued...)
- Lecture 11 - Concept of Stress and Strain (Continued...)
- Lecture 12 - Constitutive Relation - I
- Lecture 13 - Constitutive Relation - I (Continued...)
- Lecture 14 - Constitutive Relation - I (Continued...)
- Lecture 15 - Constitutive Relation - I (Continued...)
- Lecture 16 - Constitutive Relation - I (Continued...)
- Lecture 17 - Constitutive Relation - II
- Lecture 18 - Constitutive Relation - II (Continued...)
- Lecture 19 - Constitutive Relation - II (Continued...)
- Lecture 20 - Constitutive Relation - II (Continued...)
- Lecture 21 - Constitutive Relation - II (Continued...)
- Lecture 22 - Formulation of Boundary Value Problems
- Lecture 23 - Formulation of Boundary Value Problems (Continued...)
- Lecture 24 - Formulation of Boundary Value Problems (Continued...)
- Lecture 25 - Formulation of Boundary Value Problems (Continued...)
- Lecture 26 - Formulation of Boundary Value Problems (Continued...)
- Lecture 27 - Solution of Boundary Value Problems
- Lecture 28 - Solution of Boundary Value Problems (Continued...)
- Lecture 29 - Solution of Boundary Value Problems (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Solution of Boundary Value Problems (Continued...)
- Lecture 31 - Solution of Boundary Value Problems (Continued...)
- Lecture 32 - Solution of Boundary Value Problems (Continued...)
- Lecture 33 - Problems in Flexure
- Lecture 34 - Problems in Flexure (Continued...)
- Lecture 35 - Problems in Flexure (Continued...)
- Lecture 36 - Problems in Flexure (Continued...)
- Lecture 37 - Problems in Flexure (Continued...)
- Lecture 38 - Boundary Value Problems in Elasticity
- Lecture 39 - Boundary Value Problems in Elasticity (Continued...)
- Lecture 40 - Boundary Value Problems in Elasticity (Continued...)
- Lecture 41 - Boundary Value Problems in Elasticity (Continued...)
- Lecture 42 - Boundary Value Problems in Elasticity (Continued...)
- Lecture 43 - Complex Variable Method
- Lecture 44 - Complex Variable Method (Continued...)
- Lecture 45 - Complex Variable Method (Continued...)
- Lecture 46 - Complex Variable Method (Continued...)
- Lecture 47 - Complex Variable Method (Continued...)
- Lecture 48 - Complex Variable Method (Continued...)
- Lecture 49 - Thermoelasticity
- Lecture 50 - Thermoelasticity (Continued...)
- Lecture 51 - Thermoelasticity (Continued...)
- Lecture 52 - Thermoelasticity (Continued...)
- Lecture 53 - Thermoelasticity (Continued...)
- Lecture 54 - Photo-Elasticity
- Lecture 55 - Photo-Elasticity (Continued...)
- Lecture 56 - Photo-Elasticity (Continued...)
- Lecture 57 - Photo-Elasticity (Continued...)
- Lecture 58 - Photo-Elasticity (Continued...)
- Lecture 59 - Introduction to Nonlinear Elasticity
- Lecture 60 - Closure

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Wastewater Treatment and Recycling

Subject Co-ordinator - Prof. Manoj Kumar Tiwari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction
- Lecture 2 - Sources and Types of Wastewater
- Lecture 3 - Pollutants in Wastewater
- Lecture 4 - Wastewater Management
- Lecture 5 - Wastewater Management
- Lecture 6 - Wastewater Generation and Quantity Estimation
- Lecture 7 - Quantity Estimation of Sewage
- Lecture 8 - Population Forecasting Methods
- Lecture 9 - Quantity Estimation of Sewage Flow
- Lecture 10 - Sewage Quantity Estimation
- Lecture 11 - Wastewater Characteristics
- Lecture 12 - Wastewater Characteristics
- Lecture 13 - Wastewater Characteristics
- Lecture 14 - Wastewater Characteristics
- Lecture 15 - Wastewater Characteristics
- Lecture 16 - Terrace - Introduction
- Lecture 17 - Bench Terraces
- Lecture 18 - Problems on Bench Terraces
- Lecture 19 - Broad-base Terraces
- Lecture 20 - Problems on Broad-base Terraces
- Lecture 21 - Mass Balance
- Lecture 22 - Mass Balance in Reactors
- Lecture 23
- Lecture 24
- Lecture 25
- Lecture 26
- Lecture 27
- Lecture 28 - Secondary Treatment Processes
- Lecture 29 - Biological Treatment of Wastewater

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Biological Treatment of Wastewater
- Lecture 31 - Biological Treatment of Wastewater
- Lecture 32 - Biological Treatment of Wastewater
- Lecture 33
- Lecture 34
- Lecture 35
- Lecture 36
- Lecture 37
- Lecture 38 - Introduction to Sludge Management
- Lecture 39 - Wastewater Sludge
- Lecture 40 - Wastewater Sludge Processing and Treatment
- Lecture 41 - Wastewater Sludge Processing and Treatment
- Lecture 42 - Wastewater Sludge Processing and Treatment
- Lecture 43 - Tertiary (Advanced) Treatment of Wastewater
- Lecture 44 - Tertiary Treatment
- Lecture 45 - Tertiary Treatment
- Lecture 46 - Tertiary Treatment
- Lecture 47 - Tertiary Treatment
- Lecture 48 - Wastewater Treatment Systems
- Lecture 49 - Wastewater Treatment Systems
- Lecture 50 - Alternate Wastewater Treatment Systems
- Lecture 51 - Alternate Wastewater Treatment Systems
- Lecture 52
- Lecture 53
- Lecture 54
- Lecture 55
- Lecture 56
- Lecture 57 - Wastewater Reuse and Recycling
- Lecture 58 - Decision Making in Wastewater Reuse and Recycling
- Lecture 59 - Public Acceptance for Recycled Water Use
- Lecture 60 - Wastewater Reuse and Recycling
- Lecture 61 - Course Summary
- Lecture 62 - Course Summary (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Fluid Inclusion in Mineral Principles, Methodology, Practice and

Subject Co-ordinator - Prof. M.K.Panigrahi

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Introduction (Continued...)
- Lecture 4 - Introduction (Continued...)
- Lecture 5 - Introduction (Continued...)
- Lecture 6 - Microthermometry
- Lecture 7 - Microthermometry
- Lecture 8 - Microthermometry
- Lecture 9 - Microthermometry
- Lecture 10 - Fluid Inclusion Petrography
- Lecture 11 - Aqueous Fluid Inclusions
- Lecture 12 - Aqueous Fluid Inclusions (Continued...)
- Lecture 13 - Response to Heating Experiment
- Lecture 14 - Aqueous Fluid Inclusions (Continued...)
- Lecture 15 - Aqueous Fluid Inclusions (Continued...)
- Lecture 16 - Pure Carbonic Inclusion
- Lecture 17 - Pure Carbonic Inclusion (Continued...)
- Lecture 18 - Microthermometry of Aqueous-Carbonic Inclusion
- Lecture 19 - Microthermometry of Aqueous-Carbonic Inclusion (Continued...)
- Lecture 20 - Microthermometry of Aqueous-Carbonic Fluid Inclusion
- Lecture 21 - Application of Fluid Inclusion to Ore Environment
- Lecture 22 - Application of Fluid Inclusion Studies to Ore Environment
- Lecture 23 - Application of fluid Inclusion to Ore Forming Environments
- Lecture 24 - Application of fluid Inclusion to Ore Forming Environments (Continued...)
- Lecture 25 - Application of fluid Inclusion to Ore Forming Environments (Continued...)
- Lecture 26 - Application of fluid Inclusion to Deformation, Metamorphism
- Lecture 27 - Application of fluid Inclusion to Deformation, Metamorphism (Continued...)
- Lecture 28 - Application of fluid Inclusion to Deformation, Metamorphism (Continued...)
- Lecture 29 - Application of fluid Inclusion to Deformation, Metamorphism (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Application of fluid Inclusion to Deformation, Metamorphism (Continued...)
- Lecture 31 - Analysis of Fluid Inclusion
- Lecture 32 - Analysis of Fluid Inclusion (Continued...)
- Lecture 33 - Analysis of Fluid Inclusion (Continued...)
- Lecture 34 - Analysis of Fluid Inclusion (Continued...)
- Lecture 35 - Analysis of Fluid Inclusion (Continued...)
- Lecture 36 - Computer Software for Fluid Inclusion Data
- Lecture 37 - Computer Software for Fluid Inclusion Data (Continued...)
- Lecture 38 - Computer Software for Fluid Inclusion Data (Continued...)
- Lecture 39 - Review of the Course
- Lecture 40 - Review of the Course (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Matrix Method of Structural Analysis

Subject Co-ordinator - Prof. Biswanath Banjerjee, Prof. Amit Shaw

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Review of Structural Analysis - I
- Lecture 3 - Review of Structural Analysis - I (Continued...)
- Lecture 4 - Review of Structural Analysis - I (Continued...)
- Lecture 5 - Review of Structural Analysis - I (Continued...)
- Lecture 6 - Review of Structural Analysis - I (Continued...)
- Lecture 7 - Review of Structural Analysis - I (Continued...)
- Lecture 8 - Review of Structural Analysis - I (Continued...)
- Lecture 9 - Review of Structural Analysis - I (Continued...)
- Lecture 10 - Review of Structural Analysis - I (Continued...)
- Lecture 11 - Matrix Algebra Review
- Lecture 12 - Matrix Algebra Review (Continued...)
- Lecture 13 - Matrix Algebra Review (Continued...)
- Lecture 14 - Matrix Algebra Review (Continued...)
- Lecture 15 - Matrix Algebra Review (Continued...)
- Lecture 16 - Matrix Method of Analysis of Trusses
- Lecture 17 - Matrix Method of Analysis of Trusses (Continued...)
- Lecture 18 - Matrix Method of Analysis of Trusses (Continued...)
- Lecture 19 - Matrix Method of Analysis of Trusses (Continued...)
- Lecture 20 - Matrix Method of Analysis of Trusses (Continued...)
- Lecture 21 - Matrix Method of Analysis
- Lecture 22 - Matrix Method of Analysis
- Lecture 23 - Matrix Method of Analysis
- Lecture 24 - Matrix Method of Analysis
- Lecture 25 - Matrix Method of Analysis
- Lecture 26 - Matrix Method of Analysis
- Lecture 27 - Matrix Method of Analysis
- Lecture 28 - Matrix Method of Analysis
- Lecture 29 - Matrix Method of Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Matrix Method of Analysis
- Lecture 31 - Computer Implementation
- Lecture 32 - Computer Implementation (Continued...)
- Lecture 33 - Analysis of 3D Truss
- Lecture 34 - Analysis of 3D Truss (Continued...)
- Lecture 35 - Analysis of Beam
- Lecture 36 - Introduction to Finite Element Method
- Lecture 37 - Introduction to Finite Element Method (Continued...)
- Lecture 38 - Introduction to Finite Element Method (Continued...)
- Lecture 39 - Introduction to Finite Element Method (Continued...)
- Lecture 40 - Introduction to Finite Element Method (Continued...)
- Lecture 41 - Introduction to Finite Element Method (Continued...)
- Lecture 42 - Introduction to Finite Element Method (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Plastic Waste Management

Subject Co-ordinator - Prof. Brajesh Kumar Dubey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Plastics - What is Plastic
- Lecture 2 - Plastics - Types
- Lecture 3 - Plastics - Types (Continued...)
- Lecture 4 - Plastics - Uses and Global Statistics
- Lecture 5 - Plastics - Global Statistics
- Lecture 6 - Plastic Waste Sources
- Lecture 7 - Plastic Waste Sources (Continued...)
- Lecture 8 - Plastic Waste Sources and Production
- Lecture 9 - Global Sources
- Lecture 10 - Global and Indian data
- Lecture 11 - Plastic Waste Management Rules 2016 (India)
- Lecture 12 - Plastic Waste Management Rules (Continued...)
- Lecture 13 - Plastic Waste Management Rules (Continued...)
- Lecture 14 - Plastic Waste Management Rules (Continued...)
- Lecture 15 - Global Rules and Regulations
- Lecture 16 - Plastic Bans including China Sword Policy Implication on Global Plastic Waste Management
- Lecture 17 - Plastic Bans - Global Examples
- Lecture 18 - Plastic Bans - China Sword Policy
- Lecture 19 - Plastic Bans - China Sword Policy Impacts
- Lecture 20 - Plastic Bans - Impact on Global Plastic Waste Management
- Lecture 21 - Impact of Plastic Pollution on Marine Life
- Lecture 22 - Impact of Plastic Pollution on Marine Life (Continued...)
- Lecture 23 - Plastic Pollution Impacts on Marine and Wildlife
- Lecture 24 - Plastic Pollution
- Lecture 25 - Plastic Pollution
- Lecture 26 - Plastic Waste Management Practices
- Lecture 27 - Plastic Waste Management
- Lecture 28 - Plastic Waste Management
- Lecture 29 - Plastic Waste Management

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Use of Waste Plastics in Road Construction
- Lecture 31 - Possible Alternate Materials to Plastics - Greener Alternatives
- Lecture 32 - Biodegradable Plastics
- Lecture 33 - Greener Plastic Products
- Lecture 34 - Biobased Plastic Products
- Lecture 35 - How to Quantify Something is Green
- Lecture 36 - Plastics Resource Recovery and Circular Economy
- Lecture 37 - Plastics Resource Recovery and Intro to Circular Economy
- Lecture 38 - Plastics and Circular Economy
- Lecture 39 - Plastics and Circular Economy - Case Studies
- Lecture 40 - Plastics and Circular Economy - Case Studies (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geotechnical Engineering-II Foundation Engineering

Subject Co-ordinator - Prof. Dilip Kumar Baidya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Quick Review of Soil Mechanics
- Lecture 2 - Quick Review of Soil Mechanics (Continued...)
- Lecture 3 - Quick Review of Soil Mechanics (Continued...)
- Lecture 4 - Quick Review of Soil Mechanics (Continued...)
- Lecture 5 - Quick Review of Soil Mechanics (Continued...)
- Lecture 6 - Foundation Engineering Introduction
- Lecture 7 - Foundation Engineering Introduction (Continued...)
- Lecture 8 - Foundation Engineering Introduction (Continued...)
- Lecture 9 - Shallow Foundation and Bearing Capacity
- Lecture 10 - Shallow Foundation and Bearing Capacity (Continued...)
- Lecture 11 - Shallow Foundation and Bearing Capacity (Continued...)
- Lecture 12 - Shallow Foundation
- Lecture 13 - Shallow Foundation (Continued...)
- Lecture 14 - Shallow Foundation (Continued...)
- Lecture 15 - Shallow Foundation (Continued...)
- Lecture 16 - Shallow Foundation (Continued...)
- Lecture 17 - Settlement of Foundation
- Lecture 18 - Settlement of Foundation (Continued...)
- Lecture 19 - Settlement of Foundation (Continued...)
- Lecture 20 - Settlement of Foundation (Continued...)
- Lecture 21 - Settlement of Foundation (Continued...)
- Lecture 22 - Settlement of Foundation (Continued...)
- Lecture 23 - Geotechnical Investigation
- Lecture 24 - Geotechnical Investigation (Continued...)
- Lecture 25 - Geotechnical Investigation (Continued...)
- Lecture 26 - Geotechnical Investigation (Continued...)
- Lecture 27 - Geotechnical Investigation (Continued...)
- Lecture 28 - Earth Pressure Theories
- Lecture 29 - Earth Pressure Theories (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Earth Pressure Theories (Continued...)
- Lecture 31 - Earth Pressure Theories (Continued...)
- Lecture 32 - Earth Pressure Theories (Continued...)
- Lecture 33 - Stability analysis of earth retaining wall
- Lecture 34 - Stability analysis of earth retaining wall (Continued...)
- Lecture 35 - Stability analysis of earth retaining wall (Continued...)
- Lecture 36 - Stability of earth retaining wall
- Lecture 37 - Pile foundation
- Lecture 38 - Pile foundation (Continued...)
- Lecture 39 - Pile foundation (Continued...)
- Lecture 40 - Pile foundation (Continued...)
- Lecture 41 - Pile foundation (Continued...)
- Lecture 42 - Pile foundation (Continued...)
- Lecture 43 - Pile foundation (Continued...)
- Lecture 44 - Pile foundation (Continued...)
- Lecture 45 - Pile foundation (Continued...)
- Lecture 46 - Pile foundation (Continued...)
- Lecture 47 - Sheet pile wall
- Lecture 48 - Sheet pile wall (Continued...)
- Lecture 49 - Anchor bulkhead
- Lecture 50 - Anchor bulkhead (Continued...)
- Lecture 51 - Deep excavation
- Lecture 52 - Deep excavation (Continued...)
- Lecture 53 - Introduction to machine foundation
- Lecture 54 - Introduction to machine foundation (Continued...)
- Lecture 55 - Introduction to machine foundation (Continued...)
- Lecture 56 - Introduction to machine foundation (Continued...)
- Lecture 57 - Introduction to machine foundation (Continued...)
- Lecture 58 - Introduction to machine foundation (Continued...)
- Lecture 59 - Introduction to machine foundation (Continued...)
- Lecture 60 - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Mass, Momentum and Energy Balances in Engineering Analysis

Subject Co-ordinator - Prof. Pavitra Sandilya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Preliminaries  
Lecture 3 - Balance Equations Preliminaries - I  
Lecture 4 - Tutorial 1 - Balance Equations Preliminaries - I  
Lecture 5 - Balance Equations Preliminaries - II  
Lecture 6 - Tutorial 2 - Balance Equations Preliminaries - II  
Lecture 7 - Macroscopic Balances - I  
Lecture 8 - Macroscopic Balances - II  
Lecture 9 - Macroscopic Balances - III  
Lecture 10 - Tutorial 3 - Macroscopic Balances  
Lecture 11 - Tutorial 4 - Macroscopic Balances  
Lecture 12 - Tutorial 5 - Systems with chemical reactions  
Lecture 13 - Tutorial 6 - Material balance involving chemical reactions  
Lecture 14 - Tutorial 7 - Energy interactions in reacting systems Energy interactions in reacting systems  
Lecture 15 - Tutorial 8 - Energy interactions in reacting systems  
Lecture 16 - Solution of Macroscopic Balance Equations - I  
Lecture 17 - Solution of Macroscopic Balance Equations - II  
Lecture 18 - Tutorial 9 - Solution of Macroscopic Balance Equations - I  
Lecture 19 - Tutorial 10 - Solution of Macroscopic Balance Equations - II  
Lecture 20 - Mathematical Solution of Macroscopic Balance Equations  
Lecture 21 - Mathematical Solution of Macroscopic Balance Equations  
Lecture 22 - Numerical Solution of Macroscopic Balance Equations  
Lecture 23 - Numerical evaluation of integrations in macroscopic balance equations  
Lecture 24 - Microscopic Balances - I  
Lecture 25 - Microscopic Balances - II  
Lecture 26 - Microscopic Balances - III  
Lecture 27 - Microscopic Balances - IV  
Lecture 28 - Microscopic Balances - V  
Lecture 29 - Microscopic Balances - VI

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Microscopic Balances - VII
- Lecture 31 - Microscopic Balance Illustrations - I
- Lecture 32 - Microscopic Balance Illustrations - II
- Lecture 33 - Microscopic Balance Illustrations - III
- Lecture 34 - Microscopic Balance Illustrations - IV
- Lecture 35 - Microscopic Balance Illustrations - V
- Lecture 36 - Matrix Techniques - I
- Lecture 37 - Matrix Techniques - II
- Lecture 38 - Regression
- Lecture 39 - Interpolation
- Lecture 40 - Illustration of Interpolation
- Lecture 41 - Illustration of Regression
- Lecture 42 - Tutorial on macroscopic energy balance
- Lecture 43 - Selective Mathematical Concepts in Transport Phenomena

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Soil Structure Interaction

Subject Co-ordinator - Prof. Koushik Deb

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Bearing Capacity of Soil  
Lecture 3 - Bearing Capacity of Soil (Continued...)  
Lecture 4 - Bearing Capacity of Soil (Continued...)  
Lecture 5 - Settlement of Shallow Foundation  
Lecture 6 - Design of Shallow Foundation  
Lecture 7 - Design of Shallow Foundation (Continued...)  
Lecture 8 - Design of Shallow Foundation (Continued...)  
Lecture 9 - Soil-Structure Interaction for Shallow Foundation  
Lecture 10 - Soil-Structure Interaction for Shallow Foundation  
Lecture 11 - Soil-Structure Interaction for Shallow Foundation  
Lecture 12 - Soil-Structure Interaction for Shallow Foundation  
Lecture 13 - Different Foundation Models  
Lecture 14 - Different Foundation Models (Continued...)  
Lecture 15 - Different Foundation Models (Continued...)  
Lecture 16 - Different Foundation Models (Continued...)  
Lecture 17 - Different Foundation Models (Continued...)  
Lecture 18 - Beams on Elastic Foundation  
Lecture 19 - Beams on Elastic Foundation (Continued...)  
Lecture 20 - Beams on Elastic Foundation (Continued...)  
Lecture 21 - Beams on Elastic Foundation (Continued...)  
Lecture 22 - Beams on Elastic Foundation (Continued...)  
Lecture 23 - Beams on Elastic Foundation (Continued...)  
Lecture 24 - Beams on Elastic Foundation (Continued...)  
Lecture 25 - Beams on Elastic Foundation (Continued...)  
Lecture 26 - Beams on Elastic Foundation (Continued...)  
Lecture 27 - Beams on Elastic Foundation (Continued...)  
Lecture 28 - Beams on Elastic Foundation (Continued...)  
Lecture 29 - Beams on Elastic Foundation (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Beams on Elastic Foundation (Continued...)
- Lecture 31 - Beams on Elastic Foundation (Continued...)
- Lecture 32 - Beams on Elastic Foundation (Continued...)
- Lecture 33 - Beams on Elastic Foundation (Continued...)
- Lecture 34 - Beams on Elastic Foundation (Continued...)
- Lecture 35 - Beams on Elastic Foundation (Continued...)
- Lecture 36 - Beams on Elastic Foundation (Continued...)
- Lecture 37 - Beams on Elastic Foundation (Continued...)
- Lecture 38 - Beams on Elastic Foundation (Continued...)
- Lecture 39 - Beams on Elastic Foundation (Continued...)
- Lecture 40 - Beams on Elastic Foundation (Continued...)
- Lecture 41 - Plates on Elastic Foundation
- Lecture 42 - Plates on Elastic Foundation (Continued...)
- Lecture 43 - Plates on Elastic Foundation (Continued...)
- Lecture 44 - Plates on Elastic Foundation (Continued...)
- Lecture 45 - Use of Finite Difference Method for Soil Structure Interaction Problems
- Lecture 46 - Use of Finite Difference Method for Soil Structure Interaction Problems (Continued...)
- Lecture 47 - Use of Finite Difference Method for Soil Structure Interaction Problems (Continued...)
- Lecture 48 - Use of Finite Difference Method for Soil Structure Interaction Problems (Continued...)
- Lecture 49 - Use of Finite Difference Method for Soil Structure Interaction Problems (Continued...)
- Lecture 50 - Use of Finite Difference Method for Soil Structure Interaction Problems (Continued...)
- Lecture 51 - Use of Finite Difference Method for Soil Structure Interaction Problems (Continued...)
- Lecture 52 - Soil Structure Interaction for Pile Foundation
- Lecture 53 - Soil Structure Interaction for Pile Foundation (Continued...)
- Lecture 54 - Soil Structure Interaction for Pile Foundation (Continued...)
- Lecture 55 - Soil Structure Interaction for Pile Foundation (Continued...)
- Lecture 56 - Soil Structure Interaction for Pile Foundation (Continued...)
- Lecture 57 - Soil Structure Interaction for Pile Foundation (Continued...)
- Lecture 58 - Soil Structure Interaction for Pile Foundation (Continued...)
- Lecture 59 - Soil Structure Interaction for Pile Foundation (Continued...)
- Lecture 60 - Soil Structure Interaction for Pile Foundation (Continued...)
- Lecture 61 - Soil Structure Interaction for Pile Foundation (Continued...)
- Lecture 62 - Soil Structure Interaction for Pile Foundation (Continued...)
- Lecture 63 - Soil Structure Interaction for Pile Foundation (Continued...)
- Lecture 64 - Soil Structure Interaction for Pile Foundation (Continued...)
- Lecture 65 - Soil Structure Interaction for Pile Foundation (Continued...)
- Lecture 66 - Soil Structure Interaction for Pile Foundation (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Water Supply Engineering

Subject Co-ordinator - Prof. Manoj Kumar Tiwari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Background and Course Introduction

Lecture 2 - Water Sources and Availability

Lecture 3 - Water Uses

Lecture 4 - Water Supply Key Issues and Concerns

Lecture 5 - Urban water services and water supply systems

Lecture 6 - Urban water services and water supply systems

Lecture 7 - Components of Water Demand

Lecture 8 - Fluctuations in Water Demand

Lecture 9 - Concept of Design Period and Design Population Need to Forecast Population Population Forecasting

Lecture 10 - Demand Forecasting and Design Capacities

Lecture 11 - Water Sources and Collection of Water

Lecture 12 - Surface Water Intakes

Lecture 13 - Surface Water Intakes Systems

Lecture 14 - Groundwater Intake

Lecture 15 - Well Interferences, Well losses and Efficiency

Lecture 16 - Raw water Conveyance and Pumping

Lecture 17 - Practice Problems

Lecture 18 - Raw Water Storage

Lecture 19 - Treated Water Storage

Lecture 20 - Placement, Design and Construction of Storage Reservoirs

Lecture 21 - Practice Problems on Reservoir Capacity Estimation

Lecture 22 - Water Quality and Water Pollutants

Lecture 23 - Water Quality Parameters

Lecture 24 - Philosophy of Water Treatment

Lecture 25 - Water Treatment Units Screening and Aeration

Lecture 26 - Water Treatment Units Sedimentation

Lecture 27 - Practice Problems On Sedimentation

Lecture 28 - Coagulation and Flocculation

Lecture 29 - Coagulation and Flocculation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Coagulation and Flocculation
- Lecture 31 - Filtration Theory and Slow Sand Filters
- Lecture 32 - Rapid Sand Filter
- Lecture 33 - Rapid Sand Filters and Pressure Filters
- Lecture 34 - Practice Problems Coagulation Flocculation and Filtration
- Lecture 35 - Disinfection Basic
- Lecture 36 - Chlorination
- Lecture 37 - Other Disinfection Method
- Lecture 38 - Sludge Management
- Lecture 39 - Advanced and Alternate Treatment Systems
- Lecture 40 - Advanced Oxidation Processes and Membrane Process
- Lecture 41 - Practice Problems
- Lecture 42 - Basic of Water Distribution System
- Lecture 43 - Water Distribution Networks
- Lecture 44 - Analysis of Water Distribution Networks
- Lecture 45 - Problems on Pipe Flow and Water Distribution Network
- Lecture 46 - Water Losses in Water Distribution System
- Lecture 47 - Water Balance for Water Loss Assessment and Performance Indicators
- Lecture 48 - Water Loss Detection and Control
- Lecture 49 - Practice Problems on Water Audit and Water Loss Estimation
- Lecture 50 - Continuous (24\*7) water supply systems
- Lecture 51 - District metered area (DMA) for zoning in water distribution networks
- Lecture 52 - Software for water distribution networks design and analysis
- Lecture 53 - Demonstration on EPANET and GEMS
- Lecture 54 - Concept of smart water supply systems
- Lecture 55 - Smart Metering and sensing devices
- Lecture 56 - IoT and Automation in Water Supply
- Lecture 57 - Example of Automation and Smart Water Supply Systems
- Lecture 58 - Economics of Water Supply Systems
- Lecture 59 - Capital and Operational Cost of Water Supply System
- Lecture 60 - Pricing Waters
- Lecture 61 - Pricing Waters (Continued...)
- Lecture 62 - Case studies and Practice Problem on Water Pricing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geo Spatial Analysis in Urban Planning

Subject Co-ordinator - Prof. Saikat Kumar Paul

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Geographic Information System
- Lecture 2 - Introduction to Coordinate System and Geographic Projections
- Lecture 3 - Geometric Transformation
- Lecture 4 - Vector Data Model
- Lecture 5 - Raster Data Model
- Lecture 6 - Method of Spatial Analysis
- Lecture 7 - Vector Data Analysis
- Lecture 8 - Vector Data Analysis (Continued...)
- Lecture 9 - Raster Data Analysis
- Lecture 10 - Raster Operations, Terrain Visualization and Classification
- Lecture 11 - Attribute Data Management and Data Exploration
- Lecture 12 - Spatial Interpolation
- Lecture 13 - Spatial Interpolation
- Lecture 14 - Network Analysis
- Lecture 15 - Service or Trade Area Analysis in an Urban Area
- Lecture 16 - Service or Trade Area Analysis in an Urban Area (Continued...)
- Lecture 17 - Landscape metrics and its applications
- Lecture 18 - Urban sprawl characterization using Landscape Metrics
- Lecture 19 - Multi-Criteria Decision Analysis

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Hydraulic Engineering

Subject Co-ordinator - Prof. Mohammad Saud Afzal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basics of fluid mechanics - I  
Lecture 2 - Basics of fluid mechanics - I (Continued...)  
Lecture 3 - Basics of fluid mechanics - I (Continued...)  
Lecture 4 - Basics of fluid mechanics - I (Continued...)  
Lecture 5 - Basics of fluid mechanics - I (Continued...)  
Lecture 6 - Basics of fluid mechanics - II  
Lecture 7 - Basics of fluid mechanics - II (Continued...)  
Lecture 8 - Basics of fluid mechanics - II (Continued...)  
Lecture 9 - Basics of fluid mechanics - II (Continued...)  
Lecture 10 - Basics of fluid mechanics - II (Continued...)  
Lecture 11 - Basics of fluid mechanics - II (Continued...)  
Lecture 12 - Laminar and turbulent flow  
Lecture 13 - Laminar and turbulent flow (Continued...)  
Lecture 14 - Laminar and turbulent flow (Continued...)  
Lecture 15 - Laminar and turbulent flow (Continued...)  
Lecture 16 - Laminar and turbulent flow (Continued...)  
Lecture 17 - Boundary Layer Theory  
Lecture 18 - Boundary Layer Theory (Continued...)  
Lecture 19 - Boundary Layer Theory (Continued...)  
Lecture 20 - Boundary Layer Theory (Continued...)  
Lecture 21 - Boundary Layer Theory (Continued...)  
Lecture 22 - Boundary Layer Theory (Continued...)  
Lecture 23 - Dimensional Analysis and Hydraulic Similitude  
Lecture 24 - Dimensional Analysis and Hydraulic Similitude (Continued...)  
Lecture 25 - Dimensional Analysis and Hydraulic Similitude (Continued...)  
Lecture 26 - Dimensional Analysis and Hydraulic Similitude (Continued...)  
Lecture 27 - Dimensional Analysis and Hydraulic Similitude (Continued...)  
Lecture 28 - Introduction to Open Channel Flow and Uniform Flow  
Lecture 29 - Introduction to Open Channel Flow and Uniform Flow (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Open Channel Flow and Uniform Flow (Continued...)
- Lecture 31 - Introduction to Open Channel Flow and Uniform Flow (Continued...)
- Lecture 32 - Introduction to Open Channel Flow and Uniform Flow (Continued...)
- Lecture 33 - Introduction to Open Channel Flow and Uniform Flow (Continued...)
- Lecture 34 - Non-uniform flow and hydraulic jump
- Lecture 35 - Non-uniform flow and hydraulic jump (Continued...)
- Lecture 36 - Non-uniform flow and hydraulic jump (Continued...)
- Lecture 37 - Non-uniform flow and hydraulic jump (Continued...)
- Lecture 38 - Pipe flow
- Lecture 39 - Pipe flow (Continued...)
- Lecture 40 - Pipe flow (Continued...)
- Lecture 41 - Pipe flow (Continued...)
- Lecture 42 - Pipe flow (Continued...)
- Lecture 43 - Pipe networks
- Lecture 44 - Pipe networks (Continued...)
- Lecture 45 - Pipe networks (Continued...)
- Lecture 46 - Pipe networks (Continued...)
- Lecture 47 - Pipe networks (Continued...)
- Lecture 48 - Viscous fluid flow
- Lecture 49 - Viscous fluid flow (Continued...)
- Lecture 50 - Viscous fluid flow (Continued...)
- Lecture 51 - Viscous fluid flow (Continued...)
- Lecture 52 - Viscous fluid flow (Continued...)
- Lecture 53 - Viscous fluid flow (Continued...)
- Lecture 54 - Computational fluid dynamics
- Lecture 55 - Computational fluid dynamics (Continued...)
- Lecture 56 - Computational fluid dynamics (Continued...)
- Lecture 57 - Computational fluid dynamics (Continued...)
- Lecture 58 - Computational fluid dynamics (Continued...)
- Lecture 59 - Introduction to wave mechanics
- Lecture 60 - Introduction to wave mechanics (Continued...)
- Lecture 61 - Introduction to wave mechanics (Continued...)
- Lecture 62 - Introduction to wave mechanics (Continued...)
- Lecture 63 - Introduction to wave mechanics (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Introduction to Multimodal Urban Transportation Systems

Subject Co-ordinator - Prof. Arkopal Kishore Goswami

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of urban transportation: Urbanization and Transport
- Lecture 2 - Overview of urban transportation: Key issues in urban transportation
- Lecture 3 - Overview of urban transportation: Challenges in urban transportation
- Lecture 4 - Overview of urban transportation: Travel demand modelling overview
- Lecture 5 - Overview of urban transportation: Vehicular Level of Service (LOS) overview
- Lecture 6 - Public Transportation: Introduction to public transportation
- Lecture 7 - Public Transportation: Basic operating elements of public transportation
- Lecture 8 - Public Transportation: Basic operating elements of public transportation (Continued...)
- Lecture 9 - Public Transportation: Bus Transportation
- Lecture 10 - Public Transportation: Bus Transportation (Continued...)
- Lecture 11 - Public Transportation: Financing public transportation
- Lecture 12 - Public Transportation: Transit marketing
- Lecture 13 - Public Transportation: Rail transportation
- Lecture 14 - Public Transportation: Intermediate Public Transportation
- Lecture 15 - Public Transportation: Measuring performance of transit systems
- Lecture 16 - Public Transportation: Advanced operation concepts of public transportation
- Lecture 17 - Public Transportation: Bus and Rail Transit Capacity
- Lecture 18 - Public Transportation: Bus and Rail Transit Capacity (Continued...)
- Lecture 19 - Public Transportation: Station Capacity
- Lecture 20 - Public Transportation: Transit Stop Location
- Lecture 21 - Non-motorised Transportation (NMT) Planning: Introduction to NMT Systems
- Lecture 22 - Non-motorised Transportation (NMT) Planning: Assessing existing NMT scenario
- Lecture 23 - Non-motorised Transportation (NMT) Planning: Data collection and analysis in NMT Planning
- Lecture 24 - Non-motorised Transportation (NMT) Planning: Complementarity and Selection of Interventions
- Lecture 25 - Non-motorised Transportation (NMT) Planning: Alternative Selection through Economic & Financial
- Lecture 26 - Non-Motorised Transportation (NMT) Planning: Basic NMT Characteristics
- Lecture 27 - Non-Motorised Transportation (NMT) Planning: Pedestrian Data Collection and Flow Characteristics
- Lecture 28 - Non-Motorised Transportation (NMT) Planning: Pedestrian Flow models
- Lecture 29 - Non-Motorised Transportation (NMT) Planning: Pedestrian flow characteristics on facilities

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Non-Motorised Transportation (NMT) Planning: Pedestrian Level of Service (PLOS) based on Flow mo
- Lecture 31 - Non-Motorised Transportation (NMT) Planning: Other types of Pedestrian Level of Service (PLOS)
- Lecture 32 - Non-Motorised Transportation (NMT) Planning: HCM 2010 Methodology for PLOS
- Lecture 33 - Non-Motorised Transportation (NMT) Planning: HCM 2010 Methodology for PLOS (Continued...)
- Lecture 34 - Non-Motorised Transportation (NMT) Planning: Bicycle Facilities and Level of Service (BLOS)
- Lecture 35 - Non-Motorised Transportation (NMT) Planning: BLOS and Bicycle Compatibility Index (BCI)
- Lecture 36 - Non-Motorised Transportation (NMT) Planning: NMT Design Principles
- Lecture 37 - Non-Motorised Transportation (NMT) Planning: Design of Pedestrian Infrastructure
- Lecture 38 - Non-Motorised Transportation (NMT) Planning: Design of Pedestrian Infrastructure (Continued...)
- Lecture 39 - Non-Motorised Transportation (NMT) Planning: Design of Cycling Infrastructure
- Lecture 40 - Non-Motorised Transportation (NMT) Planning: Design of Cycling Infrastructure (Continued...)
- Lecture 41 - Urban Transport and Sustainability: Travel Demand Management (TDM) overview
- Lecture 42 - Urban Transport and Sustainability: Push measures cases
- Lecture 43 - Urban Transport and Sustainability: Pull measure cases
- Lecture 44 - Urban Transport and Sustainability: Parking Studies
- Lecture 45 - Urban Transport and Sustainability: Transit Oriented Development (TOD)
- Lecture 46 - Urban Transport and Sustainability: Introduction to Intelligent Transportation Systems (ITS)
- Lecture 47 - Urban Transport and Sustainability: ITS components, applications and communication
- Lecture 48 - Urban Transport and Sustainability: ITS Architecture
- Lecture 49 - Urban Transport and Sustainability: Electronic Toll Collection (ETC)
- Lecture 50 - Urban Transport and Sustainability: Public Bicycle Sharing (PBS) System with ITS
- Lecture 51 - Urban Transport and Sustainability: Multimodal transportation (MMT) environment
- Lecture 52 - Urban Transport and Sustainability: Multimodal Level of Service (MMLoS)
- Lecture 53 - Urban Transport and Sustainability: Multimodal Level of Service (MMLoS) (Continued...)
- Lecture 54 - Urban Transport and Sustainability: Design of multimodal transfer facilities
- Lecture 55 - Urban Transport and Sustainability: Park & Ride (P&R) Facility Planning
- Lecture 56 - Urban Transport and Sustainability: An Introduction to Pedestrian Road Safety and associated Ris
- Lecture 57 - Urban Transport and Sustainability: Road crash estimation and elements of predictive methods
- Lecture 58 - Urban Transport and Sustainability: Predicting Vehicle-Pedestrian and Vehicle-Bicycle conflicts
- Lecture 59 - Urban Transport and Sustainability: Environmental Concerns of Urban Transport
- Lecture 60 - Urban Transport and Sustainability: Sustainable strategies for Urban Transportation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Advanced Foundation Engineering

Subject Co-ordinator - Prof. Kousik Deb

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Soil Exploration - I  
Lecture 2 - Soil Exploration - II  
Lecture 3 - Soil Exploration - III  
Lecture 4 - Soil Exploration - IV  
Lecture 5 - Soil Exploration - V  
Lecture 6 - Soil Exploration - VI  
Lecture 7 - Shallow Foundation : Bearing Capacity - I  
Lecture 8 - Shallow Foundation : Bearing Capacity - II  
Lecture 9 - Shallow Foundation : Bearing Capacity - III  
Lecture 10 - Shallow Foundation : Bearing Capacity - IV  
Lecture 11 - Shallow Foundation : Bearing Capacity - V  
Lecture 12 - Shallow Foundation : Bearing Capacity - VI  
Lecture 13 - Shallow Foundation : Bearing Capacity - VII  
Lecture 14 - Shallow Foundation : Bearing Capacity - VIII  
Lecture 15 - Shallow Foundation : Bearing Capacity - IX  
Lecture 16 - Shallow Foundation : Bearing Capacity - X  
Lecture 17 - Shallow Foundation : Bearing Capacity - XI  
Lecture 18 - Shallow Foundation : Bearing Capacity - XII  
Lecture 19 - Shallow Foundation : Bearing Capacity - XIII  
Lecture 20 - Shallow Foundation : Bearing Capacity - XIV  
Lecture 21 - Shallow Foundation : Bearing Capacity - XV  
Lecture 22 - Shallow Foundation : Bearing Capacity - XVI  
Lecture 23 - Shallow Foundation : Settlement - I  
Lecture 24 - Shallow Foundation : Settlement - II  
Lecture 25 - Shallow Foundation : Settlement - III  
Lecture 26 - Shallow Foundation : Settlement - IV  
Lecture 27 - Beams on Elastic Foundation - I  
Lecture 28 - Beams on Elastic Foundation - II  
Lecture 29 - Beams on Elastic Foundation - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Beams on Elastic Foundation - IV
- Lecture 31 - Beams on Elastic Foundation - V
- Lecture 32 - Beams on Elastic Foundation - VI
- Lecture 33 - Beams on Elastic Foundation - VII
- Lecture 34 - Beams on Elastic Foundation - VIII
- Lecture 35 - Beams on Elastic Foundation - IX
- Lecture 36 - Design of Shallow Foundation - I
- Lecture 37 - Design of Shallow Foundation - II
- Lecture 38 - Design of Shallow Foundation - III
- Lecture 39 - Design of Shallow Foundation - IV
- Lecture 40 - Design of Shallow Foundation - V
- Lecture 41 - Pile Foundation : Under Compressive Load - I
- Lecture 42 - Pile Foundation : Under Compressive Load - II
- Lecture 43 - Pile Foundation : Under Compressive Load - III
- Lecture 44 - Pile Foundation : Under Compressive Load - IV
- Lecture 45 - Pile Foundation : Under Compressive Load - V
- Lecture 46 - Pile Foundation : Under Compressive Load - VI
- Lecture 47 - Pile Foundation : Under Compressive Load - VII
- Lecture 48 - Pile Foundation : Under Compressive Load - VIII
- Lecture 49 - Pile Foundation : Under Compressive Load - IX
- Lecture 50 - Pile Foundation : Under Compressive Load - X
- Lecture 51 - Pile Foundation : Under Lateral Load and Uplift - I
- Lecture 52 - Pile Foundation : Under Lateral Load and Uplift - II
- Lecture 53 - Pile Foundation : Under Lateral Load and Uplift - III
- Lecture 54 - Pile Foundation : Under Lateral Load and Uplift - IV
- Lecture 55 - Pile Foundation : Under Lateral Load and Uplift - V
- Lecture 56 - Pile Foundation : Under Lateral Load and Uplift - VI
- Lecture 57 - Pile Foundation : Under Lateral Load and Uplift - VII
- Lecture 58 - Pile Foundation : Under Lateral Load and Uplift - VIII
- Lecture 59 - Pile Foundation : Under Lateral Load and Uplift - IX
- Lecture 60 - Well Foundation - I
- Lecture 61 - Well Foundation - II
- Lecture 62 - Well Foundation - III
- Lecture 63 - Well Foundation - IV
- Lecture 64 - Well Foundation - V
- Lecture 65 - Well Foundation - VI
- Lecture 66 - Well Foundation - VII
- Lecture 67 - Well Foundation - VIII
- Lecture 68 - Well Foundation - IX

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- Lecture 69 - Foundations on Difficult Soils - I
- Lecture 70 - Foundations on Difficult Soils - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Urban Transport Systems Planning

Subject Co-ordinator - Prof. Bhargab Maitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Urbanization, Urban Transportation and Transportation Demand
- Lecture 2 - Travel Behaviour, Transportation Externalities and Present Scenario of Urban Transportation
- Lecture 3 - Approaches for Mitigating Externalities, Need for Transportation Planning and Transport Planning
- Lecture 4 - Transport Planning Morphology
- Lecture 5 - Hierarchical Level of Urban Transport Planning and Interrelationship of Transport Problems and MO
- Lecture 6 - Traditional Travel Demand Forecasting Process
- Lecture 7 - Traditional Travel Demand Forecasting Process, Specification, Calibration, Validation and Forecas
- Lecture 8 - Information Needs for Travel Demand Forecasting: Study Area, Urban Activities, Transportation Sys
- Lecture 9 - Information Needs for Travel Demand Forecasting: Travel Information
- Lecture 10 - Data Collection and Techniques
- Lecture 11 - Introduction and Basic Considerations of Trip Generation
- Lecture 12 - Trip Classifications and Factors Affecting Trip Generation
- Lecture 13 - Modelling Approaches and Step-Wise Approach of Multiple Regression Analysis
- Lecture 14 - Step-Wise Approach of Multiple Regression Analysis and Examples
- Lecture 15 - Examples, Common Mistakes and Zonal Based Models of Multiple Regression Analysis
- Lecture 16 - Zonal and Household Based Regression Models
- Lecture 17 - Cross Classification Analysis: Model Structure and Calibration
- Lecture 18 - Cross Classification Analysis: Model Calibration
- Lecture 19 - Cross Classification Analysis: Model Application, Advantages and Dis-Advantages
- Lecture 20 - Matching Productions and Attractions; Stability of Trip Generation Models
- Lecture 21 - Basic Considerations and Trip Distribution Matrices
- Lecture 22 - Methods for Trip Distribution, Uniform Growth Factor Method and Average Growth Factor Method
- Lecture 23 - Detroit Method and Fratar Model
- Lecture 24 - Furness Method
- Lecture 25 - Synthetic Methods, Measures of Travel Resistance and Gravity Model
- Lecture 26 - Singly Constrained Gravity Model
- Lecture 27 - Bureau of Public Roads Calibration Procedure
- Lecture 28 - Doubly Constrained Gravity Model
- Lecture 29 - Intervening Opportunities Model

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- Lecture 30 - Competing Opportunities Model and Linear Programming Approach
- Lecture 31 - Factors Influencing Mode Choice and Aggregate Modal Split Models
- Lecture 32 - Disaggregate Mode Choice Models - I
- Lecture 33 - Disaggregate Mode Choice Models - II
- Lecture 34 - Disaggregate Mode Choice Models - III
- Lecture 35 - Disaggregate Mode Choice Models - IV
- Lecture 36 - Disaggregate Mode Choice Models - V
- Lecture 37 - Logit Choice Models - I
- Lecture 38 - Logit Choice Models - II
- Lecture 39 - Logit Choice Models - III
- Lecture 40 - Logit Choice Models - IV
- Lecture 41 - Introduction to Traffic Assignment
- Lecture 42 - Network Algorithms - I
- Lecture 43 - Network Algorithms - II
- Lecture 44 - Network Algorithms - III
- Lecture 45 - Static assignment models, User Equilibrium
- Lecture 46 - User Equilibrium Assignment and System Optimum Assignment
- Lecture 47 - Deterministic Traffic Assignment - I
- Lecture 48 - Deterministic Traffic Assignment - II
- Lecture 49 - Stochastic Traffic Assignment - I
- Lecture 50 - Stochastic Traffic Assignment - II and Dynamic Traffic Assignment
- Lecture 51 - Land Use and Transportation - I
- Lecture 52 - Land Use and Transportation - II
- Lecture 53 - Land Use and Transportation - III
- Lecture 54 - Land Use and Transportation - IV
- Lecture 55 - Urban Goods Movement - I
- Lecture 56 - Urban Goods Movement - II
- Lecture 57 - Urban Goods Movement - III
- Lecture 58 - Urban Goods Movement - IV
- Lecture 59 - Activity Based Modelling
- Lecture 60 - Big Data, GIS and SDI

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Structural Reliability

Subject Co-ordinator - Prof. Baidurya Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Part 1  
Lecture 2 - Introduction - Part 2  
Lecture 3 - Introduction - Part 3  
Lecture 4 - Introduction - Part 4  
Lecture 5 - Introduction - Part 5  
Lecture 6 - Introduction - Part 6  
Lecture 7 - Introduction - Part 7  
Lecture 8 - Introduction - Part 8  
Lecture 9 - Review of Probability Theory - Part 1  
Lecture 10 - Review of Probability Theory - Part 2  
Lecture 11 - Review of Probability Theory - Part 3  
Lecture 12 - Review of Probability Theory - Part 4  
Lecture 13 - Review of Probability Theory - Part 5  
Lecture 14 - Review of Probability Theory - Part 6  
Lecture 15 - Review of Probability Theory - Part 7  
Lecture 16 - Review of Probability Theory - Part 8  
Lecture 17 - Review of Probability Theory - Part 9  
Lecture 18 - Review of Random Variables - Part 1  
Lecture 19 - Review of Random Variables - Part 2  
Lecture 20 - Review of Random Variables - Part 3  
Lecture 21 - Review of Random Variables - Part 4  
Lecture 22 - Review of Random Variables - Part 5  
Lecture 23 - Review of Random Variables - Part 6  
Lecture 24 - Review of Random Variables - Part 7  
Lecture 25 - Review of Random Variables - Part 8  
Lecture 26 - Review of Random Variables - Part 9  
Lecture 27 - Review of Random Variables - Part 10  
Lecture 28 - Review of Random Variables - Part 11  
Lecture 29 - Review of Random Variables - Part 12

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Lecture 30 - Common Probability Distributions - Part 1  
Lecture 31 - Common Probability Distributions - Part 2  
Lecture 32 - Common Probability Distributions - Part 3  
Lecture 33 - Common Probability Distributions - Part 4  
Lecture 34 - Common Probability Distributions - Part 5  
Lecture 35 - Common Probability Distributions - Part 6  
Lecture 36 - Common Probability Distributions - Part 7  
Lecture 37 - Common Probability Distributions - Part 8  
Lecture 38 - Common Probability Distributions - Part 9  
Lecture 39 - Common Probability Distributions - Part 10  
Lecture 40 - Common Probability Distributions - Part 11  
Lecture 41 - Common Probability Distributions - Part 12  
Lecture 42 - Common Probability Distributions - Part 13  
Lecture 43 - Common Probability Distributions - Part 14  
Lecture 44 - Common Probability Distributions - Part 15  
Lecture 45 - Common Probability Distributions - Part 16  
Lecture 46 - Common Probability Distributions - Part 17  
Lecture 47 - Common Probability Distributions - Part 18  
Lecture 48 - Common Probability Distributions - Part 19  
Lecture 49 - Common Probability Distributions - Part 20  
Lecture 50 - Joint Probability Distributions - Part 1  
Lecture 51 - Joint Probability Distributions - Part 2  
Lecture 52 - Joint Probability Distributions - Part 3  
Lecture 53 - Joint Probability Distributions - Part 4  
Lecture 54 - Joint Probability Distributions - Part 5  
Lecture 55 - Joint Probability Distributions - Part 6  
Lecture 56 - Joint Probability Distributions - Part 7  
Lecture 57 - Joint Probability Distributions - Part 8  
Lecture 58 - Joint Probability Distributions - Part 9  
Lecture 59 - Joint Probability Distributions - Part 10  
Lecture 60 - Joint Probability Distributions - Part 11  
Lecture 61 - Joint Probability Distributions - Part 12  
Lecture 62 - Joint Probability Distributions - Part 13  
Lecture 63 - Joint Probability Distributions - Part 14  
Lecture 64 - Joint Probability Distributions - Part 15  
Lecture 65 - Joint Probability Distributions - Part 16  
Lecture 66 - Joint Probability Distributions - Part 17  
Lecture 67 - Joint Probability Distributions - Part 18  
Lecture 68 - Joint Probability Distributions - Part 19

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- Lecture 69 - Monte Carlo Simlulations - Part 1
- Lecture 70 - Monte Carlo Simlulations - Part 2
- Lecture 71 - Monte Carlo Simlulations - Part 3
- Lecture 72 - Monte Carlo Simlulations - Part 4
- Lecture 73 - Monte Carlo Simlulations - Part 5
- Lecture 74 - Monte Carlo Simlulations - Part 6
- Lecture 75 - Monte Carlo Simlulations - Part 7
- Lecture 76 - Monte Carlo Simlulations - Part 8
- Lecture 77 - Monte Carlo Simlulations - Part 9
- Lecture 78 - Monte Carlo Simlulations - Part 10
- Lecture 79 - Monte Carlo Simlulations - Part 11
- Lecture 80 - Monte Carlo Simlulations - Part 12
- Lecture 81 - Monte Carlo Simlulations - Part 13
- Lecture 82 - Monte Carlo Simlulations - Part 14
- Lecture 83 - History Definition and Scope - Part 1
- Lecture 84 - History Definition and Scope - Part 2
- Lecture 85 - History Definition and Scope - Part 3
- Lecture 86 - History Definition and Scope - Part 4
- Lecture 87 - History Definition and Scope - Part 5
- Lecture 88 - History Definition and Scope - Part 6
- Lecture 89 - Reliability Problem Formulatio - Part 1
- Lecture 90 - Reliability Problem Formulatio - Part 2
- Lecture 91 - Reliability Problem Formulatio - Part 3
- Lecture 92 - Reliability Problem Formulatio - Part 4
- Lecture 93 - Reliability Problem Formulatio - Part 5
- Lecture 94 - Reliability Problem Formulatio - Part 6
- Lecture 95 - Reliability Problem Formulatio - Part 7
- Lecture 96 - Reliability Problem Formulatio - Part 8
- Lecture 97 - Representation of systems - Part 1
- Lecture 98 - Representation of systems - Part 2
- Lecture 99 - Representation of systems - Part 3
- Lecture 100 - Representation of systems - Part 4
- Lecture 101 - Representation of systems - Part 5
- Lecture 102 - Representation of systems - Part 6
- Lecture 103 - Representation of systems - Part 7
- Lecture 104 - Representation of systems - Part 8
- Lecture 105 - Representation of systems - Part 9
- Lecture 106 - Representation of systems - Part 10
- Lecture 107 - Representation of systems - Part 11

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Lecture 108 - Representation of systems - Part 12  
Lecture 109 - Representation of systems - Part 13  
Lecture 110 - Representation of systems - Part 14  
Lecture 111 - Representation of systems - Part 15  
Lecture 112 - Representation of systems - Part 16  
Lecture 113 - Representation of systems - Part 17  
Lecture 114 - Representation of systems - Part 18  
Lecture 115 - Representation of systems - Part 19  
Lecture 116 - Representation of systems - Part 20  
Lecture 117 - Representation of systems - Part 21  
Lecture 118 - Representation of systems - Part 22  
Lecture 119 - Representation of systems - Part 23  
Lecture 120 - Time Dependent Component Reliability - Part 1  
Lecture 121 - Time Dependent Component Reliability - Part 2  
Lecture 122 - Component Reliability - Time Dependent - Part 1  
Lecture 123 - Component Reliability - Time Dependent - Part 2  
Lecture 124 - Component Reliability - Time Dependent - Part 3  
Lecture 125 - Component Reliability - Time Dependent - Part 4  
Lecture 126 - Component Reliability - Time Dependent - Part 5  
Lecture 127 - Component Reliability - Time Dependent - Part 6  
Lecture 128 - Component Reliability - Time Dependent - Part 7  
Lecture 129 - Component Reliability - Time Dependent - Part 8  
Lecture 130 - Component Reliability - Time Defined - Part 9  
Lecture 131 - Component Reliability - Time Defined - Part 10  
Lecture 132 - Component Reliability - Time Defined - Part 11  
Lecture 133 - Component Reliability - Time Defined - Part 12  
Lecture 134 - Component Reliability - Time Defined - Part 13  
Lecture 135 - Component Reliability - Time Defined - Part 14  
Lecture 136 - Component Reliability - Time Defined - Part 15  
Lecture 137 - Component Reliability - Time Defined - Part 16  
Lecture 138 - Component Reliability - Time Defined - Part 17  
Lecture 139 - Component Reliability - Time Defined - Part 18  
Lecture 140 - Component Reliability - Time Defined - Part 19  
Lecture 141 - Component Reliability - Time Defined - Part 20  
Lecture 142 - Component Reliability - Time Defined - Part 21  
Lecture 143 - Component Reliability - Time Defined - Part 22  
Lecture 144 - Component Reliability - Time Defined - Part 23  
Lecture 145 - System Reliability - Time Defined - Part 1  
Lecture 146 - System Reliability - Time Defined - Part 2

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- Lecture 147 - System Reliability - Time Defined - Part 3
- Lecture 148 - System Reliability - Time Defined - Part 4
- Lecture 149 - System Reliability - Time Defined - Part 5
- Lecture 150 - System Reliability - Time Defined - Part 6
- Lecture 151 - System Reliability - Time Defined - Part 7
- Lecture 152 - System Reliability - Time Defined - Part 8
- Lecture 153 - Capacity Demand Component Reliability - Part 1
- Lecture 154 - Capacity Demand Component Reliability - Part 2
- Lecture 155 - Capacity Demand Component Reliability - Part 3
- Lecture 156 - Capacity Demand Component Reliability - Part 4
- Lecture 157 - Capacity Demand Component Reliability - Part 5
- Lecture 158 - Capacity Demand Component Reliability - Part 6
- Lecture 159 - Capacity Demand Component Reliability - Part 7
- Lecture 160 - Capacity Demand Component Reliability - Part 8
- Lecture 161 - Capacity Demand Component Reliability - Part 9
- Lecture 162 - Capacity Demand Component Reliability - Part 10
- Lecture 163 - Capacity Demand Component Reliability - Part 11
- Lecture 164 - Capacity Demand Component Reliability - Part 12
- Lecture 165 - Capacity Demand Component Reliability - Part 13
- Lecture 166 - Capacity Demand Component Reliability - Part 14
- Lecture 167 - Capacity Demand Component Reliability - Part 15
- Lecture 168 - Capacity Demand Component Reliability - Part 16
- Lecture 169 - Capacity Demand Component Reliability - Part 17
- Lecture 170 - Capacity Demand Component Reliability - Part 18
- Lecture 171 - Capacity Demand Component Reliability - Part 19
- Lecture 172 - Capacity Demand Component Reliability - Part 20
- Lecture 173 - Capacity Demand Component Reliability - Part 21
- Lecture 174 - Capacity Demand Component Reliability - Part 22
- Lecture 175 - Capacity Demand Component Reliability - Part 23
- Lecture 176 - Capacity Demand Component Reliability - Part 24
- Lecture 177 - Capacity Demand Component Reliability - Part 25
- Lecture 178 - Capacity Demand Component Reliability - Part 26
- Lecture 179 - Capacity Demand Component Reliability - Part 27
- Lecture 180 - Capacity Demand Component Reliability - Part 28
- Lecture 181 - Capacity Demand Component Reliability - Part 29
- Lecture 182 - Capacity Demand Component Reliability - Part 30
- Lecture 183 - Capacity Demand Component Reliability - Part 31
- Lecture 184 - Capacity Demand Component Reliability - Part 32
- Lecture 185 - Capacity Demand Component Reliability - Part 33

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Lecture 186	- Capacity Demand Component Reliability - Part 34
Lecture 187	- Capacity Demand Component Reliability - Part 35
Lecture 188	- Capacity Demand Component Reliability - Part 36
Lecture 189	- Capacity Demand Component Reliability - Part 37
Lecture 190	- Capacity Demand Component Reliability - Part 38
Lecture 191	- Capacity Demand Component Reliability - Part 39
Lecture 192	- Capacity Demand Time Component Reliability - Part 1
Lecture 193	- Capacity Demand Time Component Reliability - Part 2
Lecture 194	- Capacity Demand Time Component Reliability - Part 3
Lecture 195	- Capacity Demand Time Component Reliability - Part 4
Lecture 196	- Capacity Demand Time Component Reliability - Part 5
Lecture 197	- Capacity Demand Time Component Reliability - Part 6
Lecture 198	- Capacity Demand Time Component Reliability - Part 7
Lecture 199	- Capacity Demand Time Component Reliability - Part 8
Lecture 200	- Capacity Demand Time Component Reliability - Part 9
Lecture 201	- Capacity Demand Time Component Reliability - Part 10
Lecture 202	- Capacity Demand Time Component Reliability - Part 11
Lecture 203	- Capacity Demand Time Component Reliability - Part 12
Lecture 204	- Capacity Demand Time Component Reliability - Part 13
Lecture 205	- Capacity Demand Time Component Reliability - Part 14
Lecture 206	- Capacity Demand Time Component Reliability - Part 15
Lecture 207	- Capacity Demand Time Component Reliability - Part 16
Lecture 208	- Capacity Demand Time Component Reliability - Part 17
Lecture 209	- Capacity Demand Time Component Reliability - Part 18
Lecture 210	- Capacity Demand Systems Reliability - Part 1
Lecture 211	- Capacity Demand Systems Reliability - Part 2
Lecture 212	- Capacity Demand Systems Reliability - Part 3
Lecture 213	- Capacity Demand Systems Reliability - Part 4
Lecture 214	- Capacity Demand Systems Reliability - Part 5
Lecture 215	- Capacity Demand Systems Reliability - Part 6
Lecture 216	- Capacity Demand Systems Reliability - Part 7
Lecture 217	- Capacity Demand Systems Reliability - Part 8
Lecture 218	- Capacity Demand Systems Reliability - Part 9
Lecture 219	- Capacity Demand Systems Reliability - Part 10
Lecture 220	- Capacity Demand Systems Reliability - Part 11
Lecture 221	- Capacity Demand Systems Reliability - Part 12
Lecture 222	- Capacity Demand Systems Reliability - Part 13
Lecture 223	- Capacity Demand Systems Reliability - Part 14
Lecture 224	- Capacity Demand Systems Reliability - Part 15

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 225 - Reliability Based Design Codes - Part 1
- Lecture 226 - Reliability Based Design Codes - Part 2
- Lecture 227 - Reliability Based Design Codes - Part 3
- Lecture 228 - Reliability Based Design Codes - Part 4
- Lecture 229 - Reliability Based Design Codes - Part 5
- Lecture 230 - Reliability Based Design Codes - Part 6
- Lecture 231 - Reliability Based Partial Safety Factors - Part 1
- Lecture 232 - Reliability Based Partial Safety Factors - Part 2
- Lecture 233 - Reliability Based Partial Safety Factors - Part 3
- Lecture 234 - Reliability Based Design Code Development - Part 1
- Lecture 235 - Reliability Based Design Code Development - Part 2
- Lecture 236 - Reliability Based Design Code Development - Part 3
- Lecture 237 - Reliability Based Design Code Development - Part 4
- Lecture 238 - Target Reliabilities - Part 1
- Lecture 239 - Target Reliabilities - Part 2
- Lecture 240 - Target Reliabilities - Part 3
- Lecture 241 - Target Reliabilities - Part 4
- Lecture 242 - Target Reliabilities - Part 5
- Lecture 243 - Target Reliabilities - Part 6
- Lecture 244 - Target Reliabilities - Part 7
- Lecture 245 - Target Reliabilities - Part 8
- Lecture 246 - Target Reliabilities - Part 9
- Lecture 247 - Target Reliabilities - Part 10

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Ground Improvement

Subject Co-ordinator - Prof. Dilip Kumar Baidya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Need for Ground Improvement
- Lecture 2 - Ground Improvement Methods
- Lecture 3 - Ground Improvement Methods (Continued...)
- Lecture 4 - GI Methods and Classification
- Lecture 5 - Excavation and Replacement, the simplest GI method
- Lecture 6 - Shallow Densification
- Lecture 7 - Shallow densification (Continued...)
- Lecture 8 - Quality Control and Quality Assurance
- Lecture 9 - Application Problem
- Lecture 10 - Application Problem on Excavation and Replacement
- Lecture 11 - Deep Dynamic Compaction
- Lecture 12 - Deep Dynamic Compaction (Continued...)
- Lecture 13 - Deep Dynamic Compaction (Continued...)
- Lecture 14 - Deep Dynamic Compaction (Continued...)
- Lecture 15 - Deep Dynamic Compaction (Continued...)
- Lecture 16 - Rapid Impact Compaction
- Lecture 17 - Rapid Impact Compaction (Continued...)
- Lecture 18 - Rapid Impact Compaction (Continued...)
- Lecture 19 - Vibro compaction
- Lecture 20 - Vibro compaction (Continued...)
- Lecture 21 - Design Steps
- Lecture 22 - Design Parameters and Procedure
- Lecture 23 - Application Problem and Quality Control
- Lecture 24 - Deep Replacement
- Lecture 25 - Deep Replacement (Continued...)
- Lecture 26 - Drainage
- Lecture 27 - Dewatering
- Lecture 28 - Dewatering (Continued...)
- Lecture 29 - Dewatering Design Principle

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design Example
- Lecture 31 - Preconsolidation
- Lecture 32 - Preconsolidation (Continued...)
- Lecture 33 - Preconsolidation (Continued...)
- Lecture 34 - Preconsolidation (Continued...)
- Lecture 35 - Preconsolidation (Continued...)
- Lecture 36 - Grouting
- Lecture 37 - Grouting (Continued...)
- Lecture 38 - Grouting (Continued...)
- Lecture 39 - Grouting (Continued...)
- Lecture 40 - Grouting (Continued...)
- Lecture 41 - Grouting (Continued...)
- Lecture 42 - Chemical Stabilisation
- Lecture 43 - Chemical Stabilisation (Continued...)
- Lecture 44 - Chemical Stabilisation (Continued...)
- Lecture 45 - Chemical Stabilisation (Continued...)
- Lecture 46 - Soil Nailing
- Lecture 47 - Soil Nailing (Continued...)
- Lecture 48 - Soil Nailing (Continued...)
- Lecture 49 - Soil Nailing (Continued...)
- Lecture 50 - Soil Nailing (Continued...)
- Lecture 51 - Geosynthetics in Ground Improvement
- Lecture 52 - Geosynthetics in Ground Improvement
- Lecture 53 - Geosynthetics in Ground Improvement
- Lecture 54 - Geosynthetics in Ground Improvement
- Lecture 55 - Geosynthetics in Ground Improvement
- Lecture 56 - Geosynthetics in Ground Improvement (Continued...)
- Lecture 57 - Geosynthetics in Ground Improvement (Continued...)
- Lecture 58 - Geosynthetics in Ground Improvement (Continued...)
- Lecture 59 - Geosynthetics in Ground Improvement (Continued...)
- Lecture 60 - Summary and Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Remote Sensing of Leaf Area Index and Primary Productivity

Subject Co-ordinator - Prof. MD Behera

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Leaf Area Index - Definition and Basics

Lecture 3 - Leaf Area Index - Field Measurements

Lecture 4 - Remote Sensing - Story of Matter and Energy Interactions

Lecture 5 - Remote Sensing - Optical Properties of Leaf and Canopy

Lecture 6 - LAI- Optical RS Methods: Empirical Transfer Functions

Lecture 7 - LAI Estimation - RS Methods: Model Inversion

Lecture 8 - LAI Estimation - LiDAR and Microwave RS Methods

Lecture 9 - LAI- Global Data Products

Lecture 10 - LAI Products - Challenges and Future Prospects

Lecture 11 - RS of Primary Productivity - Introduction and Overview

Lecture 12 - RS of Primary Productivity - VIs and LUE

Lecture 13 - RS of Primary Productivity - Process Based Models

Lecture 14 - RS of Primary Productivity Methods - SIF

Lecture 15 - RS of Primary Productivity Methods - LST, ML, Inversion/Passive RS

Lecture 16 - LAI Applications: Phenology, Climate and LSMs

Lecture 17 - RS of Primary Productivity - Uncertainties and Challenges - LUE

Lecture 18 - LAI Applications: Indian Examples

Lecture 19 - Primary Productivity Applications: Indian Examples

Lecture 20 - Primary Productivity Applications: Indian Examples and Way Forward

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Rock Mechanics and Tunneling

Subject Co-ordinator - Prof. Debarghya Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Objective, scope, and associated problems
- Lecture 2 - Rock Engineering Application Areas (Continued...) and Discontinuities in rock
- Lecture 3 - Discontinuities in rock (Continued...) and classification of rock
- Lecture 4 - Classification of rock based on origin (Continued...)
- Lecture 5 - Stereographic projection Stereonet Example
- Lecture 6 - Stereographic projection Stereonet Example (Continued...)
- Lecture 7 - Rock coring
- Lecture 8 - Rock coring (Continued...)
- Lecture 9 - Rock coring (Continued...) and Geophysical Methods
- Lecture 10 - Geophysical Methods (Continued...)
- Lecture 11 - Geophysical Methods (Continued...)
- Lecture 12 - Introduction, Physical properties
- Lecture 13 - Physical properties (Continued...)
- Lecture 14 - Physical properties (Continued...)
- Lecture 15 - Mechanical Properties
- Lecture 16 - Mechanical Properties (Continued...)
- Lecture 17 - Laboratory Testing Methods
- Lecture 18 - Laboratory Testing Methods (Continued...)
- Lecture 19 - Laboratory Testing Methods (Continued...)
- Lecture 20 - Laboratory Testing Methods (Continued...)
- Lecture 21 - In-situ Testing Methods
- Lecture 22 - Rock mass classification
- Lecture 23 - Rock mass classification (Continued...)
- Lecture 24 - Rock mass classification (Continued...)
- Lecture 25 - Rock mass classification (Continued...)
- Lecture 26 - Rock mass classification (Continued...)
- Lecture 27 - Analysis of Stresses
- Lecture 28 - Analysis of Stresses (Continued...)
- Lecture 29 - Analysis of Stresses (Continued...)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of Stresses (Continued...) and Stress-Strain Relationship
- Lecture 31 - Introduction to rock and rock mass failure
- Lecture 32 - Mohr-Coulomb (MC) Failure Criterion
- Lecture 33 - Griffith Crack Theory and Empirical Failure Criteria for Rock
- Lecture 34 - Empirical Failure Criteria for Rock (Continued...)
- Lecture 35 - Equivalent Mohr-Coulomb (MC) Parameters
- Lecture 36 - Failure Criterion in Deviatoric Plane
- Lecture 37 - Slopes
- Lecture 38 - Slopes (Continued...)
- Lecture 39 - Slopes (Continued...)
- Lecture 40 - Slopes (Continued...)
- Lecture 41 - Underground excavations
- Lecture 42 - Foundations
- Lecture 43 - Foundations (Continued...)
- Lecture 44 - Foundations (Continued...)
- Lecture 45 - Foundations (Continued...)
- Lecture 46 - Rock support systems
- Lecture 47 - Shapes and usages
- Lecture 48 - Methods of construction
- Lecture 49 - Methods of construction (Continued...)
- Lecture 50 - Methods of construction (Continued...)
- Lecture 51 - Problems associated with tunnels and Tunneling in various subsoil conditions and rocks
- Lecture 52 - Methods to determine stresses around openings: Kirsch equation
- Lecture 53 - Methods to determine stresses around openings: Kirsch equation (Continued...)
- Lecture 54 - Methods to determine stresses around openings: Kirsch equation contd and Greenspan's method
- Lecture 55 - Basic Concepts for Lined, Unlined, and Pressure Tunnels
- Lecture 56 - Basic Concepts for Lined, Unlined, and Pressure Tunnels (Continued...)
- Lecture 57 - Improvement of rock mass response
- Lecture 58 - Improvement of rock mass response (Continued...)
- Lecture 59 - Improvement of rock mass response (Continued...)
- Lecture 60 - Improvement of rock mass response (Continued...)
- Lecture 61 - Improvement of rock mass response (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Retrofitting and Rehabilitation of Civil Infrastructure

Subject Co-ordinator - Prof. Swati Maitra, Prof. Sriman Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Causes of Deterioration
- Lecture 3 - Materials Related Distresses
- Lecture 4 - Materials Related Distresses (Continued...)
- Lecture 5 - Other Distresses in Concrete
- Lecture 6 - Load Associated Distresses
- Lecture 7 - Identification of Distresses
- Lecture 8 - Semi-destructive Testing
- Lecture 9 - Non-destructive Tests
- Lecture 10 - Non-destructive Tests (Continued...)
- Lecture 11 - Other Tests
- Lecture 12 - Considerations for Repair and Retrofitting
- Lecture 13 - Repair Techniques
- Lecture 14 - Repair Techniques (Continued...)
- Lecture 15 - Repair Techniques (Continued...)
- Lecture 16 - Strengthening of Structural Components
- Lecture 17 - Strengthening of Structural Components (Continued...)
- Lecture 18 - Introduction to Composites, Types and Characteristics
- Lecture 19 - Properties of Fibers, Resins and FRP Composite
- Lecture 20 - Micromechanics of Composites
- Lecture 21 - Micromechanics of Composites (Continued...)
- Lecture 22 - Manufacturing of FRP Composites
- Lecture 23 - FRPC in Flexural Strengthening of Structural Members - I
- Lecture 24 - FRPC in Flexural Strengthening of Structural Members - II
- Lecture 25 - FRPC in Shear Strengthening of Structural Members
- Lecture 26 - FRPC in Axial Strengthening of Structural Members - I
- Lecture 27 - FRPC in Axial Strengthening of Structural Members - II
- Lecture 28 - Near Surface Mounted FRP Reinforcement
- Lecture 29 - FRPC in Strengthening of Beam-Column Joints

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Anchorage Systems for FRP Strengthening
- Lecture 31 - Installation of FRP
- Lecture 32 - Design Considerations
- Lecture 33 - Design Approach for Flexural Strengthening
- Lecture 34 - Design of Flexural Strengthening
- Lecture 35 - Design Approach for Shear Strengthening
- Lecture 36 - Design of Shear Strengthening
- Lecture 37 - Design Approach for Axial Strengthening
- Lecture 38 - Design of Axial Strengthening
- Lecture 39 - Concepts of Concrete Overlay
- Lecture 40 - Distresses in Existing Pavement
- Lecture 41 - Evaluation of Pavement
- Lecture 42 - Design Considerations for Concrete Overlay
- Lecture 43 - Construction of Concrete Overlay
- Lecture 44 - Introduction
- Lecture 45 - Retrofitting Steps
- Lecture 46 - Review of Materials and Test Methods
- Lecture 47 - Review of Analysis Method
- Lecture 48 - Some aspects of Seismic Retrofitting
- Lecture 49 - Introduction
- Lecture 50 - A Few Retrofitting Techniques
- Lecture 51 - A Few Seismic Retrofitting Techniques
- Lecture 52 - Introduction
- Lecture 53 - Retrofitting steps and Techniques
- Lecture 54 - Retrofitting Techniques for Structural Elements
- Lecture 55 - Retrofitting Techniques for structural elements (Continued...)
- Lecture 56 - Retrofitting Techniques for structural elements (Continued...)
- Lecture 57 - Retrofitting Techniques for structural elements (Continued...)
- Lecture 58 - Seismic Strengthening of structural elements
- Lecture 59
- Lecture 60
- Lecture 61
- Lecture 62
- Lecture 63

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Surface Water Hydrology

Subject Co-ordinator - Prof. Rajib Maity

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Hydrologic Cycle and its Different Components
- Lecture 3 - Hydrological System Concept
- Lecture 4 - Surface Water Resources of India
- Lecture 5 - Hydrology and Climate Change
- Lecture 6 - Different Forms of Precipitation and Indian Monsoon
- Lecture 7 - Measurement and Analysis of Precipitation
- Lecture 8 - Precipitation Data Quality and Presentation
- Lecture 9 - Areal Precipitation and Frequency Analysis
- Lecture 10 - Analysis of Precipitation: IDF and PMP
- Lecture 11 - Introduction to Evaporation and Evaporimeters
- Lecture 12 - Estimation of Evaporation and Control Measures
- Lecture 13 - Evapotranspiration
- Lecture 14 - Initial Loss and Infiltration Process
- Lecture 15 - Modelling of Infiltration Capacity
- Lecture 16 - Infiltration Indices
- Lecture 17 - Measurement of Flow Velocity
- Lecture 18 - Area-Velocity and Moving-Boat Methods
- Lecture 19 - Dilution Technique, Electromagnetic and Ultrasonic Methods
- Lecture 20 - Indirect Streamflow Measurement
- Lecture 21 - Stage-Discharge Relationship and Rating Curve
- Lecture 22 - Introduction and Catchment Characteristics
- Lecture 23 - Estimation of Runoff Volume: Empirical Models
- Lecture 24 - Estimation of Runoff Volume: Conceptual Models
- Lecture 25 - Flow Characteristic Curves and Estimation of Reservoir Storage
- Lecture 26 - Concept of Droughts and Environmental Flows
- Lecture 27 - Basics of Hydrographs
- Lecture 28 - Base Flow Separation, DRH and ERH
- Lecture 29 - Introduction to Unit Hydrographs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Unit Hydrograph to Direct Runoff Hydrograph
- Lecture 31 - Derivation of Unit Hydrograph
- Lecture 32 - Unit Hydrograph of Different Durations: Method of Superposition
- Lecture 33 - Unit Hydrograph of Different Durations: Method of S-Curve
- Lecture 34 - More on Unit Hydrographs
- Lecture 35 - Synthetic Unit Hydrograph
- Lecture 36 - Instantaneous Unit Hydrograph
- Lecture 37 - Introduction to Floods and Rational Method
- Lecture 38 - Flood Peak Discharge and Catchment Characteristics
- Lecture 39 - Estimation of Peak Flood Flow
- Lecture 40 - Flood Control and its Status in India
- Lecture 41 - Introduction to Flood Routing
- Lecture 42 - Reservoir Routing: Modified Puls's Method
- Lecture 43 - Reservoir Routing: Goodrich Method and Runge-Kutta Method
- Lecture 44 - Channel Routing: Parameters of Muskingum Method
- Lecture 45 - Channel Routing: Muskingum Method and Hydraulic Flood Routing
- Lecture 46 - Concept of Routing in IUH Development and Clark's Method
- Lecture 47 - Nash's Conceptual Model
- Lecture 48 - Basic Concepts of Probability and Statistics
- Lecture 49 - Types of Data Series and Concept of Return Period
- Lecture 50 - Introduction to Frequency Analysis
- Lecture 51 - Parametric Methods of Frequency Analysis
- Lecture 52 - Frequency Analysis with Extreme Value Type-I Distribution
- Lecture 53 - Confidence Interval and Standard Error in the Frequency Estimates
- Lecture 54 - Various Issues behind Frequency Analysis
- Lecture 55 - Basics of Hydrologic Design
- Lecture 56 - Risk Analysis to Determine Return Period
- Lecture 57 - Hydro-economic Analysis to Determine Return Period
- Lecture 58 - Uncertainty in Hydrologic Analysis
- Lecture 59 - Estimated Limiting Storm and Design Flood
- Lecture 60 - Design Storm
- Lecture 61 - Hydrologic Design of Reservoirs: Introduction and Determination of Storage Capacity
- Lecture 62 - Determination of Storage Capacity and Models in Reservoir Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Traffic Engineering

Subject Co-ordinator - Prof. Bhargab Maitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Traffic Engineering Objectives and Role of Transportation Demand and Land-Use
- Lecture 2 - Mobility and Accessibility, Traffic Engineering Elements and Components of Traffic
- Lecture 3 - Road Users
- Lecture 4 - Vehicles, Roadways and Traffic Control Devices
- Lecture 5 - Traffic Signs, Delineators and Signals
- Lecture 6 - Traffic Facilities and Traffic Stream Parameters
- Lecture 7 - Traffic Volumes and Time Headways
- Lecture 8 - Traffic Density and Relationships among Macroscopic Parameters
- Lecture 9 - Single Regime Traffic Stream Models
- Lecture 10 - Multi-Regime Models and Characteristics of Interrupted Flow
- Lecture 11 - Analysis of Shock Waves - I
- Lecture 12 - Analysis of Shock Waves - II
- Lecture 13 - Analysis of Shock Waves - III
- Lecture 14 - Queueing Analysis - I
- Lecture 15 - Queueing Analysis - II
- Lecture 16 - Basic Concepts
- Lecture 17 - Analysis of Basic Freeway and Multi-Lane Highway Segments (as per HCM, 2016) - I
- Lecture 18 - Analysis of Basic Freeway and Multi-Lane Highway Segments (as per HCM, 2016) - II
- Lecture 19 - Analysis of Basic Freeway and Multi-Lane Highway Segments (As per HCM, 2016) - III
- Lecture 20 - Analysis of Two-Lane Highway Segments (As per HCM, 2016) - I
- Lecture 21 - Analysis of Two-Lane Highway Segments (As per HCM, 2016) - II
- Lecture 22 - Analysis of Urban street Segments (As per HCM, 2016) - I
- Lecture 23 - Analysis of Urban street Segments (As per HCM, 2016) - II
- Lecture 24 - Analysis of Urban street Segments (As per HCM, 2016) - III
- Lecture 25 - Analysis of Single, Intermediate and Two-Lane Roads (As per Indo HCM, 2017)
- Lecture 26 - Analysis of Multi Lane Highways (As per Indo HCM, 2017)
- Lecture 27 - Intersection Control and Critical Aspects of Operation - I
- Lecture 28 - Intersection Control and Critical Aspects of Operation - II
- Lecture 29 - Intersection Control and Critical Aspects of Operation - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Intersection Control and Critical Aspects of Operation - IV
- Lecture 31 - Intersection Control and Critical Aspects of Operation - V
- Lecture 32 - Delay as a Performance Measure
- Lecture 33 - Pre-Timed Signal Design - I
- Lecture 34 - Pre-Timed Signal Design - II
- Lecture 35 - Operational Analysis of Signalized Intersection - I
- Lecture 36 - Operational Analysis of Signalized Intersection - II
- Lecture 37 - Operational Analysis of Signalized Intersection - III
- Lecture 38 - Operational Analysis of Signalized Intersection - IV
- Lecture 39 - Actuated Signals
- Lecture 40 - Signal Coordination - I
- Lecture 41 - Signal Coordination - II
- Lecture 42 - Signal Coordination - III
- Lecture 43 - Oversaturated Signals and Mitigation Strategies
- Lecture 44 - Car Following Theory - I
- Lecture 45 - Car Following Theory - II
- Lecture 46 - Car Following Theory - III
- Lecture 47 - Car Following Theory - IV
- Lecture 48 - Traffic Simulation - I
- Lecture 49 - Traffic Simulation - II
- Lecture 50 - Traffic Simulation - III
- Lecture 51 - Introduction to Traffic Control and Management
- Lecture 52 - Access Management
- Lecture 53 - Demand Management
- Lecture 54 - Bus Priority Treatments
- Lecture 55 - Emerging Traffic Management Measures
- Lecture 56 - Parking Management - I
- Lecture 57 - Parking Management - II
- Lecture 58 - Parking Management - III
- Lecture 59 - Introduction to Road Safety
- Lecture 60 - Road Safety Engineering and Crash Data
- Lecture 61 - Blackspot Analysis
- Lecture 62 - Crash Data Analysis
- Lecture 63 - Road Safety Audit
- Lecture 64 - Safe System Approach
- Lecture 65 - Road Safety Countermeasures
- Lecture 66 - Speed Management Measures

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Bridge Engineering

Subject Co-ordinator - Prof. Piyali Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Components, Materials, Forms, Evolutions and Classifications of Bridges
- Lecture 2 - Site Selection, Subsoil Exploration and Traffic Projections for Bridges
- Lecture 3 - Hydraulic Characteristics, Economical Span and Choice of Bridge Type
- Lecture 4 - Standard Specifications for Road Bridges
- Lecture 5 - Standard Specifications for Rail Bridges
- Lecture 6 - Design of Slab Culverts
- Lecture 7 - Design of T-Beam and Slab Bridge
- Lecture 8 - Voided Slab Bridges, Skew Slab Culverts and Curved Bridge Decks
- Lecture 9 - Design of Box Culverts
- Lecture 10 - Design of Pipe Culverts
- Lecture 11 - Design of Steel Truss Bridges
- Lecture 12 - Design Example of Steel Truss Bridges
- Lecture 13 - Design of Plate Girder Bridges
- Lecture 14 - Design Example of Plate Girder Bridges
- Lecture 15 - Masonry Arch Bridges
- Lecture 16 - Concrete Arch Bridges
- Lecture 17 - Suspension Bridges
- Lecture 18 - Cable-Stayed Bridges
- Lecture 19 - Balanced Cantilever Bridges
- Lecture 20 - Prestressed Concrete Bridges
- Lecture 21 - Composite Bridges
- Lecture 22 - Rigid Frame Bridges
- Lecture 23 - Continuous Girder Bridges
- Lecture 24 - Design Example of Continuous Girder Bridges
- Lecture 25 - Bridge Piers
- Lecture 26 - Bridge Abutments
- Lecture 27 - Pile Foundations for Bridges
- Lecture 28 - Well and Pneumatic Caisson Foundations for Bridges
- Lecture 29 - Bridge Bearings

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Bridge Joints
- Lecture 31 - Bridge Appurtenances
- Lecture 32 - Bridge Construction
- Lecture 33 - Maintenance and Rehabilitation of Bridges
- Lecture 34 - Rebuilding of Bridges
- Lecture 35 - Dynamic Response of Bridge Decks
- Lecture 36 - Seismic Design of Highway Bridges
- Lecture 37 - Seismic Design of Railway Bridges
- Lecture 38 - Lessons from Bridge Failures
- Lecture 39 - Fatigue and Fracture of Bridges
- Lecture 40 - Use of Shape memory Alloys in Bridges
- Lecture 41 - Use of Engineered Cementitious Composite (ECC) in Bridges
- Lecture 42 - 3D Printing of Bridges
- Lecture 43 - High Speed Railway Bridges

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Elastic Stability of Structures

Subject Co-ordinator - Prof. Sarat Kumar Panda

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic concepts of buckling and introduction to equilibrium approach
- Lecture 2 - Introduction to energy and imperfection approach
- Lecture 3 - Introduction to different types of buckling
- Lecture 4 - Weighted residual methods in structural mechanics
- Lecture 5 - Weighted residual methods in structural mechanics (Continued...)
- Lecture 6 - Introduction to the strong and weak forms of GDE
- Lecture 7 - Variational method: Derivation of Euler Lagrange equation
- Lecture 8 - Delta operator in variational method for finding GDE and Boundary conditions
- Lecture 9 - Euler lagrange equation for functional having different dependent variables
- Lecture 10 - Brachistochrone problem
- Lecture 11 - Rayleigh-Ritz method
- Lecture 12 - Extension of Rayleigh-Ritz method and Galerkin's method
- Lecture 13 - Single DOF stability model
- Lecture 14 - Single DOF stability model and model having imperfection
- Lecture 15 - Large deflection theory for stability analysis of rigid body stability models
- Lecture 16 - Two DOF rigid body stability models
- Lecture 17 - Snap through stability model and model of imperfect geometry
- Lecture 18 - Weak form solution for hinged-hinged and fixed-fixed column
- Lecture 19 - Weak form solution for fixed-free and fixed-hinged column
- Lecture 20 - Strong form solution for hinged-hinged column
- Lecture 21 - Strong form solution for fixed-fixed and fixed-free column
- Lecture 22 - Critical load for column with elastic support
- Lecture 23 - Boundary conditions for column with general case of elastically supported ends
- Lecture 24 - Critical load for portal frame with column hinged at base
- Lecture 25 - Critical load for portal frame with column fixed at base
- Lecture 26 - Element stiffness matrix for beam-column
- Lecture 27 - Stability analysis of frames by matrix stiffness method
- Lecture 28 - Critical load of Euler column: Large deflection theory
- Lecture 29 - Critical load of Euler column with initial imperfection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Load deflection curve for beam-column: GDE approach
- Lecture 31 - Load deflection curve for beam-column: Energy approach
- Lecture 32 - General expression of elastic curve for beam-column
- Lecture 33 - Beam-column with several lateral and continuous loads
- Lecture 34 - Bending of beam-column by end couples
- Lecture 35 - Three moment equation for continuous beam-column
- Lecture 36 - Moment equation for continuous beam-column with intermediate column
- Lecture 37 - Beam-column on Elastic Foundation
- Lecture 38 - St Venant Torsion and Non-uniform Torsion
- Lecture 39 - Torsional Buckling
- Lecture 40 - Torsional Buckling and Torsional Flexural Buckling
- Lecture 41 - Torsional Flexural Buckling of Column Having Different Boundary Conditions
- Lecture 42 - Rayleigh-Ritz method for Torsional Flexural Buckling of Column
- Lecture 43 - Introduction to Plate Buckling and Small Deflection Theory
- Lecture 44 - Governing Differential Equation of Plate Buckling Using Small Deflection Theory
- Lecture 45 - Governing Differential Equation of Plate Buckling Using Small Deflection Theory (Continued...)
- Lecture 46 - Critical Load of Plate Using Equilibrium Approach
- Lecture 47 - Critical Load of Plate Using Energy Approach
- Lecture 48 - Critical Load of Plates with Different End Conditions: Energy Approach and Galerkin's
- Lecture 49 - F-w Formulation For Plate Buckling
- Lecture 50 - Critical load and Post Buckling Behaviour of Plate Using F-w Formulation
- Lecture 51 - Governing Differential Equation of Shell Buckling by Using Small Deflection Theory
- Lecture 52 - Governing Differential Equation of Shell Buckling by Using Small Deflection Theory (Continued...)
- Lecture 53 - Governing Differential Equation of Shell Buckling: Donnell's Equation
- Lecture 54 - Solution of Donnell's Equation for Finding Critical Load
- Lecture 55 - Governing Differential Equation of Shell Buckling by Using Finite Deflection Theory
- Lecture 56 - Post Buckling Behaviour of an Imperfect Axially Compressed Cylindrical Shell Panel
- Lecture 57 - Governing Differential Equation for the deflection curve of a thin bar
- Lecture 58 - Critical load of a two-hinged and fixed-fixed circular arch
- Lecture 59 - Inelastic Buckling Analysis of Column
- Lecture 60 - Inelastic Buckling Analysis of Column (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Radiogenic Isotope Geology

Subject Co-ordinator - Prof. R. Anand

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals
- Lecture 2 - Nuclear Stability and Decay
- Lecture 3 - Radioactive Decay and Growth
- Lecture 4 - Geochronometry: Mass Spectrometry
- Lecture 5 - Geochronometry: Mass Spectrometry (Continued...)
- Lecture 6 - Geochronometry: Isotope dilution analysis
- Lecture 7 - Geochronometry: Sample processing
- Lecture 8 - K-Ar Method of Dating
- Lecture 9 - K-Ar Method of Dating (Continued...)
- Lecture 10 - Ar-Ar Method of Dating
- Lecture 11 - Ar-Ar Method of Dating (Continued...)
- Lecture 12 - Rb-Sr Method of Dating
- Lecture 13 - Rb-Sr Method of Dating (Continued...)
- Lecture 14 - Sm-Nd Method of Dating
- Lecture 15 - Sm-Nd Method of Dating (Continued...)
- Lecture 16 - Re-Os Method of Dating
- Lecture 17 - Lu-Hf Method of Dating
- Lecture 18 - U-Th-Pb Geochronology
- Lecture 19 - U-Th-Pb Geochronology (Continued...)
- Lecture 20 - U-Th-Pb Geochronology (Continued...)
- Lecture 21 - Isotope Geology of Pb
- Lecture 22 - Isotope Geology of Pb (Continued...)
- Lecture 23 - Processing and Presentation of Raw Isotope Geochemical Data
- Lecture 24 - Processing and Presentation of Raw Isotope Geochemical Data (Continued...)
- Lecture 25 - Application of Sr, Nd, Pb and Hf Isotopes in Petrogenetic Studies
- Lecture 26 - Application of Sr, Nd, Pb and Hf Isotopes in Petrogenetic Studies (Continued...)
- Lecture 27 - U-series disequilibrium method of dating
- Lecture 28 - U-series disequilibrium method of dating
- Lecture 29 - Fission-Track dating

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cosmogenic radionuclides and their applications
- Lecture 31 - Cosmogenic radionuclides and their applications
- Lecture 32 - Cosmogenic radionuclides and their applications
- Lecture 33 - Extinct radionuclides and cosmochronology
- Lecture 34 - Extinct radionuclides and cosmochronology (Continued...)
- Lecture 35 - Extinct radionuclides and cosmochronology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Availability and Management of Groundwater Resources

Subject Co-ordinator - Prof. Prasoon Kumar Singh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Hydrological cycle, Need for conservation of Groundwater Resources
- Lecture 2 - Hydrological cycle, Need for conservation of Groundwater Resources (Continued...)
- Lecture 3 - Hydrological cycle, Need for conservation of Groundwater Resources (Continued...)
- Lecture 4 - Hydrological cycle, Need for conservation of Groundwater Resources (Continued...)
- Lecture 5 - Hydrological cycle, Need for conservation of Groundwater Resources (Continued...)
- Lecture 6 - Geological formation as Aquifer
- Lecture 7 - Geological formation as Aquifer (Continued...)
- Lecture 8 - Geological formation as Aquifer (Continued...)
- Lecture 9 - Geological formation as Aquifer (Continued...)
- Lecture 10 - Introduction about Vadose and Saturated Zone
- Lecture 11 - Vadose and Saturated Zone (Continued...)
- Lecture 12 - Vadose and Saturated Zone (Continued...)
- Lecture 13 - Vadose and Saturated Zone (Continued...)
- Lecture 14 - Vadose and Saturated Zone (Continued...)
- Lecture 15 - Confined and Unconfined Aquifer and their parameters
- Lecture 16 - Confined and Unconfined Aquifer and their parameters (Continued...)
- Lecture 17 - Confined and Unconfined Aquifer and their Parameters (Continued...)
- Lecture 18 - Confined and Unconfined Aquifer and their Parameters (Continued...)
- Lecture 19 - Confined and Unconfined Aquifer and their parameters (Continued...)
- Lecture 20 - Porosity, Permeability, Transmissivity and Storage Coefficient
- Lecture 21 - Porosity, Permeability, Transmissivity and Storage Coefficient (Continued...)
- Lecture 22 - Porosity, Permeability, Transmissivity and Storage Coefficient (Continued...)
- Lecture 23 - Porosity, permeability, transmissivity and storage coefficient
- Lecture 24 - Porosity, permeability, transmissivity and storage coefficient (Continued...)
- Lecture 25 - Law of groundwater movement, Darcy's law and application (Continued...)
- Lecture 26 - Law of groundwater movement, Darcy's law and application (Continued...)
- Lecture 27 - Law of groundwater movement, Darcy's law and application (Continued...)
- Lecture 28 - Law of groundwater movement, Darcy's law and application (Continued...)
- Lecture 29 - Law of groundwater movement, Darcy's law and application (Continued...)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Estimation of Subsurface Runoff, Types of Wells, Well Hydraulics
- Lecture 31 - Estimation of Subsurface Runoff, Types of Wells, Well Hydraulics (Continued...)
- Lecture 32 - Estimation of Subsurface Runoff, Types of Wells, Well Hydraulics (Continued...)
- Lecture 33 - Estimation of Subsurface Runoff, Types of Wells, Well Hydraulics (Continued...)
- Lecture 34 - Estimation of Subsurface Runoff, Types of Wells, Well Hydraulics (Continued...)
- Lecture 35 - Measurement of rainfall, Index of wetness, Infiltration rate
- Lecture 36 - Measurement of rainfall, Index of wetness, Infiltration rate (Continued...)
- Lecture 37 - Measurement of rainfall, Index of wetness, Infiltration rate (Continued...)
- Lecture 38 - Measurement of rainfall, Index of wetness, Infiltration rate (Continued...)
- Lecture 39 - Measurement of rainfall, Index of wetness, Infiltration rate (Continued...)
- Lecture 40 - Estimation of Total Annual Replenishable Natural Groundwater Recharge
- Lecture 41 - Estimation of Total Annual Replenishable Natural Groundwater Recharge (Continued...)
- Lecture 42 - Estimation of Total Annual Replenishable Natural Groundwater Recharge (Continued...)
- Lecture 43 - Estimation of Total Annual Replenishable Natural Groundwater Recharge (Continued...)
- Lecture 44 - Estimation of Total Annual Replenishable Natural Groundwater Recharge (Continued...)
- Lecture 45 - Groundwater resources planning and management
- Lecture 46 - Groundwater Resources Planning and Management (Continued...)
- Lecture 47 - Groundwater Resources Planning and Management (Continued...)
- Lecture 48 - Groundwater Resources Planning and Management (Continued...)
- Lecture 49 - Groundwater Resources Planning and Management (Continued...)
- Lecture 50 - Rainwater Harvesting and Artificial Groundwater Recharge
- Lecture 51 - Rainwater Harvesting and Artificial Groundwater Recharge (Continued...)
- Lecture 52 - Rainwater Harvesting and Artificial Groundwater Recharge (Continued...)
- Lecture 53 - Rainwater Harvesting and Artificial Groundwater Recharge (Continued...)
- Lecture 54 - Rainwater Harvesting and Artificial Groundwater Recharge (Continued...)
- Lecture 55 - Impact of climate change on water resources
- Lecture 56 - Impact of climate change on water resources (Continued...)
- Lecture 57 - Impact of climate change on water resources (Continued...)
- Lecture 58 - Impact of climate change on water resources (Continued...)
- Lecture 59 - Impact of climate change on water resources (Continued...)
- Lecture 60 - Impact of climate change on water resources (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Soil Dynamics

Subject Co-ordinator - Prof. Paramita Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Theory of Vibrations
- Lecture 2 - Theory of Vibrations
- Lecture 3 - Single Degree of Freedom System (SDOF) - Part 1
- Lecture 4 - Single Degree of Freedom System (SDOF) - Part 2
- Lecture 5 - Single Degree of Freedom System (SDOF) - Part 3
- Lecture 6 - Single Degree of Freedom System (SDOF) - Part 4
- Lecture 7 - Single Degree of Freedom System (SDOF) - Part 5
- Lecture 8 - Single Degree of Freedom System (SDOF) - Part 6
- Lecture 9 - Single Degree of Freedom System (SDOF) - Part 7
- Lecture 10 - Single Degree of Freedom System (SDOF) - Part 8
- Lecture 11 - Single Degree of Freedom System (SDOF) - Part 9
- Lecture 12 - Multiple Degree of Freedom System (MDOF) - Part 1
- Lecture 13 - Multiple Degree of Freedom System (MDOF) - Part 2
- Lecture 14 - Multiple Degree of Freedom System (MDOF) - Part 2
- Lecture 15 - Multiple Degree of Freedom System (MDOF) - Part 3
- Lecture 16 - Multiple Degree of Freedom System (MDOF) - Part 5
- Lecture 17 - Wave Propagation in An Elastic Rod
- Lecture 18 - Wave Propagation in An Elastic Rod of Finite Length
- Lecture 19 - Wave Propagation in An Infinite Elastic Medium
- Lecture 20 - Wave Propagation in An Infinite and Semi-Infinite Elastic Medium
- Lecture 21 - Determination of Dynamic Properties of Soils (Laboratory Tests) - Part 1
- Lecture 22 - Determination of Dynamic Properties of Soils (Laboratory Tests) - Part 2
- Lecture 23 - Determination of Dynamic Properties of Soils (Laboratory Tests) - Part 3
- Lecture 24 - Determination of Dynamic Properties of Soils (Laboratory Tests) - Part 4
- Lecture 25 - Determination of Dynamic Properties of Soils (Laboratory Tests) - Part 5
- Lecture 26 - Determination of Dynamic Properties of Soils (Seismic Reflection Survey)
- Lecture 27 - Determination of Dynamic Properties of Soils (Seismic Reflection Survey)
- Lecture 28 - Determination of Dynamic Properties of Soils (Seismic Refraction Survey-Inclined Layering)
- Lecture 29 - Determination of Dynamic Properties of Soils (Numerical Problems on Seismic Reflection)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Determination of Dynamic Properties of Soils (Block Vibration Test)
- Lecture 31 - Liquefaction of Soils - Part 1
- Lecture 32 - Liquefaction of Soils - Part 2
- Lecture 33 - Liquefaction of Soils - Part 3
- Lecture 34 - Liquefaction of Soils - Part 4
- Lecture 35 - Liquefaction of Soils - Part 5
- Lecture 36 - Machine Foundations (Design Criteria)
- Lecture 37 - Analysis of Machine Foundations (Elastic Half Space Method) - Part 1
- Lecture 38 - Analysis of Machine Foundations (Elastic Half Space Method) - Part 2
- Lecture 39 - Analysis of Machine Foundations (Elastic Half Space Method) - Part 3
- Lecture 40 - Analysis of Machine Foundations (Elastic Half Space Method) - Part 4
- Lecture 41 - Analysis of Machine Foundations (Linear Elastic Weightless Spring Method - Part 1)
- Lecture 42 - Analysis of Machine Foundations (For Reciprocating Machines) - Part 2
- Lecture 43 - Analysis of Machine Foundations (For Reciprocating Machines) - Part 3
- Lecture 44 - Analysis of Machine Foundations (For Reciprocating Machines) - Part 4
- Lecture 45 - Analysis of Machine Foundations (For Impact Type Machines) - Part 1
- Lecture 46 - Analysis of Machine Foundations (For Impact Type Machines) - Part 2
- Lecture 47 - Analysis of Machine Foundations (For Rotary Machines) - Part 1
- Lecture 48 - Analysis of Machine Foundations (For Rotary Machines) - Part 2
- Lecture 49 - Analysis of Machine Foundations (For Rotary Machines) - Part 3
- Lecture 50 - Analysis of Machine Foundations (For Rotary Machines) - Part 3 (Continued...)
- Lecture 51 - Analysis of Pile Foundation Under Dynamic Loading - Part I
- Lecture 52 - Analysis of Pile Foundation Under Dynamic Loading - Part II
- Lecture 53 - Analysis of Pile Foundation Under Dynamic Loading - Part III
- Lecture 54 - Analysis of Pile Foundation Under Dynamic Loading - Part IV
- Lecture 55 - Analysis of Pile Foundation Under Dynamic Loading - Part V
- Lecture 56 - Isolation of Vibration - Part 1
- Lecture 57 - Isolation of Vibration - Part 2
- Lecture 58 - Isolation of Vibration - Part 3
- Lecture 59 - Isolation of Vibration - Part 4
- Lecture 60 - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geotechnical Earthquake Engineering

Subject Co-ordinator - Prof. Kousik Deb

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Causes of Earthquake  
Lecture 3 - Seismic Waves  
Lecture 4 - Seismic Waves (Continued...)  
Lecture 5 - Size of Earthquake  
Lecture 6 - Size of Earthquake (Continued...)  
Lecture 7 - Introduction  
Lecture 8 - Measurement of Ground Motion  
Lecture 9 - Ground Motion Parameters  
Lecture 10 - Ground Motion Parameters (Continued...)  
Lecture 11 - Ground Motion Parameters (Continued...)  
Lecture 12 - Ground Motion Parameters (Continued...)  
Lecture 13 - Ground Motion Parameters (Continued...)  
Lecture 14 - Estimation of Ground Motion Parameters  
Lecture 15 - Examples  
Lecture 16 - Examples (Continued...)  
Lecture 17 - Examples (Continued...)  
Lecture 18 - Field Tests  
Lecture 19 - Field Tests (Continued...)  
Lecture 20 - Field Tests (Continued...)  
Lecture 21 - Field Tests (Continued...)  
Lecture 22 - Field Tests (Continued...)  
Lecture 23 - Field Tests (Continued...)  
Lecture 24 - Field Tests (Examples)  
Lecture 25 - Field Tests (Continued...)  
Lecture 26 - Field Tests (Continued...)  
Lecture 27 - Laboratory and Model Tests  
Lecture 28 - Stress-Strain Behavior of Cyclically Loaded Soils  
Lecture 29 - Stress-Strain Behavior of Cyclically Loaded Soils (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Stress-Strain Behavior of Cyclically Loaded Soils (Continued...)
- Lecture 31 - Linear Approach
- Lecture 32 - Linear Approach (Continued...)
- Lecture 33 - Equivalent Linear and Non Linear Approach
- Lecture 34 - Evaluation of Liquefaction Resistance of Soils
- Lecture 35 - Evaluation of Liquefaction Resistance of Soils (Continued...)
- Lecture 36 - Evaluation of Liquefaction Resistance of Soils (Continued...)
- Lecture 37 - Evaluation of Liquefaction Resistance of Soils (Continued...)
- Lecture 38 - Evaluation of Liquefaction Resistance of Soils (Continued...)
- Lecture 39 - Evaluation of Liquefaction Resistance of Soils (Continued...)
- Lecture 40 - Evaluation of Liquefaction Resistance of Soils (Continued...)
- Lecture 41 - Evaluation of Liquefaction Resistance of Soils (Continued...)
- Lecture 42 - Evaluation of Liquefaction Resistance of Soils (Continued...)
- Lecture 43 - Liquefaction Susceptibility Criteria for Silts and Clays
- Lecture 44 - Liquefaction Susceptibility Criteria for Silts and Clays (Continued...)
- Lecture 45 - Liquefaction Susceptibility Criteria for Silts and Clays (Continued...)
- Lecture 46 - Liquefaction Susceptibility Criteria for Silts and Clays (Continued...)
- Lecture 47 - Settlement of Sand due to Earthquake Shaking
- Lecture 48 - Settlement of Sand due to Earthquake Shaking (Continued...)
- Lecture 49 - Seismic or Liquefaction Hazard Mitigation
- Lecture 50 - Seismic or Liquefaction Hazard Mitigation (Continued...)
- Lecture 51 - Seismic or Liquefaction Hazard Mitigation (Continued...)
- Lecture 52 - Seismic or Liquefaction Hazard Mitigation (Continued...)
- Lecture 53 - Seismic or Liquefaction Hazard Mitigation (Continued...)
- Lecture 54 - Seismic slope stability analysis: Pseudostatic Analysis
- Lecture 55 - Seismic slope stability analysis: Pseudostatic Analysis (Continued...)
- Lecture 56 - Seismic slope stability analysis: Newmark Sliding Block Analysis
- Lecture 57 - Seismic slope stability analysis: Newmark Sliding Block Analysis (Continued...)
- Lecture 58 - Seismic design of retaining walls
- Lecture 59 - Seismic design of retaining walls (Continued...)
- Lecture 60 - Seismic design of retaining walls (Continued...)
- Lecture 61 - Seismic design of retaining walls (Continued...)
- Lecture 62 - Seismic design of retaining walls (Continued...)
- Lecture 63 - Seismic design of retaining walls (Continued...)
- Lecture 64 - Seismic design of retaining walls (Continued...)
- Lecture 65 - Seismic design of retaining walls (Continued...)
- Lecture 66 - Seismic design of retaining walls (Continued...)
- Lecture 67 - Seismic design of retaining walls (Continued...)
- Lecture 68 - Seismic design of retaining walls (Continued...)

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Lecture 69 - Seismic design of retaining walls (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Earthquake Seismology

Subject Co-ordinator - Dr. Mohit Agrawal

Co-ordinating Institute - IIT-ISM Dhanbad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Waves on a String
- Lecture 3 - Stress
- Lecture 4 - Strain tensor and Constitutive equations
- Lecture 5 - Equations of Motion
- Lecture 6 - Wavenumber vector, Slowness, P-and S-wave Polarization
- Lecture 7 - Seismic spectrum, Seismogram rotation, Spherical Waves
- Lecture 8 - Energy in the Plane Wave, Potentials at an Interface
- Lecture 9 - Boundary Conditions, Types Of Interfaces, Ray Theory, Reflection/Transmission
- Lecture 10 - Snell's law, Transmission and Reflection Coefficients, Fermat's Principle, Huygen's
- Lecture 11 - Precritical, Critical, and Postcritical waves, reflection and transmission coefficients
- Lecture 12 - Surface waves
- Lecture 13 - Rayleigh Waves
- Lecture 14 - Love waves
- Lecture 15 - Dispersion
- Lecture 16 - Dispersion example in the Earth and Tsunamis
- Lecture 17 - Normal modes
- Lecture 18 - Torsional and Spheroidal Modes
- Lecture 19 - Solving numerical problems
- Lecture 20 - Refraction seismology
- Lecture 21 - Refraction seismology (Continued...)
- Lecture 22 - Reflection seismology (Continued...)
- Lecture 23 - Earth as a constant velocity Distribution
- Lecture 24 - Multi Channel Data Geometry
- Lecture 25 - Seismic waves in spherical earth
- Lecture 26 - Velocity distribution
- Lecture 27 - Body waves
- Lecture 28 - Core Phases
- Lecture 29 - Velocity structure of upper mantle and lower mantle

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- Lecture 30 - Anisotropic earth structure
- Lecture 31 - Anisotropic earth structure (Continued...)
- Lecture 32 - Attenuation and Anelasticity
- Lecture 33 - Attenuation and Anelasticity (Continued...)
- Lecture 34 - Attenuation and Anelasticity (Continued...)
- Lecture 35 - Composition of the mantle and core
- Lecture 36 - Composition of the mantle and core (Continued...)
- Lecture 37 - Composition of the mantle and core (Continued...)
- Lecture 38 - Composition of the mantle and core (Continued...)
- Lecture 39 - Earthquakes, focal mechanisms, moment tensors
- Lecture 40 - Earthquakes, focal mechanisms, moment tensors (Continued...)
- Lecture 41 - Earthquakes, focal mechanisms, moment tensors (Continued...)
- Lecture 42 - Earthquakes, focal mechanisms, moment tensors (Continued...)
- Lecture 43 - Earthquakes, focal mechanisms, moment tensors (Continued...)
- Lecture 44 - Brief on Earthquake geodesy
- Lecture 45 - Brief on Earthquake geodesy (Continued...)
- Lecture 46 - Brief on Earthquake geodesy (Continued...)
- Lecture 47 - Brief on Earthquake geodesy (Continued...)
- Lecture 48 - Source parameters, Earthquake statistics
- Lecture 49 - Source parameters, Earthquake statistics (Continued...)
- Lecture 50 - Source parameters, Earthquake statistics (Continued...)
- Lecture 51 - Source parameters, Earthquake statistics (Continued...)
- Lecture 52 - Source parameters, Earthquake statistics (Continued...)
- Lecture 53 - Seismology and Plate tectonics, Spreading centers, Subduction zones
- Lecture 54 - Seismology and Plate tectonics, Spreading centers, Subduction zones (Continued...)
- Lecture 55 - Seismology and Plate tectonics, Spreading centers, Subduction zones (Continued...)
- Lecture 56 - Numerical Problems in Seismology
- Lecture 57 - Numerical Problems in Seismology (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Engineering Geology

Subject Co-ordinator - Prof. R. K. Dubey

Co-ordinating Institute - IIT-ISM Dhanbad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and significance
- Lecture 2 - Enginerring geological ground, concept and categorization
- Lecture 3 - Geomaterial: Rock, rock material and rock strata, concept of stress, deformation ...
- Lecture 4 - Stress-strain behaviour and mechanical parameters of rocks
- Lecture 5 - Geomorphology of river valley and mountainous regions and landforms
- Lecture 6 - Different types of water and distribution of water, different type of rocks and ...
- Lecture 7 - Surface and subsurface water and their interaction with geoground
- Lecture 8 - Weathering processes and classification
- Lecture 9 - Chemical weathering and impact of weathering
- Lecture 10 - Weatherability and weathering indices
- Lecture 11 - Characteristic of rocks and rock strata and some physical property
- Lecture 12 - Common physical attributes of geomaterials
- Lecture 13 - Engineering properties of rocks
- Lecture 14 - Geotechnical characteristic of joint and approach for rock mass classification
- Lecture 15 - Rock mass classification
- Lecture 16 - About construction materials and dimensional stone
- Lecture 17 - Crushed stone and suitability of rocks as construction materials
- Lecture 18 - Aggregate and deleterious materials
- Lecture 19 - Pozzolan and soil
- Lecture 20 - Cement-aggregate reaction
- Lecture 21 - Concept and classification of dams
- Lecture 22 - Classification of dams based on materials used
- Lecture 23 - Classification of dam based on design and function
- Lecture 24 - Arch dams and classification dams based on use and function and technical ...
- Lecture 25 - Forces acting on dam and engineering geological characteristics for dam construction
- Lecture 26 - About tunnels and classification of tunnels
- Lecture 27 - Tunnelling methods
- Lecture 28 - Treatments
- Lecture 29 - Anchoring of rock strata : grouting

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- Lecture 30 - Anchoring of rock strata : rock bolting
- Lecture 31 - Categorization of major geological structures affecting stability of engineering ...
- Lecture 32 - Major geological structures Fold, Faults, joints
- Lecture 33 - Major geological structures: sedimentary structures, unconformity and effect ...
- Lecture 34 - Effects of beddings, folds, faults, joints and unconformity on stability of dams
- Lecture 35 - Effects of beddings, folds, faults, joints and unconformity on ground control ...
- Lecture 36 - Rock-load/ground pressure, factors affecting ground pressure
- Lecture 37 - Methods for determination of rock load: empirical approaches
- Lecture 38 - Methods for determination of rock load: empirical, semi-empirical approaches
- Lecture 39 - Methods for determination of rock load: Structural defect and rock-support ...
- Lecture 40 - Unified approach, support system, and mechanics of rock bolt working
- Lecture 41 - About road and highway features and pavement
- Lecture 42 - Stress distributions and engineering geological facets of new road/highway alignments
- Lecture 43 - About bridges, classifications and working mechanism
- Lecture 44 - Engineering geological facets of bridges and material quality
- Lecture 45 - Building, building foundation and foundation strata
- Lecture 46 - Landslide
- Lecture 47 - Landslide Hazards Zonation, causes and mitigation
- Lecture 48 - Slope stability aspects of landslide
- Lecture 49 - Earthquakes
- Lecture 50 - Induced seismicity
- Lecture 51 - Sea, seacoast, features and agents
- Lecture 52 - Wave propagations and concept of surf zones and breaking of waves
- Lecture 53 - Waves propagation in different depth and wave mechanics
- Lecture 54 - Erosion induced and deposition assisted sea landforms
- Lecture 55 - Sea shore hazards, mitigation and protective structures
- Lecture 56 - Energy and introductory aspects of geothermal energy
- Lecture 57 - Geothermal resources and enhanced geothermal systems
- Lecture 58 - Geotechnical facets of gas hydrate
- Lecture 59 - Engineering geological facets of CBM and shale gas
- Lecture 60 - Engineering geological aspect of carbon capture, usage and storage (CCUS)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Industrial Wastewater Treatment

Subject Co-ordinator - Prof Alok Sinha, Prof S K Gupta

Co-ordinating Institute - IIT-ISM Dhanbad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Sources and characteristics of industrial wastewater
- Lecture 2 - Sources and characteristics of industrial wastewater
- Lecture 3 - Wastewater Management
- Lecture 4 - Design Aspects of Equalization Tank
- Lecture 5 - Neutralization and Proportioning
- Lecture 6 - Ion Exchange Process
- Lecture 7 - Ion Exchange Process
- Lecture 8 - Ion Exchange Process
- Lecture 9 - Adsorption Process
- Lecture 10 - Adsorption Process
- Lecture 11 - Gas Transfer and Air Stripping (Ammonia Removal)
- Lecture 12 - Gas Transfer and Air Stripping (Ammonia Removal)
- Lecture 13 - Advanced oxidation processes
- Lecture 14 - Advanced oxidation processes
- Lecture 15 - Advanced oxidation processes
- Lecture 16 - Advanced oxidation processes
- Lecture 17 - Membrane processes for wastewater treatment
- Lecture 18 - Membrane processes for wastewater treatment
- Lecture 19 - Membrane processes for wastewater treatment
- Lecture 20 - Membrane processes for wastewater treatment
- Lecture 21 - Coagulation, Precipitation and Heavy Metal Removal
- Lecture 22 - Coagulation, Precipitation and Heavy Metal Removal
- Lecture 23 - Coagulation, Precipitation and Heavy Metal Removal
- Lecture 24 - Coagulation, Precipitation and Heavy Metal Removal
- Lecture 25 - Coagulation, Precipitation and Heavy Metal Removal
- Lecture 26 - Treatment and disposal of sludge
- Lecture 27 - Treatment and disposal of sludge
- Lecture 28 - Treatment and disposal of sludge
- Lecture 29 - Treatment and disposal of sludge

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Treatment and disposal of sludge
- Lecture 31 - Treatment of wastewater produced from Distillery and Dairy Industries
- Lecture 32 - Treatment of wastewater produced from Distillery and Dairy Industries
- Lecture 33 - Treatment of wastewater produced from Distillery and Dairy Industries
- Lecture 34 - Treatment of wastewater produced from Distillery and Dairy Industries
- Lecture 35 - Treatment of wastewater produced from Distillery and Dairy Industries
- Lecture 36 - Treatment of wastewater produced from Tannery and Pulp and Paper
- Lecture 37 - Treatment of wastewater produced from Tannery and Pulp and Paper
- Lecture 38 - Treatment of wastewater produced from Tannery and Pulp and Paper
- Lecture 39 - Treatment of wastewater produced from Tannery and Pulp and Paper
- Lecture 40 - Treatment of wastewater produced from Tannery and Pulp and Paper
- Lecture 41 - Treatment of wastewater produced from Textile and Dye and Fertilizers
- Lecture 42 - Treatment of wastewater produced from Textile and Dye and Fertilizers
- Lecture 43 - Treatment of wastewater produced from Textile and Dye and Fertilizers
- Lecture 44 - Treatment of wastewater produced from Textile and Dye and Fertilizers
- Lecture 45 - Treatment of wastewater produced from Textile and Dye and Fertilizers
- Lecture 46 - Treatment of wastewater produced from Refineries and Iron and Steel (Coke Ovens)
- Lecture 47 - Treatment of wastewater produced from Refineries and Iron and Steel (Coke Ovens)
- Lecture 48 - Treatment of wastewater produced from Refineries and Iron and Steel (Coke Ovens)
- Lecture 49 - Treatment of wastewater produced from Refineries and Iron and Steel (Coke Ovens)
- Lecture 50 - Treatment of wastewater produced from Refineries and Iron and Steel (Coke Ovens)
- Lecture 51 - Treatment of wastewater produced from Pharmaceutical industry
- Lecture 52 - Treatment of wastewater produced from Pharmaceutical industry
- Lecture 53 - Treatment of wastewater produced from Pharmaceutical industry
- Lecture 54 - Treatment of wastewater produced from Pharmaceutical industry
- Lecture 55 - Treatment of wastewater produced from Pharmaceutical industry
- Lecture 56 - Mine Wastewater including Acid Mine Drainage and Industrial Complexing
- Lecture 57 - Mine Wastewater including Acid Mine Drainage and Industrial Complexing
- Lecture 58 - Mine Wastewater including Acid Mine Drainage and Industrial Complexing
- Lecture 59 - Mine Wastewater including Acid Mine Drainage and Industrial Complexing
- Lecture 60 - Mine Wastewater including Acid Mine Drainage and Industrial Complexing



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Advanced Structural Analysis

Subject Co-ordinator - Prof. Devdas Menon

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Review of Basic Structural Analysis - I  
Lecture 2 - Review of Basic Structural Analysis - I  
Lecture 3 - Review of Basic Structural Analysis - I  
Lecture 4 - Review of Basic Structural Analysis - I  
Lecture 5 - Review of Basic Structural Analysis - I  
Lecture 6 - Review of Basic Structural Analysis - I  
Lecture 7 - Review of Basic Structural Analysis - II  
Lecture 8 - Review of Basic Structural Analysis - II  
Lecture 9 - Review of Basic Structural Analysis - II  
Lecture 10 - Review of Basic Structural Analysis - II  
Lecture 11 - Review of Basic Structural Analysis - II  
Lecture 12 - Review of Basic Structural Analysis - II  
Lecture 13 - Review of Basic Structural Analysis - II  
Lecture 14 - Review of Basic Structural Analysis - II  
Lecture 15 - Review of Basic Structural Analysis - II  
Lecture 16 - Review of Basic Structural Analysis - II  
Lecture 17 - Basic Matrix Concepts  
Lecture 18 - Basic Matrix Concepts  
Lecture 19 - Basic Matrix Concepts  
Lecture 20 - Basic Matrix Concepts  
Lecture 21 - Basic Matrix Concepts  
Lecture 22 - Matrix Analysis of Structures with Axial Elements  
Lecture 23 - Matrix Analysis of Structures with Axial Elements  
Lecture 24 - Matrix Analysis of Structures with Axial Elements  
Lecture 25 - Matrix Analysis of Structures with Axial Elements  
Lecture 26 - Matrix Analysis of Structures with Axial Elements  
Lecture 27 - Matrix Analysis of Beams and Grids  
Lecture 28 - Matrix Analysis of Beams and Grids  
Lecture 29 - Matrix Analysis of Beams and Grids

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Matrix Analysis of Beams and Grids
- Lecture 31 - Matrix Analysis of Beams and Grids
- Lecture 32 - Matrix Analysis of Beams and Grids
- Lecture 33 - Matrix Analysis of Plane and Space Frames
- Lecture 34 - Matrix Analysis of Plane and Space Frames
- Lecture 35 - Matrix Analysis of Plane and Space Frames
- Lecture 36 - Matrix Analysis of Plane and Space Frames
- Lecture 37 - Matrix Analysis of Plane and Space Frames
- Lecture 38 - Analysis of elastic instability and second-order effects
- Lecture 39 - Analysis of elastic instability and second-order effects
- Lecture 40 - Analysis of elastic instability and second-order effects
- Lecture 41 - Life beyond Structures & Analysis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Finite Element Analysis

Subject Co-ordinator - Dr. B.N. Rao

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Geosynthetics and Reinforced Soil Structures

Subject Co-ordinator - Dr. K. Rajagopal

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction & Need for Geosynthetics
- Lecture 2 - Types and Functions of Geosynthetics
- Lecture 3 - Polymers in Geosynthetics and Manufacturing Techniques
- Lecture 4 - Strength Analysis of Reinforced Soils - I
- Lecture 5 - Strength Analysis of Reinforced Soils - II
- Lecture 6 - Testing of Geosynthetics - I
- Lecture 7 - Testing of Geosynthetics - II
- Lecture 8 - Testing of Geosynthetics - III
- Lecture 9 - Different Types of Soil Retaining Structures
- Lecture 10 - Construction Aspects of Geosynthetic Reinforced Soil Retaining Walls
- Lecture 11 - Design Codes for Reinforced Soil Retaining Walls
- Lecture 12 - External Stability Analysis of Reinforced Soil Retaining Walls
- Lecture 13 - Seismic Loads and Internal Stability Analysis of Reinforced Soil Walls
- Lecture 14 - Testing Requirements for Reinforced Soil Retaining Walls
- Lecture 15 - Design Example of Reinforced Soil Retaining Walls - I
- Lecture 16 - Design Example of Reinforced Soil Retaining Walls - II
- Lecture 17 - Design Example of Reinforced Soil Retaining Walls - III
- Lecture 18 - Design Example of Reinforced Soil Retaining Walls - IV
- Lecture 19 - Case Study of Construction of Very High Tiered Reinforced Soil Walls
- Lecture 20 - Controlled Yielding to Reduce Lateral Earth Pressures on Rigid Walls
- Lecture 21 - Geosynthetic Reinforced Soil Embankments - I
- Lecture 22 - Geosynthetic Reinforced Soil Embankments - II
- Lecture 23 - Two-Part Wedge Analysis of Reinforced Soil Embankments
- Lecture 24 - Soil Embankments Supported on Geocell Mattresses
- Lecture 25 - Accelerated Pre-Consolidation of Soft Clay Soils Using Geosynthetics
- Lecture 26 - Geosynthetic Reinforced Pile Systems for High Embankments
- Lecture 27 - Geosynthetic Encasement for Stronger and Stiffer Stone Columns
- Lecture 28 - Response of Footings Resting on Reinforced Foundation Soils
- Lecture 29 - Bearing Capacity Analysis of Footings Resting on Reinforced Foundation Soils

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design and Construction of Container Yards Using Geosynthetics
- Lecture 31 - Geosynthetics in Flexible Pavements - I
- Lecture 32 - Geosynthetics in Flexible Pavements - II
- Lecture 33 - Geosynthetics in Flexible Pavements and Carbon Foot Print Analysis
- Lecture 34 - Filtration of Soils Using Geosynthetics
- Lecture 35 - Drainage Applications of Geosynthetics
- Lecture 36 - Erosion Control of Soils Using Geosynthetics
- Lecture 37 - Sustainable Infrastructure Development & Natural Geosynthetics
- Lecture 38 - Introduction to Geosynthetics in Landfills
- Lecture 39 - Case Study of the Construction of Airport Runway at Pakyong, Sikkim Using Geosynthetics (Guest I
- Lecture 40 - Landfill Engineering Systems (Guest Lecture)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Modern Construction Materials

Subject Co-ordinator - Dr. Ravindra Gettu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Prologue

Lecture 2 - The Science, Engineering and Technology of Materials An Introduction - I

Lecture 3 - The Science, Engineering and Technology of Materials An Introduction - II

Lecture 4 - Review of Atomic Bonding - I

Lecture 5 - Review of Atomic Bonding - II

Lecture 6 - Structure of Solids - I

Lecture 7 - Structure of Solids - II

Lecture 8 - Structure of Solids - III

Lecture 9 - Movement of Atoms in Solids

Lecture 10 - Development of Microstructure - I

Lecture 11 - Development of Microstructure - II

Lecture 12 - Surface Properties

Lecture 13 - Response to Stress - Part 1

Lecture 14 - Response to Stress - Part 2

Lecture 15 - Response to Stress - Part 3

Lecture 16 - Failure Theories

Lecture 17 - Fracture Mechanics - Part 1

Lecture 18 - Fracture Mechanics - Part 2

Lecture 19 - Rheology of Liquids and Solids

Lecture 20 - Thermal Properties

Lecture 21 - Review of Construction Materials

Lecture 22 - Wood and Wood Products - 1

Lecture 23 - Wood and Wood Products - 2

Lecture 24 - Wood and Wood Products - Guest Lecture

Lecture 25 - Polymers

Lecture 26 - Fibre Reinforced Polymer - 1

Lecture 27 - Fibre Reinforced Polymer - 2

Lecture 28 - Metals - Part 1

Lecture 29 - Metals - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Metals - Part 3
- Lecture 31 - Bituminous Material - Part 1
- Lecture 32 - Bituminous Material - Part 2
- Lecture 33 - Concrete - Part 1
- Lecture 34 - Concrete - Part 2
- Lecture 35 - Concrete - Part 3
- Lecture 36 - Concrete - Part 4
- Lecture 37 - Concrete - Part 5
- Lecture 38 - Glass - Guest Lecture
- Lecture 39 - Social Perception - Guest Lecture
- Lecture 40 - Water Proofing - Guest Lecture
- Lecture 41 - Floor Finishes - Guest Lecture
- Lecture 42 - Anchors - Guest Lecture



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Urban transportation planning

Subject Co-ordinator - Dr. V. Thamizh Arasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Introduction (Continued...)
- Lecture 4 - Course Outline
- Lecture 5 - Conceptual Aspects
- Lecture 6 - Conceptual Aspects (Continued...)
- Lecture 7 - Conceptual Aspects (Continued...)
- Lecture 8 - Conceptual Aspects (Continued...)
- Lecture 9 - Trip Generation Analysis
- Lecture 10 - Trip Generation Analysis (Continued...)
- Lecture 11 - Trip Generation Analysis (Continued...)
- Lecture 12 - Trip Generation Analysis (Continued...)
- Lecture 13 - Modal Split Analysis
- Lecture 14 - Modal Split Analysis (Continued...)
- Lecture 15 - Modal Split Analysis (Continued...)
- Lecture 16 - Modal Split Analysis (Continued...)
- Lecture 17 - Modal Split Analysis (Continued...)
- Lecture 18 - Modal Split Analysis (Continued...)
- Lecture 19 - Modal Split Analysis (Continued...)
- Lecture 20 - Trip Distribution Analysis
- Lecture 21 - Trip Distribution Analysis (Continued...)
- Lecture 22 - Trip Distribution Analysis (Continued...)
- Lecture 23 - Trip Distribution Analysis (Continued...)
- Lecture 24 - Trip Distribution Analysis (Continued...)
- Lecture 25 - Trip Distribution Analysis (Continued...)
- Lecture 26 - Trip Distribution Analysis (Continued...)
- Lecture 27 - Route Assignment
- Lecture 28 - Route Assignment (Continued...)
- Lecture 29 - Route Assignment (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Route Assignment (Continued...)
- Lecture 31 - Transportation Surveys
- Lecture 32 - Transportation Surveys (Continued...)
- Lecture 33 - Transportation Surveys (Continued...)
- Lecture 34 - Transport Related Land-Use Models
- Lecture 35 - Transport Related Land-Use Models (Continued...)
- Lecture 36 - Transport Related Land-Use Models (Continued...)
- Lecture 37 - Urban Structure
- Lecture 38 - Urban Structure (Continued...)
- Lecture 39 - Urban Goods Movement
- Lecture 40 - Urban Goods Movement (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Mechanics of Solids

Subject Co-ordinator - Prof. M.S. Sivakumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Planar Rigid Body
- Lecture 2 - Degrees of freedom
- Lecture 3 - Equations of Equilibrium
- Lecture 4 - Planar rigid body Statics - Example 1
- Lecture 5 - Rigid Body Statics - Example 2
- Lecture 6 - Structural Systems with rigid bodies
- Lecture 7 - Types of 1-D Structural Elements
- Lecture 8 - Trusses - Axial members
- Lecture 9 - Analysis of Truss Systems
- Lecture 10 - Stability of Structural systems
- Lecture 11 - Trusses - additional discussions
- Lecture 12 - Trusses - Method of Sections
- Lecture 13 - Beams - Example 1
- Lecture 14 - Beams - BMD & SFD
- Lecture 15 - Beams - loading, shear and BM relationships
- Lecture 16 - Virtual work method
- Lecture 17 - Virtual displacements
- Lecture 18 - Finding virtual displacements
- Lecture 19 - Virtual Work Method - Example 1
- Lecture 20 - Virtual Work Method - Example 2
- Lecture 21 - Static Friction - an understanding
- Lecture 22 - Belt Friction
- Lecture 23 - Friction
- Lecture 24 - General concepts - rigid bodies
- Lecture 25 - Motion of a rigid body = a translation + a rotation
- Lecture 26 - Motion of a point of the rigid body
- Lecture 27 - Motion of one point on a rigid body relative to another
- Lecture 28 - Understanding rotational motion  $\dot{r} = \omega \times r$
- Lecture 29 - Kinematics velocity and acceleration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Understanding Coriolis Acceleration
- Lecture 31 - Kinematics - Solving problems
- Lecture 32 - Equations of motion of a rigid body
- Lecture 33 - Tips and Techniques 1/2
- Lecture 34 - Tips and Techniques 2/2
- Lecture 35 - Solving Problems 1/4
- Lecture 36 - Solving Problems 2/4
- Lecture 37 - Solving Problems 3/4
- Lecture 38 - Solving Problems 4/4
- Lecture 39 - Engineering Statics - Solving problems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Pre-stressed Concrete Structures

Subject Co-ordinator - Prof. Devdas Menon, Dr. Amlan Kumar Sengupta

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Prestressing System
- Lecture 2 - Types of Prestressing
- Lecture 3 - Prestressing System and Devices (Pre-Tensioning)
- Lecture 4 - Prestressing System and Devices (Post-Tensioning)
- Lecture 5 - Concrete - Part-1
- Lecture 6 - Concrete, Grout - Part-2
- Lecture 7 - Prestressing Steel
- Lecture 8 - Losses in Prestress
- Lecture 9 - Friction & Anchorage Slip
- Lecture 10 - Creep, Shrinkage & Relaxation Losses
- Lecture 11 - Analysis of Members
- Lecture 12 - Analysis of Members Under Flexure
- Lecture 13 - Cracking Moment, Kern Point and Pressure Line
- Lecture 14 - Analysis of Rectangular sections
- Lecture 15 - Analysis of Flanged Sections
- Lecture 16 - Analysis of Partially Prestressed Section
- Lecture 17 - Design of Members
- Lecture 18 - Design of Members for Flexure (Type1 Members)
- Lecture 19 - Design of Members for Flexure (Type1 & Type3)
- Lecture 20 - Choice of Sections and Determination of Limiting
- Lecture 21 - Magnel's Graphical Method
- Lecture 22 - Detailing Requirements
- Lecture 23 - Analysis and Design for Shear and Torsion
- Lecture 24 - Design for Shear - Part-1
- Lecture 25 - Design for Shear - Part-2
- Lecture 26 - Analysis of Torsion
- Lecture 27 - Analysis of Torsion - Part-1
- Lecture 28 - Analysis of Torsion - Part-2
- Lecture 29 - Calculations of Deflection and Crack Width

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transmission of Prestress
- Lecture 31 - Post-tensioned Members
- Lecture 32 - Cantilever Beams
- Lecture 33 - Continuous Beams - Part-1
- Lecture 34 - Continuous Beams - Part-2
- Lecture 35 - Composite Sections
- Lecture 36 - One-Way Slabs
- Lecture 37 - Two-Way Slabs - Part-1
- Lecture 38 - Two-Way Slabs - Part-2
- Lecture 39 - compression Members
- Lecture 40 - Circular Prestressing, Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Water and Waste Water Engineering

Subject Co-ordinator - Prof. B.S. Murty, Prof. C. Venkobachar, Prof. Ligy Philip

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction To Water & Waste Water Engineering
- Lecture 2 - Water & Waste Water Quality Enhancement
- Lecture 3 - Water & Waste Water Quantity Estimation
- Lecture 4 - Water & Waste Water Quantity Estimation (Continued...)
- Lecture 5 - Water & Waste Water Characteristics
- Lecture 6 - Water & Waste Water Characteristics (Continued...)
- Lecture 7 - Water Treatment System Unit Operations
- Lecture 8 - Sedimentation
- Lecture 9 - Sedimentation (Continued...)
- Lecture 10 - Coagulation & Flocculation
- Lecture 11 - Coagulation & Flocculation (Continued...)
- Lecture 12 - Softening
- Lecture 13 - Filtration
- Lecture 14 - Filtration (Continued...)
- Lecture 15 - Disinfection
- Lecture 16 - Introduction To Domestic Waste Water Treatment
- Lecture 17 - Physical Unit Processes For Waste Water Treatment
- Lecture 18 - Introduction To Microbiology
- Lecture 19 - Microbiology - (Continued...)
- Lecture 20 - Waste Water Treatment Reactor Analysis
- Lecture 21 - Biological Unit Processes - Activated Sludge Process
- Lecture 22 - Activated Sludge Process - Modification
- Lecture 23 - Activated Sludge Process (Continued...)
- Lecture 24 - Aeration, Nitrification And Denitrification
- Lecture 25 - Natural Waste Water Treatment Systems
- Lecture 26 - Attached Growth Aerobic Process
- Lecture 27 - Anaerobic Treatment
- Lecture 28 - Anaerobic Process-UASB Reactor (Continued...)
- Lecture 29 - UASB- Continued & Sludge Treatment

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sludge Treatment (Continued...)
- Lecture 31 - Sludge Treatment (Continued...) & Waste Water Disposal
- Lecture 32 - Waste Water Disposal And Reuse
- Lecture 33 - Advanced Waste Water Treatment
- Lecture 34 - Adsorption
- Lecture 35 - Ion Exchange, Advanced Oxidation Process
- Lecture 36 - Industrial Waste Water Treatment
- Lecture 37 - Water Distribution Networks
- Lecture 38 - Sanitary sewerage systems
- Lecture 39 - Storm water sewerage systems
- Lecture 40 - Intake Structures And Pumping Installations



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Sustainable River Basin Management

Subject Co-ordinator - Dr. Franziska Steinbruch

Co-ordinating Institute - IGCS

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Project Planning and Control

Subject Co-ordinator - Dr. Koshy Varghese

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is Project Management? Is Project Management an Art/Science ?

Lecture 2 - Objectives of a Project, Scientific Way of Managing of Objectives

Lecture 3 - Course Scope and Plan, Questions and Discussions

Lecture 4 - Construction Industry and National Growth

Lecture 5 - Project Stakeholders, Project Phases, Project Organization

Lecture 6 - Project Scheduling Levels (Scheduling Engineer Responsibilities)

Lecture 7 - Time Management - Overview

Lecture 8 - Basics of Work Breakdown Structure (WBS)

Lecture 9 - Tools for Time Management

Lecture 10 - Gantt / Bar Chart - History, Representation, Progress Monitoring, Uses, Steps to draw a Bar Chart

Lecture 11 - Develop a Bar Chart (Exercise)

Lecture 12 - Bar Charts for Resource Usage, Pros and Cons

Lecture 13 - Duration Estimation - Types, Inputs, Methods, Parametric Estimation

Lecture 14 - Factors influencing Productivity, Example for Ideal Productivity, Factored Productivity and Work

Lecture 15 - Piling Activity Example, Applicability of different methods to Estimate Activity Duration

Lecture 16 - Summary of Key Topics, Types of Networks

Lecture 17 - Networks - Introduction, Techniques

Lecture 18 - Representing Results in a Bar Chart, AON Example-2

Lecture 19 - Introduction to Floats, Types of Floats and Example-1 Discussion

Lecture 20 - Example 4, Usage of Floats for Project Decisions

Lecture 21 - Two-Span Bridge

Lecture 22 - Two-Span Bridge

Lecture 23 - Two-Span Bridge

Lecture 24 - Review Network Analysis Concepts, Apply Network Analysis to Two-Span Bridge (Continued...)

Lecture 25 - Two-Span Bridge

Lecture 26 - Two-Span Bridge

Lecture 27 - Fast-Tracking vs Crashing, Relationship between Activity Direct Cost and Activity Duration - Ass

Lecture 28 - Time-Cost trade-off

Lecture 29 - Time-Cost trade-off

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Time-Cost trade-off
- Lecture 31 - Incorporating Factors such as Bonus and Penalty; Problem-4
- Lecture 32 - What is Resource?, Influence of Resources on Schedule, Two-Span Bridge Example, Resource Decision
- Lecture 33 - Projects and Resources, Example of Two Resources, Exercise, Two-Span Bridge Example
- Lecture 34 - Review Problem-1; Problem-2 (Cash Resource); Resolving Over-Allocation
- Lecture 35 - Problem 1 - Two Resources; Resolving Resource Allocation Problems
- Lecture 36 - Resource Profile Requirements
- Lecture 37 - Resource Leveling - Example Network
- Lecture 38 - Minimum Moment Concept
- Lecture 39 - Applying Improvement Factor - Illustration
- Lecture 40 - Introduction to Precedence Diagramming Method (PDM)
- Lecture 41 - PDM network representation and its issues, Network Calculation
- Lecture 42 - PDM & Problem #1
- Lecture 43 - Issues in PDM, Negative Lags, Problem #2 Solution
- Lecture 44 - PDM & Analysis with non-continuous duration, Floats
- Lecture 45 - Defining Relationship (Based on Construction Method) - Simple Shed
- Lecture 46 - Project Monitoring & Control & Typical Project Time Monitoring Process, Levels and Frequency of
- Lecture 47 - Project Control Process, Daily Progress Report, Macro Level Update- Data Need, Standard Progress
- Lecture 48 - Application
- Lecture 49 - Review of Key Issues in Project Monitoring, Earned Value Concept Through Examples
- Lecture 50 - Basic Earned Value Definitions and Terminology, Summary
- Lecture 51 - Uncertainty in Project Schedules
- Lecture 52 - PERT Background & Assumptions, Stepwise Procedure
- Lecture 53 - PERT Example Problem, Summary
- Lecture 54 - Course Conclusion
- Lecture 55 - Emerging Trends / Tools in Project Planning
- Lecture 56 - Industry Perspective & Prof. N. Raghavan
- Lecture 57 - Final Exam Pattern, Acknowledgements

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Structural Dynamics

Subject Co-ordinator - Prof. Ramancharala Pradeep Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1: Introduction of Structural Dynamics  
Lecture 2 - Module 2: Types of Analysis  
Lecture 3 - Module 3: Degrees of Freedom  
Lecture 4 - Module 4: Vibrations of SDOF Systems  
Lecture 5 - Module 5: Methods Solution of Equilibrium Equation  
Lecture 6 - Module 6: UnDamped free Vibration  
Lecture 7 - What is MATLAB?  
Lecture 8 - Getting Started with MATLAB Online  
Lecture 9 - MATLAB Variables  
Lecture 10 - MATLAB as a Calculator  
Lecture 11 - MATLAB Functions  
Lecture 12 - Creating Vectors  
Lecture 13 - Creating Uniformly Spaced Vectors (Colon Operator)  
Lecture 14 - Creating Uniformly Spaced Vectors (Linspace)  
Lecture 15 - Accessing Elements of a Vector  
Lecture 16 - Calculations with Vectors  
Lecture 17 - Creating Matrices  
Lecture 18 - Matrix Creation Functions  
Lecture 19 - Accessing Elements of a Matrix  
Lecture 20 - Matrix Multiplication  
Lecture 21 - Logical Operators  
Lecture 22 - Writing a FOR Loop  
Lecture 23 - If - Else Statements  
Lecture 24 - While Loop  
Lecture 25 - Line Plots  
Lecture 26 - Annotating Graphs  
Lecture 27 - Exploring Figures in MATLAB Online  
Lecture 28 - Damped Free Vibration  
Lecture 29 - Types of Damping

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Logarithmic Decrement
- Lecture 31 - Dynamic Equilibrium Equation Using Energy Method
- Lecture 32 - Module 1: UnDamped Forced Vibration
- Lecture 33 - Module 2: Damped Forced Vibration
- Lecture 34 - Module 3: Relationship between  $R_d$ ,  $R_v$  &  $R_a$
- Lecture 35 - Module 4: Resonant Frequency & Half Power Band Width
- Lecture 36 - Module 5: Transmissibility
- Lecture 37 - Module 1: Response to Arbitrary Force
- Lecture 38 - Module 2: Special Cases in Arbitrary Force
- Lecture 39 - Module 3: Fourier Transformation
- Lecture 40 - Module 1: Numerical Methods
- Lecture 41 - Module 2: Methods Based on Interpolation of Excitation
- Lecture 42 - Module 3: Central Difference Method
- Lecture 43 - Module 4: Numerical Methods based on Variation of Acceleration: Newmark's Method
- Lecture 44 - Central Difference Method (Tutorial)
- Lecture 45 - Module 1: Response Spectrum
- Lecture 46 - Module 2: Special Cases of Response Spectrum
- Lecture 47 - Module 3: Development of Tripartite Plot
- Lecture 48 - Module 1: Multi-Degree of Freedom System
- Lecture 49 - Module 2: Multi-Degree of Freedom System: Solution of Equilibrium Equation
- Lecture 50 - Module 3: Multi-Degree of Freedom System: Modal Orthogonality
- Lecture 51 - Module 4: Approximate Methods For Finding Natural Frequency
- Lecture 52 - Tutorial 01: Generation of Mass Matrix
- Lecture 53 - Tutorial 2: Eigen vector and Modal Orthogonality
- Lecture 54 - Module 1: Time History Analysis
- Lecture 55 - Module 2: Response Spectrum Analysis
- Lecture 56 - Module 1: Three Dimensional Dynamic Analysis
- Lecture 57 - Module 2: Generation of Elastic Design Response Spectra
- Lecture 58 - W09T01: Centre of Mass & Centre of Stiffness
- Lecture 59 - Module 1: Vibration of Continuous Systems
- Lecture 60 - Module 2: Example Problem on Continuous system
- Lecture 61 - Module 3: Theory of Seismometer
- Lecture 62 - Module 1: Dynamics of Non Structural Elements
- Lecture 63 - Module 2: Non Structural Elements Example
- Lecture 64 - W11T: Non Structural Elements
- Lecture 65 - Module 1: Classical and Non-classical Damping
- Lecture 66 - Module 2: Vibration Control
- Lecture 67 - Module 3: Base Isolation
- Lecture 68 - Module 4: Tuned Mass Damper

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Mechanics of Materials

Subject Co-ordinator - Dr. U. Saravanan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Why this course?
- Lecture 2 - Concepts and equations in this course
- Lecture 3 - Objectives and prerequisite
- Lecture 4 - Linear Algebra
- Lecture 5 - Vector Algebra
- Lecture 6 - Representation of Vector
- Lecture 7 - Concept of Force
- Lecture 8 - Definition of a body
- Lecture 9 - Motion and Displacement field
- Lecture 10 - Traction
- Lecture 11 - Properties of traction
- Lecture 12 - Definition of stress tensor and linear function
- Lecture 13 - Tensor Algebra
- Lecture 14 - Meaning of components of the stress tensor
- Lecture 15 - Transformation of stress components
- Lecture 16 - Mohr's Circle derivation
- Lecture 17 - Example 1
- Lecture 18 - Example 2
- Lecture 19 - Example 3
- Lecture 20 - Uniaxial stress
- Lecture 21 - Hydrostatic, pure shear and deviatoric stress
- Lecture 22 - Biaxial and Plane state of stress
- Lecture 23 - Extreme stress for 3D stresses
- Lecture 24 - Extremum shear stress
- Lecture 25 - Stresses in the Octahedral plane
- Lecture 26 - 2D Equilibrium equations
- Lecture 27 - 3D Equilibrium equations
- Lecture 28 - Stretch ratio and strain
- Lecture 29 - Curves and arc Length

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gradient
- Lecture 31 - Deformation and displacement Gradient
- Lecture 32 - Right Cauchy Green Deformation tensor
- Lecture 33 - Homogeneous deformation
- Lecture 34 - Engineering strain
- Lecture 35 - Change in Angle
- Lecture 36 - Transformation of strain components/ Strain Rosette
- Lecture 37 - Compatibility condition
- Lecture 38 - Constitutive relation
- Lecture 39 - Young's Modulus and Poisson's Ratio
- Lecture 40 - Shear Modulus
- Lecture 41 - Bulk Modulus
- Lecture 42 - Restriction on material parameters
- Lecture 43 - Thermal strain
- Lecture 44 - Strain energy, load potential and total potential
- Lecture 45 - Stepped shaft subjected to axial force
- Lecture 46 - Inhomogeneous bar subjected to axial force
- Lecture 47 - Stepped shaft subjected to raise in temperature
- Lecture 48 - Traction in member subjected to bending
- Lecture 49 - Governing equilibrium equations
- Lecture 50 - Displacement field
- Lecture 51 - Bending equation
- Lecture 52 - Radius of curvature
- Lecture 53 - Shear force and bending moment diagram
- Lecture 54 - Variation of axial stress
- Lecture 55 - Deflected shape and rotation of cross section
- Lecture 56 - Expression to find shear stress
- Lecture 57 - Finding centroid of a cross section
- Lecture 58 - Parallel axis theorem and its application
- Lecture 59 - Vertical shear stress in I section
- Lecture 60 - Horizontal shear stress in I section
- Lecture 61 - Connection design
- Lecture 62 - Definition of shear center
- Lecture 63 - Shear center of Channel section
- Lecture 64 - Expression to find shear center
- Lecture 65 - Shear force and bending moment diagram
- Lecture 66 - Deflected shape and rotation of cross section
- Lecture 67 - Finding allowable load
- Lecture 68 - Modified bending equation

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- Lecture 69 - Bending of a composite beam
- Lecture 70 - Connection design
- Lecture 71 - Moment of Intertia about arbitrarily oriented axis
- Lecture 72 - Example
- Lecture 73 - Bending equation for bending about principal axis
- Lecture 74 - Bending equation about arbitrary axis
- Lecture 75 - Neutral axis
- Lecture 76 - Load not about principal axis
- Lecture 77 - Load about principal axis
- Lecture 78 - Displacement field
- Lecture 79 - Torsion equation
- Lecture 80 - Example problems
- Lecture 81 - Expression relating angle of twist with torsion and shear stress
- Lecture 82 - Example problems
- Lecture 83 - Thin walled closed sections
- Lecture 84 - Example problems
- Lecture 85 - Cylindrical polar coordinate system
- Lecture 86 - Displacement field
- Lecture 87 - Governing differential equation and solution
- Lecture 88 - Example problems
- Lecture 89 - Thin walled pressure vessels
- Lecture 90 - General Principals
- Lecture 91 - Different failure modes
- Lecture 92 - Tresca Condition
- Lecture 93 - vonMises condition
- Lecture 94 - Maximum normal stress or rankine condition
- Lecture 95 - Mohr - Columb condition
- Lecture 96 - Drucker-Prager Condition
- Lecture 97 - General Concepts
- Lecture 98 - Euler critical load for simply supported column
- Lecture 99 - Euler critical load for column with any boundary condition
- Lecture 100 - Secant formula
- Lecture 101 - Pressure vessel and failure theory
- Lecture 102 - Determination of maximum load carrying capacity of a simple truss

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Advanced Concrete Technology

Subject Co-ordinator - Prof. Manu Santhanam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 0 - Introduction to course  
Lecture 1 - Cement Production - Part 1  
Lecture 2 - Cement Production - Part 2  
Lecture 3 - Cement Composition - Part 1  
Lecture 4 - Cement Composition - Part 2  
Lecture 5 - Cement Classification - Part 1  
Lecture 6 - Cement Classification - Part 2  
Lecture 7 - Cement Chemistry - Part 1  
Lecture 8 - Cement Chemistry - Part 2  
Lecture 9 - Cement Chemistry - Part 3  
Lecture 10 - Cement Chemistry - Part 4  
Lecture 11 - Cement Chemistry - Part 5  
Lecture 12 - Aggregates for concrete - Part 1  
Lecture 13 - Aggregates for concrete - Part 2  
Lecture 14 - Chemical admixtures - Part 1  
Lecture 15 - Chemical admixtures - Part 2  
Lecture 16 - Chemical admixtures - Part 3  
Lecture 17 - Chemical admixtures - Part 4  
Lecture 18 - Chemical admixtures - Part 5  
Lecture 19 - Mineral admixtures - Part 1  
Lecture 20 - Mineral admixtures - Part 2  
Lecture 21 - Mineral admixtures - Part 3  
Lecture 22 - Mineral admixtures - Part 4  
Lecture 23 - Mineral admixtures - Part 5  
Lecture 24 - Mineral admixtures - Part 6  
Lecture 25 - Mineral admixtures - Part 7  
Lecture 26 - Mixture proportioning  
Lecture 27 - Fresh concrete - Part 1  
Lecture 28 - Fresh concrete - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Fresh properties - Part 3
- Lecture 30 - Introduction to Harden concrete properties
- Lecture 31 - Post peak response and Fibre reinforced concrete
- Lecture 32 - Shrinkage
- Lecture 33 - Creep
- Lecture 34 - Shrinkage
- Lecture 35 - Shrinkage
- Lecture 36 - Introduction to Durability
- Lecture 37 - Performance based specifications for durable concrete
- Lecture 38 - Durability issues in concrete - Part 1
- Lecture 39 - Durability issues in concrete - Part 2
- Lecture 40 - Durability issues in concrete - Part 3
- Lecture 41 - Durability issues in concrete - Part 4
- Lecture 42 - Durability issues in concrete - Part 5
- Lecture 43 - Durability issues in concrete - Part 6

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Glass in Buildings: Design and Application

Subject Co-ordinator - Prof. K.N. Satyanarayana

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Float Process for Manufacturing Glass - Part 1
- Lecture 3 - Float Process for Manufacturing Glass - Part 2
- Lecture 4 - Coatings on Glass - Need and Types - Part 2
- Lecture 5 - Coatings on Glass - Need and Types - Part 2
- Lecture 6 - Glass Design for Safety, Sustainability and Aesthetic - Part 1
- Lecture 7 - Glass Design for Safety, Sustainability and Aesthetic - Part 2
- Lecture 8 - Structural Control and Design for Energy Efficiency - Part I
- Lecture 9 - Structural Control and Design for Energy Efficiency - Part II
- Lecture 10 - Structural Control and Design for Energy Efficiency - Part III
- Lecture 11 - Structural Control and Design for Energy Efficiency - Part IV
- Lecture 12 - Structural Control and Design for Energy Efficiency - Part V
- Lecture 13 - Design Tools for Glass Selection - Part I
- Lecture 14 - Design Tools for Glass Selection - Part II
- Lecture 15 - Modeling the Building Envelope - Part I
- Lecture 16 - Modeling the Building Envelope - Part II
- Lecture 17 - Modeling the Building Envelope - Part III
- Lecture 18 - Innovations in Glass Future Facades - Part I
- Lecture 19 - Innovations in Glass Future Facades - Part II
- Lecture 20 - Standards Related to Glass
- Lecture 21 - Introduction to Useful Daylighting in Buildings
- Lecture 22 - Fundamentals of Daylighting - Part I
- Lecture 23 - Fundamentals of Daylighting - Part II
- Lecture 24 - Daylighting Strategies - Techniques - Part I - Video 1
- Lecture 25 - Daylighting Strategies - Techniques - Part I - Video 2
- Lecture 26 - Daylighting Strategies - Techniques - Part II - Video 1
- Lecture 27 - Daylighting Strategies - Techniques - Part II - Video 2
- Lecture 28 - Daylighting Strategies - Techniques - Part II - Video 3
- Lecture 29 - ECBC and Green Building Requirements

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Daylight Simulation
- Lecture 31 - Daylighting Controls - Part I
- Lecture 32 - Daylighting Controls - Part II
- Lecture 33 - Achieving Acoustics Through Glass
- Lecture 34 - Glass Processing Overview - Part I
- Lecture 35 - Glass Processing Overview - Part II
- Lecture 36 - Interior Glazing Program - Part I
- Lecture 37 - Interior Glazing Program - Part II
- Lecture 38 - Interior Glazing Applications-Shower Enclosure - Part I
- Lecture 39 - Interior Glazing Applications-Shower Enclosure - Part II
- Lecture 40 - Interior Glazing Applications-Shower Enclosure - Part III
- Lecture 41 - Interior Glazing Applications-Shower Enclosure - Part IV
- Lecture 42 - Glass in Passive Fire Protection - Part I
- Lecture 43 - Glass in Passive Fire Protection - Part II
- Lecture 44 - Glass in Passive Fire Protection - Part III
- Lecture 45 - Glazing Choices for Project Segment - Part I
- Lecture 46 - Glazing Choices for Project Segment - Part II
- Lecture 47 - National Building Code 2016 - Part I
- Lecture 48 - National Building Code 2016 - Part II
- Lecture 49 - National Building Code 2016 - Part III
- Lecture 50 - National Building Code 2016 - Part IV
- Lecture 51 - Facade Fundamentals - Part I
- Lecture 52 - Facade Fundamentals - Part II
- Lecture 53 - Facade Fundamentals - Part III
- Lecture 54 - Facade Fundamentals - Part IV
- Lecture 55 - Glass Application on Facades - Part I
- Lecture 56 - Glass Application on Facades - Part II
- Lecture 57 - Glass Application on Facades - Part III
- Lecture 58 - Energy Efficiency Facade System
- Lecture 59 - Structural Design of Facades - Part I
- Lecture 60 - Structural Design of Facades - Part II
- Lecture 61 - Silicone for Structural Glazing - Part - I
- Lecture 62 - Silicone for Structural Glazing - Part - II
- Lecture 63 - Silicone for Structural Glazing - Part - III
- Lecture 64 - Facade Factory Operations - Part I
- Lecture 65 - Facade Factory Operations - Part II
- Lecture 66 - Performance Testing for Facades - Part I
- Lecture 67 - Performance Testing for Facades - Part II
- Lecture 68 - The Role of Windows in Building Design - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - The Role of Windows in Building Design - Part II
- Lecture 70 - Standards Related to Glass II
- Lecture 71 - FAQs about usage of Glass in Buildings
- Lecture 72 - Case Study of a Different Concept of Facade
- Lecture 73 - Case Studies-Envelope Design and Its Impact - Part I
- Lecture 74 - Case Studies-Envelope Design and Its Impact - Part II
- Lecture 75 - A Case Study of Building Envelope in the context of Environmentally Sustainable Design - Part I
- Lecture 76 - A Case Study of Building Envelope in the context of Environmentally Sustainable Design - Part II
- Lecture 77 - Sustainable Building and Facades - Part I
- Lecture 78 - Sustainable Building and Facades - Part II
- Lecture 79 - Building Envelope Design for Sustainable Buildings
- Lecture 80 - Building Envelope Design
- Lecture 81 - Case Study for Building Envelop Design - Part I
- Lecture 82 - Case Study for Building Envelop Design - Part II
- Lecture 83 - Case study-Commercial Buildings - Part I
- Lecture 84 - Case study-Commercial Buildings - Part II
- Lecture 85 - Case study-Commercial Buildings - Part III
- Lecture 86 - Case Study-The Untold Truth of the Unbuilt - Part I
- Lecture 87 - Case Study-The Untold Truth of the Unbuilt - Part II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Glass Processing Technology

Subject Co-ordinator - Prof. K.N. Satyanarayana

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Glass as Building Material - Part I
- Lecture 3 - Glass as Building Material - Part II
- Lecture 4 - Float Glass Manufacturing - Part I
- Lecture 5 - Float Glass Manufacturing - Part II
- Lecture 6 - Glass Coating Technology - Part I
- Lecture 7 - Glass Coating Technology - Part II
- Lecture 8 - Safety in Industries - Part I
- Lecture 9 - Safety in Industries - Part II
- Lecture 10 - Safety in Glass Handling - Part I
- Lecture 11 - Safety in Glass Handling - Part II
- Lecture 12 - Process Flow- PPE
- Lecture 13 - Serviceability-Sales - Production Planning in Solutions Business - Part I
- Lecture 14 - Serviceability-Sales - Production Planning in Solutions Business - Part II
- Lecture 15 - Serviceability-Sales - Production Planning in Solutions Business - Part III
- Lecture 16 - Environment and Eco packaging
- Lecture 17 - Glass Warehouse Management - Part I
- Lecture 18 - Glass Warehouse Management - Part II
- Lecture 19 - Cutting and Snapping
- Lecture 20 - Pre-Processing-Drilling - Part I
- Lecture 21 - Pre-Processing-Drilling - Part II
- Lecture 22 - Grinding and Fabrication
- Lecture 23 - Pre-Processing - Washing
- Lecture 24 - Tempering - Part I
- Lecture 25 - Tempering - Part II
- Lecture 26 - Tempering - Part III
- Lecture 27 - Tempering - Part IV
- Lecture 28 - Tempering - Part V
- Lecture 29 - Tempering - Part VI

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tempering - Part VII
- Lecture 31 - Lamination - Part I
- Lecture 32 - Lamination - Part II
- Lecture 33 - Lamination - Part III
- Lecture 34 - Insulating Glass Unit - Part I
- Lecture 35 - Insulating Glass Unit - Part II
- Lecture 36 - Insulating Glass Unit - Part III
- Lecture 37 - Insulating Glass Unit - Part IV
- Lecture 38 - Insulating Glass Unit - Part V
- Lecture 39 - Insulating Glass Unit - Part VI
- Lecture 40 - Insulating Glass Unit - Part VII
- Lecture 41 - Insulating Glass Unit - Part VIII
- Lecture 42 - Insulating Glass Unit - Part IX
- Lecture 43 - Silicone Sealant for Insulated Glass - Part I
- Lecture 44 - Silicone Sealant for Insulated Glass - Part II
- Lecture 45 - Insulating Glass Unit - Part X
- Lecture 46 - Insulating Glass Unit - Part XI
- Lecture 47 - Insulating Glass Unit - Part XII
- Lecture 48 - Processing Standards and Checks
- Lecture 49 - Quality Testing - Part I
- Lecture 50 - Quality Testing - Part II
- Lecture 51 - Quality Testing - Part III
- Lecture 52 - Quality Testing - Part IV - Video 1
- Lecture 53 - Quality Testing - Part IV - Video 2
- Lecture 54 - Quality Testing - Part V
- Lecture 55 - Quality Testing - Part VI
- Lecture 56 - Quality Testing - Part VII
- Lecture 57 - Heat soaking - Part I
- Lecture 58 - Heat soaking - Part II
- Lecture 59 - Ceramic Printing on Glass - Part I
- Lecture 60 - Ceramic Printing on Glass - Part II
- Lecture 61 - Ceramic Printing on Glass - Part III
- Lecture 62 - Ceramic Printing on Glass - Part IV
- Lecture 63 - Glass Breakage Reasons
- Lecture 64 - Internal Process Loss - Part I
- Lecture 65 - Internal Process Loss - Part II
- Lecture 66 - Internal Process Loss - Part III
- Lecture 67 - Root Cause Analysis - Part I
- Lecture 68 - Root Cause Analysis - Part II

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- Lecture 69 - Post Manufacturing Expenses
- Lecture 70 - 5S in Glass Processing
- Lecture 71 - Introduction to Quality Management System - Part I
- Lecture 72 - Introduction to Quality Management System - Part II
- Lecture 73 - Glass Processing - Applications, Innovations and Futuristic Trends - Part I
- Lecture 74 - Glass Processing - Applications, Innovations and Futuristic Trends - Part II
- Lecture 75 - Sustainability on Glass Processing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Advanced Topics in the Science and Technology of Concrete

Subject Co-ordinator - Prof. Manu Santhanam, Dr. Ravindra Gettu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Calcium sulfoaluminate cement-based binder
- Lecture 2 - Micro-structural characterisation of cementitious materials - Part 1
- Lecture 3 - Micro-structural characterisation of cementitious materials - Part 2
- Lecture 4 - Micro-structural characterisation of cementitious materials - Part 3
- Lecture 5 - Interview with Prof Karen Scrivener
- Lecture 6 - Performance of Fiber reinforced materials
- Lecture 7 - Ultra-High performance concrete (UHPC)
- Lecture 8 - Ultra-High performance concrete (UHPC)
- Lecture 9 - Closed-Loop testing - Part 1
- Lecture 10 - Closed-Loop testing - Part 2
- Lecture 11 - Uni-axial tensile test of textile reinforced concrete (TRC) panel
- Lecture 12 - Fiber reinforced concrete
- Lecture 13 - Strain softening response of concrete Under uniaxial compression
- Lecture 14 - Tension test of 7-wire steel strand
- Lecture 15 - Bond Test of Strand-concrete System
- Lecture 16 - Interview with Prof. S. P. Shah
- Lecture 17 - Introduction to concrete durability
- Lecture 18 - Sulphate attack of concrete
- Lecture 19 - Development and performance approach for durability and service life production for structures
- Lecture 20 - Colorimetric test to assess carbonation resistance in concrete
- Lecture 21 - Experiments on durability index
- Lecture 22 - Prof. Mark Alexander
- Lecture 23 - Chloride induced corrosion and service life of reinforced concrete structures - Part 1
- Lecture 24 - Chloride induced corrosion and service life of reinforced concrete structures - Part 2
- Lecture 25 - Corrosion control and cathodic protection of steel reinforcement
- Lecture 26 - LCA of cement and concrete - Part 1
- Lecture 27 - LCA of cement and concrete - Part 2
- Lecture 28 - 8. Chloride threshold testing using linear polarization resistance (LPR) and electrochemical imp
- Lecture 29 - Interview with Prof George Sergi

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Infrastructure Planning and Managements

Subject Co-ordinator - Dr. Ashwin Mahalingam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to infrastructure and the Transportation sector - Part 1A  
Lecture 2 - Introduction to infrastructure and the Transportation sector - Part 1B  
Lecture 3 - Introduction to infrastructure and the Transportation sector - Part 1C  
Lecture 4 - Introduction to infrastructure and the Transportation sector - Part 1D  
Lecture 5 - Introduction to Power and Telecom sectors - Part 2A  
Lecture 6 - Introduction to Power and Telecom sectors - Part 2B  
Lecture 7 - Urban and Rural Infrastructure - Part 1A  
Lecture 8 - Urban and Rural Infrastructure - Part 1B  
Lecture 9 - Urban and Rural Infrastructure - Part 1C  
Lecture 10 - Phases and Players in Infrastructure Planning and Managements - Part 2A  
Lecture 11 - Phases and Players in Infrastructure Planning and Managements - Part 2B  
Lecture 12 - Infrastructure Economics and Finance  
Lecture 13 - Public-Private Partnership for Infrastructure  
Lecture 14 - Public-Private Partnership for Infrastructure - Case Studies - Part 1  
Lecture 15 - Public-Private Partnership for Infrastructure - Case Studies - Part 2  
Lecture 16 - Public-Private Partnership for Infrastructure - Case Studies - Part 3  
Lecture 17 - Risks and Challenges in Infrastructure - Part 1  
Lecture 18 - Risks and Challenges in Infrastructure - Part 2  
Lecture 19 - Risks and Challenges in Infrastructure - Part 3  
Lecture 20 - Economic Risk in Infrastructure - Part 1  
Lecture 21 - Economic Risk in Infrastructure - Part 2  
Lecture 22 - Political Risk in Infrastructure - Part 1  
Lecture 23 - Political Risk in Infrastructure - Part 2  
Lecture 24 - Social Environmental Risk in Infrastructure - Part 1  
Lecture 25 - Social Environmental Risk in Infrastructure - Part 2  
Lecture 26 - Actor Mapping and Social Network Analysis - Part 1  
Lecture 27 - Actor Mapping and Social Network Analysis - Part 2  
Lecture 28 - Fair Process and Negotiations - Part 1  
Lecture 29 - Fair Process and Negotiations - Part 2

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- Lecture 30 - Design Thinking - Part 1
- Lecture 31 - Design Thinking - Part 2
- Lecture 32 - Sustainable Development and Socio - Economic Analysis - Part 1
- Lecture 33 - Sustainable Development and Socio - Economic Analysis - Part 2
- Lecture 34 - Public Sector Governance - Part 1
- Lecture 35 - Public Sector Governance - Part 2
- Lecture 36 - Flexibilities and Options on Projects - Part 1
- Lecture 37 - Flexibilities and Options on Projects - Part 2
- Lecture 38 - Module Flexibilities in Projects - Part 1
- Lecture 39 - Module Flexibilities in Projects - Part 2
- Lecture 40 - Case Study on PPP Project - Delhi Airport
- Lecture 41 - Case Study on PPP Project - Tirupur Water Supply
- Lecture 42 - Polycentric Governance and Incomplete Design - Part 1
- Lecture 43 - Polycentric Governance and Incomplete Design - Part 2
- Lecture 44 - Successful Project Delivery Strategies - Part 1
- Lecture 45 - Successful Project Delivery Strategies - Part 2
- Lecture 46 - Guest Lecture by K Venkatesh
- Lecture 47 - Guest Lecture by Kavitha Selvaraj

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Design of Masonry Structures

Subject Co-ordinator - Prof. Arun Menon

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introductory - Part I  
Lecture 2 - Introductory - Part II  
Lecture 3 - Introductory - Part III  
Lecture 4 - Introductory - Part IV  
Lecture 5 - Masonry Materials and Properties - Part I  
Lecture 6 - Masonry Materials and Properties - Part II  
Lecture 7 - Masonry Materials and Properties - Part III  
Lecture 8 - Masonry Materials and Properties - Part IV  
Lecture 9 - Masonry Materials and Properties - Part V  
Lecture 10 - Masonry Materials and Properties - Part VI  
Lecture 11 - Strength and Behaviour of Masonry - Part I  
Lecture 12 - Strength and Behaviour of Masonry - Part II  
Lecture 13 - Strength and Behaviour of Masonry - Part III  
Lecture 14 - Strength and Behaviour of Masonry - Part IV  
Lecture 15 - Strength and Behaviour of Masonry - Part V  
Lecture 16 - Strength and Behaviour of Masonry - Part VI  
Lecture 17 - Strength and Behaviour of Masonry - Part VII  
Lecture 18 - Strength and Behaviour of Masonry - Part VIII  
Lecture 19 - Strength and Behaviour of Masonry - Part IX  
Lecture 20 - Strength and Behaviour of Masonry - Part X  
Lecture 21 - Strength and Behaviour of Masonry - Part XI  
Lecture 22 - Design of Masonry Components and Systems - Part I  
Lecture 23 - Design of Masonry Components and Systems - Part II  
Lecture 24 - Design of Masonry Components and Systems - Part III  
Lecture 25 - Design of Masonry Components and Systems - Part IV  
Lecture 26 - Design of Masonry Components and Systems - Part V  
Lecture 27 - Design of Masonry Components and Systems - Part VI  
Lecture 28 - Design of Masonry Components and Systems - Part VII  
Lecture 29 - Design of Masonry Components and Systems - Part VIII

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- Lecture 30 - Design of Masonry Components and Systems - Part IX
- Lecture 31 - Design of Masonry Components and Systems - Part X
- Lecture 32 - Design of Masonry Components and Systems - Part XI
- Lecture 33 - Design of Masonry Components and Systems - Example I
- Lecture 34 - Design of Masonry Components and Systems - Example II
- Lecture 35 - Design of Masonry Components and Systems - Example III
- Lecture 36 - Special Topics - Confined Masonry
- Lecture 37 - Special Topics - Masonry Infill in RC Frames
- Lecture 38 - Special Topics - Assessment of Existing Masonry Structures - Part I
- Lecture 39 - Special Topics - Assessment of Existing Masonry Structures - Part II
- Lecture 40 - Special Topics - Assessment of Existing Masonry Structures - Part III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Characterization of Construction Materials

Subject Co-ordinator - Prof. Manu Santhanam, Prof. Piyush Chaunsali

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Characterization of Construction Materials

Lecture 2 - Characterization of Construction Materials

Lecture 3 - Structure of Construction Materials

Lecture 4 - Structure of Construction Materials

Lecture 5 - Structure of Construction Materials

Lecture 6 - Structure of Construction Materials

Lecture 7 - Calorimetry

Lecture 8 - Calorimetry

Lecture 9 - Calorimetry

Lecture 10 - Calorimetry

Lecture 11 - Calorimetry

Lecture 12 - X Ray diffraction

Lecture 13 - X Ray diffraction

Lecture 14 - X Ray diffraction

Lecture 15 - X Ray diffraction

Lecture 16 - X Ray diffraction

Lecture 17 - X Ray diffraction

Lecture 18 - X Ray diffraction

Lecture 19 - X Ray Diffraction

Lecture 20 - X Ray Diffraction

Lecture 21 - X Ray Diffraction

Lecture 22 - X Ray Diffraction

Lecture 23 - Thermal Analysis - Part 1

Lecture 24 - Thermal Analysis - Part 2

Lecture 25 - Application of thermal analysis to study construction materials - Part 1

Lecture 26 - Application of thermal analysis to study construction materials - Part 2

Lecture 27 - Surface Area Measurement

Lecture 28 - Surface Area Measurement

Lecture 29 - Surface Area Measurement

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- Lecture 30 - Surface Area Measurement
- Lecture 31 - Surface Area Measurement
- Lecture 32 - Optical and Scanning Microscopy- Introduction and specimen preparation - Part 1
- Lecture 33 - Optical and Scanning Microscopy- Introduction and specimen preparation - Part 2
- Lecture 34 - Optical and Scanning Microscopy- Features and functions - Part 1
- Lecture 35 - Optical and Scanning Microscopy- Features and functions - Part 2
- Lecture 36 - Types of optical microscopy - Part 1
- Lecture 37 - Types of optical microscopy - Part 2
- Lecture 38 - Scanning electron microscope Part 1- Parts and Functioning - Part 1
- Lecture 39 - Scanning electron microscope Part 1- Parts and Functioning - Part 2
- Lecture 40 - Scanning electron microscope Part 2- Working Principles - Part 1
- Lecture 41 - Scanning electron microscope Part 2- Working Principles - Part 2
- Lecture 42 - Scanning electron microscope Part 3 - Analysis of cementitious systems 1 - Part 1
- Lecture 43 - Scanning electron microscope Part 3 - Analysis of cementitious systems 1 - Part 2
- Lecture 44 - Scanning electron microscope Part 4 - Analysis of cementitious system 2 - Part 1
- Lecture 45 - Scanning electron microscope Part 4 - Analysis of cementitious system 2 - Part 2
- Lecture 46 - Application of characterization techniques to assess composite binder with limestone-calcined cl
- Lecture 47 - Application of characterization techniques to assess composite binder with limestone-calcined cl
- Lecture 48 - Image analysis - Introduction and image mapping - Part 1
- Lecture 49 - Image analysis - Introduction and image mapping - Part 2
- Lecture 50 - Image analysis - Basic operations - Part 1
- Lecture 51 - Image analysis - Basic operations - Part 2
- Lecture 52 - Spectroscopy Techniques - Part 1 AAS, AES - Part 1
- Lecture 53 - Spectroscopy Techniques - Part 1 AAS, AES - Part 2
- Lecture 54 - Spectroscopy Techniques - Part 2 UV and IR spectroscopy - Part 1
- Lecture 55 - Spectroscopy Techniques - Part 2 UV and IR spectroscopy - Part 2
- Lecture 56 - Spectroscopy Techniques - Part 3 FTIR and NMR spectroscopy - Part 1
- Lecture 57 - Spectroscopy Techniques - Part 3 FTIR and NMR spectroscopy - Part 2
- Lecture 58 - Spectroscopy techniques - Part 4 Principle of NMR spectroscopy
- Lecture 59 - Porosity and pore structure - Introduction, significance of pore distribution
- Lecture 60 - Porosity and pore structure - Working of mercury intrusion porosimeter - Part 1
- Lecture 61 - Porosity and pore structure - Working of mercury intrusion porosimeter - Part 2
- Lecture 62 - Electrical Impedance analysis - Principle and different methods - Part 1
- Lecture 63 - Electrical Impedance analysis - Principle and different methods - Part 2
- Lecture 64 - Electrical Impedance analysis - Deliverables and Interpretation - Part 1
- Lecture 65 - Electrical Impedance analysis - Deliverables and Interpretation - Part 2
- Lecture 66 - Electrochemical testing (Corrosion) using Electrochemical Impedance Spectroscopy (EIS) - Part 1
- Lecture 67 - Electrochemical testing (Corrosion) using Electrochemical Impedance Spectroscopy (EIS) - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Introduction to Civil Engineering Profession

Subject Co-ordinator - Dr. Ravindra Gettu, Prof. Subhadeep Banerjee

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Civil Engineering - Part 1
- Lecture 2 - What is Civil Engineering - Part 2
- Lecture 3 - Structural Conservation of Built Heritage
- Lecture 4 - Introduction to Environmental Engineering
- Lecture 5 - Interesting Environmental Projects
- Lecture 6 - Hydraulic and Water Resources Engineering
- Lecture 7 - Geotechnical Engineering
- Lecture 8 - Construction Materials and Methods
- Lecture 9 - Infrastructure Management
- Lecture 10 - Structural Engineering - 1
- Lecture 11 - Structural Engineering - 2
- Lecture 12 - Structural Engineering - Analysis and Design
- Lecture 13 - Structural Modeling
- Lecture 14 - Scope for Highway Engineers in Civil Engineering Profession - 1
- Lecture 15 - Scope for Highway Engineers in Civil Engineering Profession - 2
- Lecture 16 - Introduction to Civil Engineering Profession
- Lecture 17 - Hydrology and Water Security
- Lecture 18 - An Overview of Computational Science and Engineering
- Lecture 19 - Sustainability
- Lecture 20 - The Big Picture

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Maintenance and Repair of Concrete Structures

Subject Co-ordinator - Prof. Radhakrishna G. Pillai

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Prologue

Lecture 2 - Corrosion of embedded metal; Significance and fundamentals of corrosion

Lecture 3 - Corrosion of embedded metal; Carbonation-induced and chloride-induced corrosion

Lecture 4 - Corrosion of embedded metal; Types of reinforcement - Bare steels

Lecture 5 - TM - Ring Test For Assessing The Quality of TMT/QST Steel Rebars

Lecture 6 - Corrosion of embedded metal; Types of reinforcement - Metallic and non metallic coated rebars

Lecture 7 - Corrosion in prestressed concrete

Lecture 8 - Deterioration of cementitious systems - Introduction, sulphate attack, biofouling and acid attack

Lecture 9 - Deterioration of cementitious systems - frost attack, freeze-thaw and alkali-silica reaction

Lecture 10 - Deterioration of cementitious systems - Shrinkage and Creep

Lecture 11 - Deterioration of cementitious systems - Fire attack, abrasion and erosion

Lecture 12 - Condition assessment of concrete structures

Lecture 13 - Condition assessment of concrete structures

Lecture 14 - Condition assessment of concrete structures; mechanical and corrosion testing of rebars

Lecture 15 - Strategies and materials for surface repair

Lecture 16 - Strategies and materials for surface repair

Lecture 17 - Strategies and materials for surface repair

Lecture 18 - Surface preparation and protective treatment

Lecture 19 - Surface preparation and Protective treatments

Lecture 20 - Surface preparation and Protective treatments

Lecture 21 - Surface preparation and Protective treatments

Lecture 22 - Surface preparation and Protective treatments

Lecture 23 - Coatings on concrete infrastructures

Lecture 24 - Waterproofing of concrete structures - 1

Lecture 25 - Waterproofing of concrete structures - 2

Lecture 26 - Structural Strengthening and Stabilization - Load effects and Introduction to S&S

Lecture 27 - Structural Strengthening and Stabilization - Beams and Slabs

Lecture 28 - Structural Strengthening and Stabilization - Columns and Walls

Lecture 29 - Structural strengthening - 4 (Joints and connections)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Injection Grouts for concrete repair
- Lecture 31 - Structural repair of prestressed concrete systems
- Lecture 32 - Case studies on structural repair (Right methodologies and systematic approach / case studies)
- Lecture 33 - Cathodic Protection in Concrete Structures - Laboratory and field studies
- Lecture 34 - Service life estimation - 1
- Lecture 35 - Service life estimation - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Mechanical Characterization of Bituminous Materials

Subject Co-ordinator - Dr. J. Murali Krishnan, Prof. M. R. Nivitha, Prof. Neethu Roy, Prof. A. Padmarekha

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Mechanical Characterization of Bituminous Materials-Introduction - Part 1  
Lecture 2 - Mechanical Characterization of Bituminous Materials-Introduction - Part 2  
Lecture 3 - Linear Viscoelastic Response - Part 1  
Lecture 4 - Linear Viscoelastic Response - Part 2  
Lecture 5 - Linear Viscoelastic Response - Part 3  
Lecture 6 - Linear Viscoelastic Response - Part 4  
Lecture 7 - Linear Viscoelastic Response - Part 5  
Lecture 8 - Small Amplitude Oscillatory Shear - Part 1  
Lecture 9 - Small Amplitude Oscillatory Shear - Part 2  
Lecture 10 - Small Amplitude Oscillatory Shear - Part 3  
Lecture 11 - Small Amplitude Oscillatory Shear - Part 4  
Lecture 12 - Time temperature superposition principle - Part 1  
Lecture 13 - Time temperature superposition principle - Part 2  
Lecture 14 - Master curve models  
Lecture 15 - Asphalt Usage and Processing - Part 1  
Lecture 16 - Asphalt Usage and Processing - Part 2  
Lecture 17 - Chemical composition of bitumen - Part 1  
Lecture 18 - Chemical composition of bitumen - Part 2  
Lecture 19 - Chemical composition of bitumen - Part 3  
Lecture 20 - Chemical composition of bitumen - Part 4  
Lecture 21 - Chemical composition of bitumen - Part 5  
Lecture 22 - Aging of Bituminous Binders and Mixtures - Part I  
Lecture 23 - Aging of Bituminous Binders and Mixtures - Part II  
Lecture 24 - Aging of Bituminous Binders and Mixtures - Part III  
Lecture 25 - Dynamic Shear Rheometer - Part I  
Lecture 26 - Dynamic Shear Rheometer - Part II  
Lecture 27 - Viscosity Grading - Part 1  
Lecture 28 - Viscosity Grading - Part 2  
Lecture 29 - Performance Grading - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Performance Grading - Part 2
- Lecture 31 - PG-Theoretical Basis
- Lecture 32 - Low-temperature PG
- Lecture 33 - Modifiers for Bitumen - Part 1
- Lecture 34 - Modifiers for Bitumen - Part 2
- Lecture 35 - Modifiers for Bitumen - Part 3
- Lecture 36 - Modifiers for Bitumen - Part 4
- Lecture 37 - Mixing and Compaction Temperature - Part 1
- Lecture 38 - Mixing and Compaction Temperature - Part 2
- Lecture 39 - Mixing and Compaction Temperature - Part 3
- Lecture 40 - Dynamic Modulus of Bituminous Mixtures - Part 1
- Lecture 41 - Dynamic Modulus of Bituminous Mixtures - Part 2
- Lecture 42 - Resilient Modulus of Bituminous Mixtures - Part 1
- Lecture 43 - Resilient Modulus of Bituminous Mixtures - Part 2
- Lecture 44 - Rutting Characterisation - Different approaches
- Lecture 45 - Dry Rut Wheel Testing of Bituminous Mixtures
- Lecture 46 - Laboratory investigation for rutting of bituminous mixtures - Part 1
- Lecture 47 - Laboratory investigation for rutting of bituminous mixtures - Part 2
- Lecture 48 - Fatigue of Bituminous mixtures - Part 1
- Lecture 49 - Fatigue of Bituminous mixtures - Part 2
- Lecture 50 - Fatigue of Bituminous mixtures - Part 3
- Lecture 51 - Fatigue of Bituminous mixtures - Part 4
- Lecture 52 - Fatigue of Bituminous mixtures - Part 5
- Lecture 53 - Introduction to curve fitting using Matlab - Part 1
- Lecture 54 - Introduction to curve fitting using Matlab - Part 2
- Lecture 55 - MSCR Analysis using Matlab
- Lecture 56 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Colloids and Surfaces

Subject Co-ordinator - Prof. Basavaraj Madivala Gurappa

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and motivation
- Lecture 2 - Colloidal dispersions, terminology and classification
- Lecture 3 - Stability in colloids
- Lecture 4 - Source, synthesis and characterisation of colloids
- Lecture 5 - Characterisation of colloidal particles - I
- Lecture 6 - Characterisation of colloidal particles - II
- Lecture 7 - Introduction to forces acting on an individual colloidal particle
- Lecture 8 - Introduction to interaction between colloidal particles
- Lecture 9 - Application of Brownian force
- Lecture 10 - Radiation used to study colloidal systems
- Lecture 11 - Radiation used to study colloidal systems
- Lecture 12 - Molecular origin of Van der waals forces
- Lecture 13 - Vanderwaal interactions between particles
- Lecture 14 - Problem on scaling of Vanderwaal interactions
- Lecture 15 - Calculation of Vanderwaal's forces between semi-infinite blocks and Hamaker constant - I
- Lecture 16 - Calculation of Vanderwaal's forces between semi-infinite blocks and Hamaker constant - II
- Lecture 17 - Theories of Vanderwaal forces based on bulk properties and calculation of Hamaker constant using
- Lecture 18 - Effect of medium on Vanderwaal's interactions - I
- Lecture 19 - Effect of medium on Vanderwaal's interactions - II
- Lecture 20 - Colloid Polymer mixtures
- Lecture 21 - Colloid polymer mixtures
- Lecture 22 - Colloid polymer mixtures
- Lecture 23 - Colloid polymer mixtures
- Lecture 24 - Depletion interactions
- Lecture 25 - Steric interactions/osmotic repulsion
- Lecture 26 - Tutorial problem on depletion interactions
- Lecture 27 - Colloidal Interactions
- Lecture 28 - Introduction to models of electrical double layer
- Lecture 29 - Review and summary of Helmholtz model (or capacitor model) of electrical double layer

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Models of electrical double layer
- Lecture 31 - Potential distribution near planar surfaces
- Lecture 32 - Potential distribution near planar surfaces
- Lecture 33 - Potential distribution near spherical surfaces
- Lecture 34 - Comparison of Capacitor model and Diffuse double layer model
- Lecture 35 - Models of electrical double layer
- Lecture 36 - Models of electrical double layer
- Lecture 37 - Structure of Electrical double layer
- Lecture 38 - Force of Repulsion between interacting surfaces
- Lecture 39 - Potential Energy of repulsion between Planar double layers and DLVO Theory
- Lecture 40 - Zeta Potential and Electrophoretic mobility of an ion
- Lecture 41 - Electrokinetic Phenomena
- Lecture 42 - Relation between Electrophoretic mobility and Zeta potential - I
- Lecture 43 - Relation between Electrophoretic mobility and Zeta potential - II
- Lecture 44 - Colloidal particles at interfaces
- Lecture 45 - Characterization of Particles at interface
- Lecture 46 - Experimental Observations -Concept of Electrostatic interactions and Stability at interfaces
- Lecture 47 - Implications from Surface energy balances and Estimation of energy required for detachment
- Lecture 48 - Colloidal interactions at interface

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Polymers: Concepts, Properties, Uses and Sustainability

Subject Co-ordinator - Dr. Abhijit P. Deshpande

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Why are polymers so common?
- Lecture 2 - Polymers
- Lecture 3 - Process, structure, property
- Lecture 4 - Biopolymers
- Lecture 5 - Molecular weight and distribution
- Lecture 6 - Polymerization
- Lecture 7 - Macromolecular nature
- Lecture 8 - Renewable sources for polymers
- Lecture 9 - Polymerization/depolymerization
- Lecture 10 - States of interest
- Lecture 11 - Application based terms
- Lecture 12 - Reuse and repurpose
- Lecture 13 - Molecular conformations
- Lecture 14 - Size, mobility and flexibility
- Lecture 15 - Polyelectrolytes
- Lecture 16 - Structures in biopolymers
- Lecture 17 - Amorphous/crystalline states - 1
- Lecture 18 - Amorphous/crystalline states - 2
- Lecture 19 - Orientation
- Lecture 20 - Interactions
- Lecture 21 - Kinetics of crystallization
- Lecture 22 - Glass transition - 1
- Lecture 23 - Glass transition - 2
- Lecture 24 - States in environment
- Lecture 25 - Liquid crystalline polymers
- Lecture 26 - Copolymers - 1
- Lecture 27 - Copolymers - 2
- Lecture 28 - Blends - 1
- Lecture 29 - Blends - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Microstructure in polymers
- Lecture 31 - Composites
- Lecture 32 - Stress strain response
- Lecture 33 - Additives for polymeric systems
- Lecture 34 - Blends/composites in recycling
- Lecture 35 - Physical/chemical crosslinking
- Lecture 36 - Mechanical properties - I
- Lecture 37 - Mechanical properties - II
- Lecture 38 - Physical and chemical aging
- Lecture 39 - Solutions
- Lecture 40 - Conducting polymers
- Lecture 41 - Dielectric response - I
- Lecture 42 - Dielectric response - II
- Lecture 43 - Plasticity
- Lecture 44 - Properties of composites
- Lecture 45 - Viscoelasticity
- Lecture 46 - Thermal response
- Lecture 47 - Viscoelasticity
- Lecture 48 - Viscoelasticity
- Lecture 49 - Dynamic Mechanical analysis
- Lecture 50 - Damping Applications
- Lecture 51 - Time Temperature superposition
- Lecture 52 - Impact and energy absorption
- Lecture 53 - Testing for applications
- Lecture 54 - Properties of blends
- Lecture 55 - Biomimetic polymers
- Lecture 56 - Advanced mechanics
- Lecture 57 - Viscoelastic response
- Lecture 58 - Polymer packaging
- Lecture 59 - Porous polymers/membranes
- Lecture 60 - Polymer at interfaces
- Lecture 61 - Diffusion in polymers
- Lecture 62 - Compatibilizers
- Lecture 63 - Biopolymer applications
- Lecture 64 - Adhesives and Paints
- Lecture 65 - Dissolution and recovery
- Lecture 66 - Polymerization kinetics
- Lecture 67 - Polymerization reactors
- Lecture 68 - Polymer processing - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Polymer processing - II
- Lecture 70 - Polymer processing - III
- Lecture 71 - Flow simulations
- Lecture 72 - Processing for recycling
- Lecture 73 - Recycle, up-down cycling - I
- Lecture 74 - Recycle, up-down cycling - II
- Lecture 75 - Flow behaviour - rheology
- Lecture 76 - Crosslinking
- Lecture 77 - Conversion of polymers
- Lecture 78 - Rheology and entanglement
- Lecture 79 - Rheological models
- Lecture 80 - Rheology and processing
- Lecture 81 - Absorption and leaching
- Lecture 82 - Swelling of polymers
- Lecture 83 - Viscosity for polymer processing
- Lecture 84 - Microplastics, aerosols, sediments
- Lecture 85 - Biodegradation of polymers
- Lecture 86 - Biodegradable polymers - 1
- Lecture 87 - Biodegradable polymers - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Basic Construction Materials

Subject Co-ordinator - Prof. Radhakrishna G. Pillai, Prof. Manu Santhanam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Construction Materials - Part 1  
Lecture 2 - Introduction to Construction Materials - Part 2  
Lecture 3 - Introduction to Construction Materials - Part 3  
Lecture 4 - Materials Engineering Concepts - Part 1  
Lecture 5 - Materials Engineering Concepts - Part 2  
Lecture 6 - Materials Engineering Concepts - Part 3  
Lecture 7 - Materials Engineering Concepts - Part 4  
Lecture 8 - Materials Engineering Concepts - Part 5  
Lecture 9 - Materials Engineering Concepts - Part 6  
Lecture 10 - Materials Engineering Concepts - Part 7  
Lecture 11 - Nature of Materials - Part 1  
Lecture 12 - Nature of Materials - Part 2  
Lecture 13 - Nature of Materials - Part 3  
Lecture 14 - Nature of Materials - Part 5  
Lecture 15 - Nature of Materials - Part 6  
Lecture 16 - Nature of Materials - Part 6  
Lecture 17 - Nature of Materials - Part 7  
Lecture 18 - Stone, Brick and Mortar 1 - Part 1  
Lecture 19 - Stone, Brick and Mortar 1 - Part 2  
Lecture 20 - Stone, Brick and Mortar 1 - Part 3  
Lecture 21 - Stone, Brick and Mortar 1 - Part 4  
Lecture 22 - Stone, Brick and Mortar 2 - Part 1  
Lecture 23 - Stone, Brick and Mortar 2 - Part 2  
Lecture 24 - Cement and Concrete 1 - Part 1  
Lecture 25 - Cement and Concrete 1 - Part 2  
Lecture 26 - Cement and Concrete 1 - Part 3  
Lecture 27 - Cement and Concrete 2 - Part 1  
Lecture 28 - Cement and Concrete 2 - Part 2  
Lecture 29 - Cement and Concrete 3 - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Cement and Concrete 3 - Part 2  
Lecture 31 - Cement and Concrete 4 - Part 1  
Lecture 32 - Cement and Concrete 4 - Part 2  
Lecture 33 - Metals - 1 - Part 1  
Lecture 34 - Metals - 1 - Part 2  
Lecture 35 - Metals - 2 - Part 1  
Lecture 36 - Metals - 2 - Part 2  
Lecture 37 - Metals - 3 - Part 1  
Lecture 38 - Metals - 3 - Part 2  
Lecture 39 - Metals - 4  
Lecture 40 - Metals - 5 - Part 1  
Lecture 41 - Metals - 5 - Part 2  
Lecture 42 - Polymers and Composites - Part 1  
Lecture 43 - Polymers and Composites - Part 2  
Lecture 44 - Polymers and Composites - Part 3  
Lecture 45 - Pavement Materials 1 - Part 1  
Lecture 46 - Pavement Materials 1 - Part 2  
Lecture 47 - Pavement Materials 2 - Part 1  
Lecture 48 - Pavement Materials 2 - Part 2  
Lecture 49 - Wood and wood products - Part 1  
Lecture 50 - Wood and wood products - Part 2  
Lecture 51 - Glass

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Introduction to Lean Construction

Subject Co-ordinator - Prof. Koshy Varghese, Prof. N Raghavan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Contents, Long-term Goals, Structure and Module 1 Topics
- Lecture 2 - Pedagogy, Approach, Institutions, Instructors, Audience and Pre-requisites
- Lecture 3 - ILCE, Conferences, Resources, Further Work Possible
- Lecture 4 - Lean Implementation in India from ILCE Directors and other Talks/Testimonials
- Lecture 5 - Status of Lean Implementation in India through Industry Panel Discussion with ILCE Directors
- Lecture 6 - History of Lean and other Management Philosophies; Toyota Production System (TPS); What is Lean?
- Lecture 7 - Lean Construction Timeline; Lean Project Delivery vs LC; Project Management vs LC
- Lecture 8 - Key Lean Concepts#1 (Wastes)
- Lecture 9 - Key Lean Concepts#1 (Value, Value Stream, Flow, Pull, Perfection)
- Lecture 10 - Key Lean Concepts#2 (Continuous Improvement, Collaborative working, Production System, Lean Culture)
- Lecture 11 - Key Lean Tools#1 (Productivity Measurement System, Work Sampling, Value Stream Mapping)
- Lecture 12 - Lean Overview - Key Lean Tools#2 (5S, CPS/ LPS, Big Room Approach)
- Lecture 13 - Lean Overview - Future module
- Lecture 14 - Productivity Measurement and Improvement, Construction Productivity, Productivity levels
- Lecture 15 - What is Productivity, Production?; Illustration
- Lecture 16 - Productivity and Production Impact; Visualizing Activity Productivity and Production Performance
- Lecture 17 - Profit, ROCE, Influences on Operational Productivity; Operational view vs. System view, Summary
- Lecture 18 - Outline, Planning and monitoring levels; Productivity Measurement System
- Lecture 19 - Measuring Output - Level of Effort (LOE)
- Lecture 20 - Productivity and Production Calculations: daily, weekly, cumulative
- Lecture 21 - Productivity and Production Calculations: Performance Evaluation
- Lecture 22 - Productivity and Production Calculations: Workhour Forecast and Analysis of Trends
- Lecture 23 - Factors Influencing Productivity, Productivity Improvement Approach, Summary
- Lecture 24 - Sampling/ Surveying Techniques - Data Sources in Construction
- Lecture 25 - Construction Activity with Workers doing VA/ NVAN/ NVA; WS vs PMS; Work Sampling
- Lecture 26 - Sampling basics, Sampling in construction
- Lecture 27 - Steps to Conduct a Work Sampling Study; WS Outcomes
- Lecture 28 - Illustration of Tour-based Work Sampling Approach
- Lecture 29 - Illustration of Crew-based Work Sampling Approach

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Explore relationship between WS Categories and Productivity; Summary
- Lecture 31 - Sampling/ Surveying Techniques - Foreman delay survey
- Lecture 32 - Sampling/ Surveying Techniques - Foreman delay survey - Implementation
- Lecture 33 - Foreman delay survey - Illustrations; Comparison - PMS vs WS vs FDS - discussion
- Lecture 34 - Value Stream, Value Stream Mapping (VSM), System vs Process, References
- Lecture 35 - Illustration: Value and Value Stream in Food Delivery
- Lecture 36 - Value, Value Stream, VSM/PM, Language, Basic VSM - current state and future state
- Lecture 37 - Key steps for VSM, Work: Degrees of Granularity, Measurement Metrics
- Lecture 38 - VSM - Example 1 (Reinforcement)
- Lecture 39 - VSM - Example 2 (Blockwork); Summary
- Lecture 40 - Flow Process Chart, Symbols, Process mapping - steps and timing, Measurement metrics
- Lecture 41 - Process mapping - Illustration: Reinforcement shifting
- Lecture 42 - VSM vs PM; Process Flow chart - variations; Swim-lane diagrams; Summary
- Lecture 43 - Understand the Basics of 5S, Explanations and 5S Steps
- Lecture 44 -
- Lecture 45 - Understand Each -S- in Detail - Standardize, Sustain
- Lecture 46 - 5S: Key Points, Benefits, Signs of a 5S Site
- Lecture 47 - Experiment 5S with Yourself First, Project Implementation, Facilitations, Why 5S May Fail?, Reca
- Lecture 48 - Understand the Applications of 5S through Case Studies\_2 cases
- Lecture 49 - Understand the Applications of 5S through Case Studies\_3 cases
- Lecture 50 - Understand the Applications of 5S through Case Study - Ms Diamond Barretto (Godrej Construction)
- Lecture 51 - Current Project Performance, Workflow Variation, Traditional PM vs Lean Production Management
- Lecture 52 - Some Key Lean Concepts, Focusing on frontline Execution, CPS - Collaborative Planning System
- Lecture 53 - CPS Process, Overall Schedules (Master Schedule, Phase Schedule, LAP, Weekly Plan), Constraint Anal
- Lecture 54 - Collaborative -Pull- Planning, Percentage Plan Completed (PPC), Daily Huddle, Variance Analysis,
- Lecture 55 - Lean Work Structuring
- Lecture 56 - Impact of PPC on Productivity, Key aspects, Advantages, The Necessary Conditions, Blocks - CPS, Summ
- Lecture 57 - COLPLASSE: Look-Ahead Plan, Constraint Analysis, Weekly Plan, Summary
- Lecture 58 - Lean Project Delivery System, Conclusion
- Lecture 59 - Understand the Applications of CPS/LPS through Case Studies
- Lecture 60 - CPS/LPS implementation in Construction Projects through a Panel of Experts - Part 1
- Lecture 61 - CPS/LPS implementation in Construction Projects through a Panel of Experts - Part 2
- Lecture 62 - CPS/LPS implementation in Construction Projects through a Panel of Experts - Part 3
- Lecture 63 - Introduction of Big Room Approach, Some Requirements for Efficient Working, Virtual BR Meetings
- Lecture 64 - Big Room Approach through Case Studies
- Lecture 65 - Big Room Approach - Implementation case from URC Construction
- Lecture 66 - Future Construction Site, Lean Tools and Processes, Automation strategies and impact, Programmin
- Lecture 67 - Document Management, Workflow Process, Communication/Collab./Authen., Sensing
- Lecture 68 - Mechanisation/ Robots, Visualization, AI/ Analytics, BIM, CPS/ IOT/ Industry 4.0, Digital Twin

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Challenges and Causes, Problem?, Lean, BIM?, Traditional vs BIM, Tools/Technology providers
- Lecture 70 - BIM uses; Metrics
- Lecture 71 - BIM and Lean, Implementation Framework, BIM Execution Plan, Evidence Cases, Key takeaway
- Lecture 72 - How to Start Practicing Lean Tools in Project Sites-1: Work Sampling
- Lecture 73 - How to Start Practicing Lean Tools in Project Sites-1: VSM
- Lecture 74 - How to Start Practicing Lean Tools in Project Sites-1: 5S
- Lecture 75 - How to Start Practicing Lean Tools in Project Sites-1: CPS/ LPS
- Lecture 76 - How to Start Practicing Lean Tools in Project Sites-1: Big Room Approach
- Lecture 77 - Acknowledgement

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Design of Connections in Steel Structures

Subject Co-ordinator - Prof. Anil Agarwal

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Bolts: dimensions and material

Lecture 2 - Bolts: installation techniques and clearances

Lecture 3 - Design of Bearing type bolts in shear: Basic design principle

Lecture 4 - Correction factors for bolts for long joints, long grip lengths, and thick packing plate

Lecture 5 - Design of friction grip bolts in shear and design of bolts in tension

Lecture 6 - Structural Welding Process

Lecture 7 - Groove/Butt Welds

Lecture 8 - Fillet Welds - 1

Lecture 9 - Fillet Welds - 2

Lecture 10 - Weld symbols, defects, and filler material

Lecture 11 - Design of groove welds

Lecture 12 - Design of fillet welds - 1

Lecture 13 - Design of fillet welds - 2

Lecture 14 - Design example of a bolt group

Lecture 15 - Design example of a weld group

Lecture 16 - Simple and rigid frame connections

Lecture 17 - Design of double angle connections

Lecture 18 - Design of seated angle connections

Lecture 19 - End-plate rigid connection: Introduction

Lecture 20 - End-plate connection: Design example

Lecture 21 - Welded-flange rigid connection

Lecture 22 - Ductile detailed beam-column connections - 1

Lecture 23 - Ductile detailed beam-column connections - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Analysis and Design of Bituminous Pavements

Subject Co-ordinator - A. Padmarekha, J. Murali Krishnan, M. R. Nivitha, Neethu Roy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Pavement Cross-sections and Pavement Design Process
- Lecture 2 - Pavement Design Factors - I
- Lecture 3 - Pavement Design Factors - II
- Lecture 4 - Stresses and Strains in Bituminous Pavements - I
- Lecture 5 - Stresses and Strains in Bituminous Pavements - II
- Lecture 6 - Numerical Problems in One-layer Theory
- Lecture 7 - Numerical Problems in Two-layer Theory
- Lecture 8 - Introduction to KENLAYER
- Lecture 9 - KENLAYER - 1
- Lecture 10 - KENLAYER - 2
- Lecture 11 - KENLAYER - 3
- Lecture 12 - KENLAYER - 4
- Lecture 13 - Traffic Analysis - ESWL - Part 1
- Lecture 14 - Traffic Analysis - ESWL - Part 2
- Lecture 15 - Traffic Analysis - EALF
- Lecture 16 - Traffic Analysis - ESAL using VDF
- Lecture 17 - Traffic Analysis - ESAL using TF
- Lecture 18 - Traffic Analysis - Examples
- Lecture 19 - Traffic Analysis - Load Spectra Factor
- Lecture 20 - Modulus for Design - CBR
- Lecture 21 - Modulus for Design - Resilient modulus (Granular material)
- Lecture 22 - Modulus for Design - Resilient modulus (Bituminous material)
- Lecture 23 - Modulus for Design - Dynamic Modulus
- Lecture 24 - Environmental Effect - Part 1
- Lecture 25 - Environmental Effect - Part 2
- Lecture 26 - Environmental Effect - Part 3
- Lecture 27 - Environmental Effect - Part 4
- Lecture 28 - Enhanced Integrated Climatic Model - Part 1
- Lecture 29 - Enhanced Integrated Climatic Model - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Climate Consideration in Design Procedures
- Lecture 31 - Reliability in Pavement Design - Part 1
- Lecture 32 - Reliability in Pavement Design - Part 2
- Lecture 33 - Reliability in Pavement Design - Part 3
- Lecture 34 - Reliability in Pavement Design - Part 4
- Lecture 35 - Reliability in Pavement Design - Part 5
- Lecture 36 - Reliability in Pavement Design - Part 6
- Lecture 37 - Distress Transfer Function - Fatigue Cracking
- Lecture 38 - Rutting and Low-Temperature Cracking
- Lecture 39 - KENLAYER - Nonlinear Analysis
- Lecture 40 - KENLAYER - Damage Analysis
- Lecture 41 - IRC design steps
- Lecture 42 - Design Input and IITPAVE software
- Lecture 43 - Pavement design with granular base
- Lecture 44 - Pavement design with CTB
- Lecture 45 - Pavement design with RAP Base
- Lecture 46 - Overview of Mechanistic-Empirical Pavement Design Methods - IRC
- Lecture 47 - Overview of Mechanistic-Empirical Pavement Design Methods - South Africa - Part I
- Lecture 48 - Overview of Mechanistic-Empirical Pavement Design Methods - South Africa - Part II
- Lecture 49 - Overview of Mechanistic-Empirical Pavement Design Methods - South Africa - Part III
- Lecture 50 - Overview of Mechanistic-Empirical Pavement Design Methods - Australia - Part I
- Lecture 51 - Overview of Mechanistic-Empirical Pavement Design Methods - Australia - Part II
- Lecture 52 - Overview of Mechanistic-Empirical Pavement Design Methods - AASHTO - Part I
- Lecture 53 - Overview of Mechanistic-Empirical Pavement Design Methods - AASHTO - Part II
- Lecture 54 - Summary of the course and design projects

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:FEM and Constitutive Modelling in Geomechanics

Subject Co-ordinator - Prof. K Rajagopal

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introductory lecture and course outline
- Lecture 2 - Matrix algebra and Gauss elimination method
- Lecture 3 - Development of equilibrium equations for 1-d systems
- Lecture 4 - Development of equilibrium equations for 2-d bar elements and truss structures
- Lecture 5 - Development of equilibrium equations for beam elements
- Lecture 6 - Virtual work and principle of stationary potential energy
- Lecture 7 - Introduction to Rayleigh-Ritz Method
- Lecture 8 - Use of GEOFEM finite element program - Part I
- Lecture 9 - Use of GEOFEM finite element program - Part II
- Lecture 10 - Stresses and strains in continuum
- Lecture 11 - 2-dimensional approximations of continuum
- Lecture 12 - Analysis of continuum systems
- Lecture 13 - 3-node Constant Strain Triangle
- Lecture 14 - Classical methods for developing shape functions
- Lecture 15 - Numerical integration techniques
- Lecture 16 - Isoparametric Elements - Part I
- Lecture 17 - Isoparametric Elements - Part II
- Lecture 18 - Isoparametric calculations for stiffness and load vectors
- Lecture 19 - Force vector due to surface traction
- Lecture 20 - Patch test and Finite Element Modelling
- Lecture 21 - GEOFEM - Part III
- Lecture 22 - In situ earth pressures, construction and excavation sequences
- Lecture 23 - Joint and interface element modelling
- Lecture 24 - Modelling of interfaces - Joint Elements
- Lecture 25 - Mapped infinite elements for semi-infinite soil medium
- Lecture 26 - Some observations of soil behaviour and stress invariants
- Lecture 27 - Nonlinear analysis technique - 1
- Lecture 28 - Nonlinear analysis technique - 2
- Lecture 29 - Nonlinear analysis technique - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Bilinear elastic models
- Lecture 31 - Nonlinear elastic and hyperbolic models
- Lecture 32 - Modified hyperbolic model and determination of material parameters
- Lecture 33 - Stress correction procedures in finite element analysis
- Lecture 34 - Numerical examples on working with modified hyperbolic models
- Lecture 35 - Some Limit solutions in geotechnical engineering
- Lecture 36 - Elastic - Plastic Constitutive Matrix
- Lecture 37 - Nonassociated Elastic - Plastic Joint Element
- Lecture 38 - Introduction to consolidation and dynamic analysis
- Lecture 39 - Cam Clay models
- Lecture 40 - Modified cam clay models
- Lecture 41 - FEM in Geotechnical applications
- Lecture 42 - Soil behaviour and An Introduction to the Existing Soil Models
- Lecture 43 - Simulation of soil liquefaction using FLAC
- Lecture 44 - Mitigation of soil liquefaction using granular columns

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:The Evolution of the Earth and life

Subject Co-ordinator - Prof. Devapriya Chattopadhyay

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Structure
- Lecture 2 - Introduction to Google Earth
- Lecture 3 - How Does Earth Science Work ?
- Lecture 4 - What is a Mineral
- Lecture 5 - Minerals and Rock Cycle
- Lecture 6 - Continental Drift
- Lecture 7 - Plate Tectonics
- Lecture 8 - What are Igneous Rocks ?
- Lecture 9 - Compositional Variation of Igneous Rocks
- Lecture 10 - Why Does the Rock Melt ?
- Lecture 11 - Igneous Activity and Plate Tectonics
- Lecture 12 - Igneous Structures
- Lecture 13 - Volcanoes
- Lecture 14 - Discussion on Posted Questions
- Lecture 15 - What are Metamorphic Rocks
- Lecture 16 - Types of Metamorphism
- Lecture 17 - Metamorphism and Plate Tectonics
- Lecture 18 - Weathering and Erosion
- Lecture 19 - Detrital Sedimentary Rocks
- Lecture 20 - Chemical and Organic Sedimentary Rocks
- Lecture 21 - Sedimentary Environment and Plate Tectonics
- Lecture 22 - Discussion on Conceptual Questions
- Lecture 23 - Discussion on Posted Questions
- Lecture 24 - Diversity of Life
- Lecture 25 - Why Do Groups Change ?
- Lecture 26 - Nature of Paleontological Data
- Lecture 27 - Introduction to PaleoDB
- Lecture 28 - Relative Age
- Lecture 29 - Correlation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Attempts to Estimate Absolute Age
- Lecture 31 - Radiometric Dating
- Lecture 32 - Rocks Full of Life
- Lecture 33 - Discussion on Posted Questions\_3
- Lecture 34 - The Beginning
- Lecture 35 - The Formation of the Planets and Moon
- Lecture 36 - The Formation of the Continents
- Lecture 37 - The Formation of the Atmosphere and Ocean
- Lecture 38 - Origin of Life: Initial Ideas
- Lecture 39 - Origin of Life: Which Biomolecules Came First ?
- Lecture 40 - Origin of Life: Where did it all Start ?
- Lecture 41 - Evidence of Early Life
- Lecture 42 - Proterozoic Events and Life
- Lecture 43 - Discussion on Posted Questions\_4
- Lecture 44 - Cambrian Earth and Life
- Lecture 45 - Cambrian Explosion
- Lecture 46 - Journey to Land: Fishes and Tetrapods
- Lecture 47 - Journey to Land: Transitional Forms
- Lecture 48 - Appearance of Amniotes
- Lecture 49 - Dinosaurs
- Lecture 50 - Dinosaurs Footprints
- Lecture 51 - Appearance of Feathers
- Lecture 52 - Mass Extinctions and Their Impact
- Lecture 53 - K-Pg Extinction: Patterns
- Lecture 54 - K-Pg Extinction: Mechanisms
- Lecture 55 - Paleoclimatic Reconstruction
- Lecture 56 - Cenozoic Climate
- Lecture 57 - Recovery from K-Pg: Paleogene Event
- Lecture 58 - Who are Whales ?
- Lecture 59 - Discussion on Posted Questions\_5
- Lecture 60 - Development of Bipedality
- Lecture 61 - Early Hominids
- Lecture 62 - Megafaunal Extinction
- Lecture 63 - Recent Extinctions
- Lecture 64 - Anthropocene and Future
- Lecture 65 - Discussion on Posted Questions\_6

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Advanced Reinforced Concrete Design

Subject Co-ordinator - Prof S. Suriya Prakash

Co-ordinating Institute - IIT - Hyderabad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction-Overview of RCC - Part 1
- Lecture 2 - Introduction-Overview of RCC - Part 2
- Lecture 3 - Introduction to Design Concepts and Philosophies - Part 1
- Lecture 4 - Introduction to Design Concepts and Philosophies - Part 2
- Lecture 5 - Materials Short Term Properties - Part 1
- Lecture 6 - Materials Short Term Properties - Part 2
- Lecture 7 - Materials Short Term Properties - Part 3
- Lecture 8 - Materials Short Term Properties - Part 4
- Lecture 9 - Materials Long Term Properties - Part 1
- Lecture 10 - Materials Long Term Properties - Part 2
- Lecture 11 - Materials Rebar Properties
- Lecture 12 - Durability - Overview
- Lecture 13 - Durability - Effect of Chemical actions
- Lecture 14 - Durability - Effect of Physical,mechanical and corrosion
- Lecture 15 - Durability - Design approaches and code provisions
- Lecture 16 - Axial Behaviour - Introduction
- Lecture 17 - Axial Behaviour of Reinforced Concrete
- Lecture 18 - Axial Behaviour - Effect of Compressive Strength
- Lecture 19 - Flexure Behaviour - Background to flexural theory
- Lecture 20 - Flexure Behaviour - Moment curvature analysis-procedure
- Lecture 21 - Flexure Behaviour - Example-Moment curvature of singly reinforced section
- Lecture 22 - Flexure Behaviour - Effect of increasing reinforcement on Moment curvature behaviour
- Lecture 23 - Flexure Behaviour - Effect of compressive strength on Moment curvature behaviour
- Lecture 24 - Flexure Behaviour - Effect of axial Compression on Moment curvature behaviour - Part 1
- Lecture 25 - Flexure Behaviour - Effect of axial Compression on Moment curvature behaviour - Part 2
- Lecture 26 - Flexure Behaviour - Effect of Compression steel on Moment curvature behaviour - Part 1
- Lecture 27 - Flexure Behaviour - Effect of Compression steel on Moment curvature behaviour - Part 2
- Lecture 28 - Flexure Behaviour - Analysis and Design of Singly Reinforced Sections using IS Code - Part 1
- Lecture 29 - Flexure Behaviour - Analysis and Design of Singly Reinforced Sections using IS Code - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Flexure Behaviour - Examples in Flexure using IS Code Provisions
- Lecture 31 - Flexure Behaviour - Analysis and Design of Doubly Reinforced Sections using IS Code
- Lecture 32 - Flexure Behaviour - Analysis and Design of Flanged Sections using IS Code Provisions
- Lecture 33 - Shear Behaviour of RC elements - Part 1
- Lecture 34 - Shear Behaviour of RC elements - Part 2
- Lecture 35 - Shear Behaviour of RC elements - Part 3
- Lecture 36 - Shear Behaviour - Shear Design using IS 456 Provisions
- Lecture 37 - Shear Behaviour - Examples for Shear Design using IS 456 Provisions
- Lecture 38 - Shear Behaviour - Torsional Behaviour of RC elements - Part 1
- Lecture 39 - Shear Behaviour - Torsional Behaviour of RC elements - Part 2
- Lecture 40 - Shear Behaviour - Torsional Behaviour of RC elements - Part 3
- Lecture 41 - Shear Behaviour - Torsion Design of RC Beams using IS 456 Provisions
- Lecture 42 - Compression behaviour of RC Columns - Intro and Types - Part 1
- Lecture 43 - Compression behaviour of RC Columns - Short vs Slender and Effective length - Part 2
- Lecture 44 - Compression behaviour of RC Columns - Lateral Flexibility and Example - Part 3
- Lecture 45 - Compression behaviour of RC Columns IS Code Provisions - Part 1
- Lecture 46 - Compression behaviour of RC Columns Confinement and Tied Vs Spiral Confined Columns - Part 2
- Lecture 47 - Compression behaviour of RC Columns - P-M Interaction : Theory
- Lecture 48 - Compression behaviour of RC Columns - P-M Interaction : Example as per IS 456
- Lecture 49 - Compression behaviour of Design of RC Columns for Biaxial Bending - Part 1
- Lecture 50 - Compression behaviour of Design of RC Columns for Biaxial Bending - Part 2
- Lecture 51 - Compression behaviour of Slender Column Design: Theory - Part 1
- Lecture 52 - Compression behaviour of Slender Column Design: Example as per IS 456 - Part 2
- Lecture 53 - Serviceability - Introduction to Deflection of RC Beam Part - 1
- Lecture 54 - Serviceability - Introduction to Deflection of RC Beam Part - 2
- Lecture 55 - Serviceability - Long term deflection and IS code Provisions
- Lecture 56 - Serviceability - Numerical Example for the calculation of Deflection of RC beam
- Lecture 57 - Crack width calculation - Theory - Part 1
- Lecture 58 - Crack width Calculation - Example - Part 2
- Lecture 59 - Serviceability - Design for Bond - Theory - Part 1
- Lecture 60 - Serviceability - Design for Bond - Theory - Part 2
- Lecture 61 - Serviceability - Design example for Bond and Splicing - Part 3
- Lecture 62 - Two way slabs - Background
- Lecture 63 - Two way slabs - Design Methods
- Lecture 64 - Two way slabs - Direct Design Method - Part 1
- Lecture 65 - Two way slabs - Direct Design Method - Part 2
- Lecture 66 - Two way slabs - Equivalent Frame Method - Part 1
- Lecture 67 - Two way slabs - Equivalent Frame Method (Example) - Part 2

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Admixtures and Special Concretes

Subject Co-ordinator - Prof. Manu Santhanam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of Cement Chemistry and concrete performance: Cement history and production
- Lecture 2 - Overview of Cement Chemistry and concrete performance: Quality control and composition
- Lecture 3 - Overview of Cement Chemistry: Composition of Cement and Classification of Cement
- Lecture 4 - Overview of Cement Chemistry: Hydration of Cement
- Lecture 5 - Overview of Concrete Performance: Curing and Hardened Concrete
- Lecture 6 - Overview of Concrete Performance: Basics of Hardened Concrete
- Lecture 7 - Chemical Admixtures: Introduction
- Lecture 8 - Chemical Admixtures: Water reducers - Part 1
- Lecture 9 - Chemical Admixtures: Water reducers - Part 2
- Lecture 10 - Chemical Admixtures: Water reducers - Part 3
- Lecture 11 - Chemical Admixtures: Water reducers - Part 4
- Lecture 12 - Chemical Admixtures: Water reducers - Part 5
- Lecture 13 - Chemical Admixtures: Water reducers - Part 6
- Lecture 14 - Chemical Admixtures: Set controllers
- Lecture 15 - Chemical Admixtures: Set controllers - Accelerators
- Lecture 16 - Chemical Admixtures: Set controllers - Retarders
- Lecture 17 - Chemical Admixtures: Standards
- Lecture 18 - Chemical Admixtures: Air entrainers - Part 1
- Lecture 19 - Chemical Admixtures: Air entrainers - Part 2
- Lecture 20 - Chemical Admixtures: Understanding Concrete Rheology - Part 1
- Lecture 21 - Chemical Admixtures: Understanding Concrete Rheology - Part 2
- Lecture 22 - Chemical Admixtures: Viscosity Modifying Agents (VMA)
- Lecture 23 - Chemical Admixtures: Mechanism of corrosion
- Lecture 24 - Chemical Admixtures: Corrosion inhibitors, Shrinkage reducing admixtures
- Lecture 25 - Chemical Admixtures: Other specialty admixtures
- Lecture 26 - Chemical Admixtures: Curing compounds
- Lecture 27 - Mineral Admixtures: Introduction
- Lecture 28 - Mineral Admixtures: Types, Composition and Particle size distribution
- Lecture 29 - Mineral Admixtures: Microstructure of SCMs and Pozzolonic reactions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Mineral Admixtures: Pozzolonic activity
- Lecture 31 - Mineral Admixtures: Electrical Conductivity method, Frattini test and Lime saturation method
- Lecture 32 - Mineral Admixtures: Strength Activity test, Lime reactivity test, Mixture Proportioning and R3 t
- Lecture 33 - Mineral Admixtures: Flyash - Part 1: Introduction
- Lecture 34 - Mineral Admixtures: Flyash - Part 2: Classification and structure
- Lecture 35 - Mineral Admixtures: Flyash - Part 3: Effects on fresh concrete
- Lecture 36 - Mineral Admixtures: Flyash - Part 4: Effects on hardened concrete
- Lecture 37 - Mineral Admixtures: Silica fume - Part 1: Introduction
- Lecture 38 - Mineral Admixtures: Silica fume - Part 2: Effects on fresh and hardened concrete
- Lecture 39 - Mineral Admixtures: Silica fume - Part 3: Effects on Microstructure + GGBS - Part 1 : Introduction
- Lecture 40 - Mineral Admixtures: GGBS - Part 2 : Properties
- Lecture 41 - Mineral Admixtures: GGBS - Part 3 : Hydration of slag and Durability of slag cements
- Lecture 42 - Mineral Admixtures: Metakaolin
- Lecture 43 - Mineral Admixtures: LC3 - Part 1 : Introduction
- Lecture 44 - Mineral Admixtures: LC3 - Part 2 : Comparision with other SCMs
- Lecture 45 - Mineral Admixtures: LC3 - Part 3 : Durability Performance
- Lecture 46 - Mineral Admixtures: Agricultural ashes - Part 1 : Sugarcane bagasse ash
- Lecture 47 - Mineral Admixtures: Agricultural ashes - Part 2 : Rice husk ash
- Lecture 48 - Mineral Admixtures: Calorimeter
- Lecture 49 - Mineral Admixtures: Pore solution analysis
- Lecture 50 - Mineral Admixtures: CASH analysis in blended system and Life cycle assessment of concrete - Part
- Lecture 51 - Life cycle assessment of concrete - Part 2
- Lecture 52 - Life cycle assessment of concrete - Part 3
- Lecture 53 - Special concretes - High strength concrete - Definition, design and concept of particle packing
- Lecture 54 - Special concretes - High strength concrete - Particle packing models
- Lecture 55 - Special concretes - High strength concrete - Mix designs, strength and durability
- Lecture 56 - Special concretes - High strength concrete - Design attributes, fresh and hardened properties
- Lecture 57 - Special concretes - High strength concrete - Stress:strain relationships, applications
- Lecture 58 - Special concretes - Ultra high performance concrete - Design principles, strength, durability
- Lecture 59 - Special concretes: Self compacting concrete -Introduction, design requirements and plastic shrin
- Lecture 60 - Special concretes: Self compacting concrete - Segregation and laboratory tests
- Lecture 61 - Special concretes - Self Compacting Concrete - Workability test methods, classifications and iss
- Lecture 62 - Special concretes - Self Compacting Concrete - Design principles, mix designs, concrete properti
- Lecture 63 - Special concretes - Mass concrete - Introduction, materials, thermal cracking
- Lecture 64 - Special concretes - Mass concrete - Design guidelines, temperature differential measurement
- Lecture 65 - Special concretes - Mass concrete - Temperature differential measurement, Design
- Lecture 66 - Special concretes - Mass concrete - Temperature monitoring, nomogram, minimizing restraints
- Lecture 67 - Special concretes - Mass concrete - Heat modelling
- Lecture 68 - Special concretes - Lightweight concrete - Introduction, classifications

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Special concretes - Lightweight concrete - Foamed concrete, lightweight aggregates
- Lecture 70 - Special concretes - Lightweight concrete - Light weigh aggregates, aerated concrete
- Lecture 71 - Special concretes - High density concrete - Heavy weight aggregates, design, case stud
- Lecture 72 - Special concretes - Concrete for 3D printing - Introduction, classification, printing process
- Lecture 73 - Special concretes - Concrete for 3D printing - Developments, advantages, case study
- Lecture 74 - Special concretes - Concrete for 3D printing - Critical parameters, yield stress
- Lecture 75 - Special concretes - Concrete for 3D printing - Mix design approach, admixtures
- Lecture 76 - Special concretes - Concrete for 3D printing - Failure modes, buildability, early-age behaviour

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Advanced Topics in Science and Technology of Concrete

Subject Co-ordinator - Prof. Ravindra Gettu, Prof. Manu Santhanam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Aggregates and their effects on concrete properties - Part 1
- Lecture 2 - Aggregates and their effects on concrete properties - Part 2
- Lecture 3 - An overview of recycled concrete aggregates (RCA): sources and types - Part 1
- Lecture 4 - An overview of recycled concrete aggregates (RCA): sources and types - Part 2
- Lecture 5 - Recycled Concrete Aggregate (RCA): Availability, Collection, and Processing Methods - Part 1
- Lecture 6 - Recycled Concrete Aggregate (RCA): Availability, Collection, and Processing Methods - Part 2
- Lecture 7 - Recycled Concrete Aggregates: Properties and Performance - Part 1
- Lecture 8 - Recycled Concrete Aggregates: Properties and Performance - Part 2
- Lecture 9 - Recycled Concrete Aggregates: Properties and Performance - Part 3
- Lecture 10 - Recycled Concrete Aggregates: Properties and Performance - Part 4
- Lecture 11 - Recycled Concrete Aggregates: Properties and Performance - Part 5
- Lecture 12 - Effect of moisture condition on the microstructure and design of RCA concrete - Part 1
- Lecture 13 - Effect of moisture condition on the microstructure and design of RCA concrete - Part 2
- Lecture 14 - Overview and generation of recycled concrete fines
- Lecture 15 - Utilisation of recycled concrete fines
- Lecture 16 - Recycled Concrete Aggregates: Properties, Design, and Standards
- Lecture 17 - Environmental impact and life cycle assessment (LCA) - Part 1
- Lecture 18 - Environmental impact and life cycle assessment (LCA) - Part 2
- Lecture 19 - Construction supply chains - Part 1
- Lecture 20 - Construction supply chains - Part 2
- Lecture 21 - Recycled concrete aggregates market: problems and prospects - Part 1
- Lecture 22 - Recycled concrete aggregates market: problems and prospects - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Foundation Engineering

Subject Co-ordinator - Prof. Priti Maheswari, Prof. N.K. Samadhiya, Prof. Mahendra Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Shallow Foundation - 1  
Lecture 2 - Shallow Foundation - 2  
Lecture 3 - Shallow Foundation - 3  
Lecture 4 - Shallow Foundation - 4  
Lecture 5 - Shallow Foundation - 5  
Lecture 6 - Shallow Foundation - 6  
Lecture 7 - Shallow Foundation - 7  
Lecture 8 - Lateral Earth pressure Theories Retaining Walls - 1  
Lecture 9 - Lateral Earth pressure Theories Retaining Walls - 2  
Lecture 10 - Lateral Earth pressure Theories Retaining Walls - 3  
Lecture 11 - Lateral Earth Pressure Theories Retaining Walls - 4  
Lecture 12 - Lateral Earth Pressure Theories Retaining Walls - 5  
Lecture 13 - Pile Foundations - 1  
Lecture 14 - Pile Foundations - 2  
Lecture 15 - Pile Foundations - 3  
Lecture 16 - Pile Foundations - 4  
Lecture 17 - Pile Foundations - 5  
Lecture 18 - Pile Foundations - 6  
Lecture 19 - Pile Foundations - 7  
Lecture 20 - Machine Foundations - 1  
Lecture 21 - Machine Foundations - 2  
Lecture 22 - Machine Foundations - 3  
Lecture 23 - Machine Foundations - 4  
Lecture 24 - Well Foundations - 1  
Lecture 25 - Well Foundations - 2  
Lecture 26 - Well Foundations - 3  
Lecture 27 - Foundation Engineering - 1  
Lecture 28 - Foundation Engineering - 2  
Lecture 29 - Foundation Engineering - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30	-	Foundation Engineering	-	4
Lecture 31	-	Foundation Engineering	-	5
Lecture 32	-	Foundation Engineering	-	6
Lecture 33	-	Foundation Engineering	-	7
Lecture 34	-	Foundation Engineering	-	8
Lecture 35	-	Foundation Engineering	-	9
Lecture 36	-	Foundation Engineering	-	10
Lecture 37	-	Foundation Engineering	-	11
Lecture 38	-	Foundation Engineering	-	12
Lecture 39	-	Foundation Engineering	-	13
Lecture 40	-	Foundation Engineering	-	14

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Modern Surveying Techniques

Subject Co-ordinator - Prof. S.K. Ghosh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Geographic Information System An Introduction
- Lecture 2 - Introduction to Global Positioning System
- Lecture 3 - GPS Positioning Methods
- Lecture 4 - GPS Solutions and Errors
- Lecture 5 - GPS Application
- Lecture 6 - Remote Sensing Introduction
- Lecture 7 - Electromagnetic Spectrum
- Lecture 8 - Sensors and Platform
- Lecture 9 - Sensors and Platform
- Lecture 10 - Image Interpretation
- Lecture 11 - Statistical Evaluation of RS Data
- Lecture 12 - Rectification and Restoration
- Lecture 13 - Image Enhancement
- Lecture 14 - Image Transformation
- Lecture 15 - Orthogonal Transformation
- Lecture 16 - Image Classification (Supervised Classification)
- Lecture 17 - Image Classification (Unsupervised Classification)
- Lecture 18 - Spatial Filtering-Noise Removal
- Lecture 19 - Spatial Filtering-Edge Removal
- Lecture 20 - Photogramatic-Basic concepts of a single photography
- Lecture 21 - Stereoscropy-Basic concepts
- Lecture 22 - Stereoscropy-Geometry of overlapping photograph
- Lecture 23 - Terrestrial Photogrammetry
- Lecture 24 - Digital Elevation Model-Basic Concepts
- Lecture 25 - Digital Elevation Model-Data Input and Stamping
- Lecture 26 - Digital Elevation Model-Surface representation and analysis
- Lecture 27 - GIS-Introductory Concepts
- Lecture 28 - GIS-Data Input
- Lecture 29 - Data Verification and Editing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - GIS Data Model
- Lecture 31 - GIS Data Base
- Lecture 32 - Spatial Analysis
- Lecture 33 - Map Overlay and Spatial Correlation
- Lecture 34 - Application to Drought Management
- Lecture 35 - GIS base planning model for educational facilities in rural areas
- Lecture 36 - Application extraction of building attributes
- Lecture 37 - Zonal based tourism planning
- Lecture 38 - Zonal Planning using remote sensing
- Lecture 39 - Municipal GIS for assessment of property tax
- Lecture 40 - Application of remote sensing



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Transportation Engineering II

Subject Co-ordinator - Prof. Rajat Rastogi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Railway Engineering  
Lecture 2 - Gauges and Permanent Way  
Lecture 3 - Wheel and Axles, Coning of Wheels  
Lecture 4 - Track Resistances, Hauling Capacity  
Lecture 5 - Track Modulus, Stresses in Track  
Lecture 6 - Stresses in Components of Track  
Lecture 7 - Rails  
Lecture 8 - Creep in Rails  
Lecture 9 - Wears & Failures in Rails  
Lecture 10 - Jointed or Welded rails  
Lecture 11 - Sleepers  
Lecture 12 - Ballast  
Lecture 13 - Fastenings  
Lecture 14 - Geometric Design - Alignment of Track  
Lecture 15 - Horizontal Curve and Super elevation  
Lecture 16 - Speeds on Track  
Lecture 17 - Transition Curve & Widening of Track  
Lecture 18 - Vertical Curve & Gradients  
Lecture 19 - Turnouts - Components  
Lecture 20 - Crossing and Design of Turnout  
Lecture 21 - Track Junctions and Designs  
Lecture 22 - Signals - Part 1  
Lecture 23 - Signals - Part 2  
Lecture 24 - Train Control Systems  
Lecture 25 - Interlocking of Track  
Lecture 26 - High Speed Tracks  
Lecture 27 - Introduction of Air Transport  
Lecture 28 - Aircraft Characteristics  
Lecture 29 - Aircraft Controls, Airport Site&Size Selection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Airport Obstructions
- Lecture 31 - Runway Orientation
- Lecture 32 - Runway Length
- Lecture 33 - Runway Geometric
- Lecture 34 - Taxiway
- Lecture 35 - Exit Taxiway
- Lecture 36 - Aprons and Aircraft Parking
- Lecture 37 - Terminal Area and Building
- Lecture 38 - Terminal Planning and Hangers
- Lecture 39 - Visual Aids-Markings
- Lecture 40 - Visual Aids-Lighting and Signage

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Introduction to Geographic Information Systems

Subject Co-ordinator - Dr.Arun K.Saraf

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Geographic Information Systems ?
- Lecture 2 - Different components of GIS
- Lecture 3 - Different types of vector data and concept of topology
- Lecture 4 - Raster data models and comparisons with vector
- Lecture 5 - TIN data model and comparisons with raster
- Lecture 6 - Non-spatial data (attributes) and their type
- Lecture 7 - Raster data compression techniques
- Lecture 8 - Spatial database systems and their types
- Lecture 9 - Pre-processing of spatial datasets
- Lecture 10 - Geo-referencing
- Lecture 11 - Different map projections
- Lecture 12 - Spatial interpolation techniques
- Lecture 13 - Digital Elevation Models and different types of resolutions
- Lecture 14 - Quality assessment of freely available DEMS
- Lecture 15 - GIS analysis - Part 1
- Lecture 16 - GIS analysis - Part 2 (Overlaying Operations)
- Lecture 17 - GIS analysis - Part 3 (Buffer Analysis)
- Lecture 18 - Classification Methods
- Lecture 19 - Errors in GIS and Key elements of maps
- Lecture 20 - Limitations of GIS

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Principles and Applications of Building Science

Subject Co-ordinator - Dr. E. Rajasekar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Solar Geometry
- Lecture 2 - Climate Classification
- Lecture 3 - Thermal Comfort in Built Environment - 1
- Lecture 4 - Thermal Comfort in Built Environment - 2
- Lecture 5 - Thermal Adaptation
- Lecture 6 - Bioclimatic Assessment
- Lecture 7 - Thermal Performance of Building Envelop
- Lecture 8 - Thermal Performance of Building Envelop - Indices and Measures (1/2)
- Lecture 9 - Thermal Performance of Building Envelop - Indices and Measures (2/2)
- Lecture 10 - Glazing and Shading Systems
- Lecture 11 - Shading Analysis
- Lecture 12 - Energy Efficiency and Simulation
- Lecture 13 - Building Acoustics - Basics
- Lecture 14 - Sound Propagation
- Lecture 15 - Acoustic Quality Indicators (1/2)
- Lecture 16 - Acoustic Quality Indicators (2/2)
- Lecture 17 - Acoustic Design Considerations
- Lecture 18 - Acoustic Materials
- Lecture 19 - Lighting - Basics
- Lecture 20 - Lighting Design Concepts

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:GPS Surveying

Subject Co-ordinator - Dr.Jayanta Kumar Ghosh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction (GPS Surveying and Applications)
- Lecture 2 - GPS System
- Lecture 3 - GPS Signal (Civilian Perspective)
- Lecture 4 - GPS Receiver
- Lecture 5 - GPS Software
- Lecture 6 - GPS Position
- Lecture 7 - GPS Positioning (Principle and Methods)
- Lecture 8 - Field demonstration of GPS Positioning Method
- Lecture 9 - GPS Observables (Types, Errors and Quality)
- Lecture 10 - Errors in GPS Observables (Systematics Errors)
- Lecture 11 - GPS Data Pre-Processing - I
- Lecture 12 - GPS Data Pre-Processing - II
- Lecture 13 - GPS Data Processing - I
- Lecture 14 - GPS Data Processing - II
- Lecture 15 - Quality Assessment of GPS Surveying
- Lecture 16 - Procedure of GPS Surveying - I
- Lecture 17 - Procedure of GPS Surveying - II
- Lecture 18 - Procedure of GPS Surveying - III
- Lecture 19 - GPS Field Surveying
- Lecture 20 - GPS Data Processing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Digital Land Surveying And Mapping

Subject Co-ordinator - Prof. Jayanta Kumar Ghosh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Applications

Lecture 2 - Fundamentals and Operations

Lecture 3 - Overview of Digital Land Surveying

Lecture 4 - Introduction of GPS

Lecture 5 - GPS Signal (Civilian Perspective)

Lecture 6 - GPS User Segment

Lecture 7 - GPS Positioning of Control Point

Lecture 8 - Demonstration of GPS Receivers, Software and Positioning of Control Point

Lecture 9 - GPS Position

Lecture 10 - Principle of GPS Positioning and GPS Observables

Lecture 11 - Errors in GPS Observables

Lecture 12 - GPS Data Pre-processing

Lecture 13 - GPS Data Pre-processing

Lecture 14 - GPS Data Processing

Lecture 15 - GPS Data Processing

Lecture 16 - Quality Assessment of GPS Surveying

Lecture 17 - Introduction to Total Station

Lecture 18 - Parts of Total Station

Lecture 19 - Accessories of Total Station

Lecture 20 - Handling and Setting of Total Station

Lecture 21 - Measurement of Distance

Lecture 22 - Measurement of Distance Using TS

Lecture 23 - Measurement of Horizontal Angle Using TS

Lecture 24 - Measurement of Vertical Angle and Height Using TS

Lecture 25 - Errors in Total Station

Lecture 26 - Other Errors in Total Station

Lecture 27 - Errors and Quality of Surveying Measurements

Lecture 28 - Error Propagation and Survey Specifications

Lecture 29 - Basics of Vertical Representation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Contouring
- Lecture 31 - Mapping Fundamentals
- Lecture 32 - Mapping Basics
- Lecture 33 - Mapping Software
- Lecture 34 - Automated Mapping
- Lecture 35 - Working Steps
- Lecture 36 - Establishment of Control Point
- Lecture 37 - Detailing of Digital Land Surveying
- Lecture 38 - Demonstration of Digital Land Survey Detailing
- Lecture 39 - Data Preparation and Map Making
- Lecture 40 - Overview of the Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Digital Image Processing of Remote Sensing Data

Subject Co-ordinator - Dr.Arun K.Saraf

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Remote-sensing Image and How it is represented
- Lecture 2 - Different Techniques of Image Acquisition
- Lecture 3 - Why is Digital Image processing Important ?
- Lecture 4 - Image characteristics and Different Resolutions in Remote Sensing
- Lecture 5 - Electromagnetic spectrum, solar reflection, and thermal emission
- Lecture 6 - Color Representation and Transformations
- Lecture 7 - Image histograms and statistics
- Lecture 8 - Geo-referencing Techniques
- Lecture 9 - Image Enhancement Techniques part 1
- Lecture 10 - Image Enhancement Techniques part 2
- Lecture 11 - Multispectral Transform, Scatter Plot, Principal Component Analysis and Decorrelation Stretch
- Lecture 12 - Spatial Filtering Techniques
- Lecture 13 - Frequency Domain Fourier Transformation
- Lecture 14 - Basic Image Compression Techniques and Different Image File Formats
- Lecture 15 - Image Classification Techniques
- Lecture 16 - Principles of Image Interpretation
- Lecture 17 - SAR Interferometry (InSAR) Techniques
- Lecture 18 - Image Merging and Image Mosaicing Techniques
- Lecture 19 - Application of Image Analysis
- Lecture 20 - Limitations and Future of Digital Image Processing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Applied Environmental Microbiology

Subject Co-ordinator - Dr. Gargi Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - I  
Lecture 2 - Introduction - II  
Lecture 3 - Cell Structure - I  
Lecture 4 - Cell Structure - II  
Lecture 5 - Central Dogma - I  
Lecture 6 - Central Dogma - II  
Lecture 7 - Microbial Energetics - I  
Lecture 8 - Microbial Energetics - II  
Lecture 9 - Microbial Energetics - III  
Lecture 10 - Microbial Energetics - IV  
Lecture 11 - Microbial Metabolism - I  
Lecture 12 - Microbial Metabolism - II  
Lecture 13 - Functional Diversity of Bacteria - I  
Lecture 14 - Functional Diversity of Bacteria - II  
Lecture 15 - Functional Diversity of Bacteria - III  
Lecture 16 - Microbial Ecosystem - I  
Lecture 17 - Microbial Ecosystem - II  
Lecture 18 - Microbial Ecosystem - III  
Lecture 19 - Microbial Ecosystem - IV  
Lecture 20 - Microbial Ecosystem - V  
Lecture 21 - Environmental Genomics - I  
Lecture 22 - Environmental Genomics - II  
Lecture 23 - Environmental Genomics - III  
Lecture 24 - Environmental Genomics - IV  
Lecture 25 - Environmental Genomics - V  
Lecture 26 - Microbial Symbiosis - I  
Lecture 27 - Microbial Symbiosis - II  
Lecture 28 - Virus - I  
Lecture 29 - Virus - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Applied Environmental Microbiology
- Lecture 31 - Techniques in Environmental Microbiology - I
- Lecture 32 - Techniques in Environmental Microbiology - II
- Lecture 33 - Bioremediation - I
- Lecture 34 - Bioremediation - II
- Lecture 35 - Bioremediation - III
- Lecture 36 - Wastewater Microbiology - I
- Lecture 37 - Wastewater Microbiology - II
- Lecture 38 - Built Microbiology
- Lecture 39 - Exposomes - I
- Lecture 40 - Exposomes - II
- Lecture 41 - Drinking Water Microbiology - I
- Lecture 42 - Drinking Water Microbiology - II
- Lecture 43 - Drinking Water Microbiology - III
- Lecture 44 - Drinking Water Microbiology - IV
- Lecture 45 - Drinking Water Microbiology - V
- Lecture 46 - Solid Waste Microbiology - I
- Lecture 47 - Solid Waste Microbiology - II
- Lecture 48 - Solid Waste Microbiology - III
- Lecture 49 - Antimicrobial Resistance - I
- Lecture 50 - Antimicrobial Resistance - II
- Lecture 51 - Epidemiology - I
- Lecture 52 - Epidemiology - II
- Lecture 53 - Biosensors - I
- Lecture 54 - Biosensors - II
- Lecture 55 - Biosensors - III
- Lecture 56 - Bioinformatics - I
- Lecture 57 - Bioinformatics - II
- Lecture 58 - Bioinformatics - III
- Lecture 59 - Bioinformatics - IV
- Lecture 60 - Bioinformatics - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Digital Elevation Models and Applications

Subject Co-ordinator - Prof. Arun K. Saraf

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concept of Digital Elevation Model and How It Is Represented
- Lecture 2 - Various Techniques to Generate Digital Elevation Model - 1
- Lecture 3 - Various Techniques to Generate Digital Elevation Model - 2
- Lecture 4 - Various Techniques to Generate Digital Elevation Model - 3
- Lecture 5 - Importance of Spatial Resolution With DEMs
- Lecture 6 - How To Assess Quality of DEM?
- Lecture 7 - Integration of DEMs With Satellite Data
- Lecture 8 - Common Derivatives of DEMs- Slope and Aspect
- Lecture 9 - Triangulated Irregular Network (TIN) and Its Derivatives
- Lecture 10 - Shaded Relief Models and Thier Applications
- Lecture 11 - DEMs Derivatives - 1
- Lecture 12 - DEMs Derivatives - 2
- Lecture 13 - DEMs Derivatives - 3
- Lecture 14 - DEMs Derivatives - 4
- Lecture 15 - DEM Based Surface Hydrologic Modelling - 1
- Lecture 16 - DEM Based Surface Hydrologic Modelling - 2
- Lecture 17 - DEM and DAM Simulation and Its Application In Ground Water Hydrology
- Lecture 18 - Applications of DEMs In Solar and Wind Energy Potential Estimations
- Lecture 19 - Applications of DEMs in Viewshed and Flood Hazard Mapping
- Lecture 20 - DEMs Sources, Limitations and Future of Digital Elevation Models

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Environmental Engineering-Chemical Processes

Subject Co-ordinator - Prof. Bhanu Prakash Vellanki

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Fundamentals of Equilibrium and Kinetics
- Lecture 2 - Equilibrium-Process Feasibility, Gibbs Energy-Standard Condition
- Lecture 3 - Gibbs Free Energy-Non Standard Conditions - I
- Lecture 4 - Gibbs Free Energy-Non Standard Conditions - II
- Lecture 5 - Phase Equilibrium
- Lecture 6 - Component Balance
- Lecture 7 - Reaction Kinetics
- Lecture 8 - Rate of Reaction - I
- Lecture 9 - Rate of Reaction - II, Types of Reactors
- Lecture 10 - Mass Balance on different types of Reactors
- Lecture 11 - Material Balance for Complex Reactions
- Lecture 12 - Material Balance for Reversible Reactions
- Lecture 13 - Determination of Kinetic Equations
- Lecture 14 - Acid-Base Reactions
- Lecture 15 - Acid Dissociation Constant, Strength of Acid
- Lecture 16 - Ionization Fractions
- Lecture 17 - Introduction to VMINTEQ
- Lecture 18 - Estimation of pH using VMINTEQ
- Lecture 19 - Mixing Problems
- Lecture 20 - Inverse Dose Problems
- Lecture 21 - logC-pH Diagram
- Lecture 22 - Carbonate System
- Lecture 23 - Carbonate System
- Lecture 24 - VMINTEQ
- Lecture 25 - VMINTEQ
- Lecture 26 - VMINTEQ
- Lecture 27 - Buffer Intensity
- Lecture 28 - Alkalinity
- Lecture 29 - Alkalinity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Acidity and its Applications
- Lecture 31 - Alkalinity and Acidity
- Lecture 32 - Mixing of Two Solutions and Conservative Quantities - I
- Lecture 33 - Mixing of Two Solutions and Conservative Quantities - II
- Lecture 34 - Carbonate and Non-Carbonate Alkalinity
- Lecture 35 - Anaerobic Digester
- Lecture 36 - Aqueous Complexes
- Lecture 37 - Aqueous Complexes
- Lecture 38 - Aqueous Complexes of Aluminium (Al)
- Lecture 39 - Aqueous Complexes of Mercury (Hg)
- Lecture 40 - Precipitation and Dissolution
- Lecture 41 - Applications of Precipitation and Dissolution
- Lecture 42 - Different Stages in Precipitation, Equilibrium of Precipitation - I
- Lecture 43 - Equilibrium of Precipitation - II
- Lecture 44 - Examples Related to Equilibrium of Precipitation
- Lecture 45 - Other Examples of Equilibrium of Precipitation
- Lecture 46 - Solubility and Competitive Precipitation
- Lecture 47 - Predominance Area Diagram and Introduction to Redox Processes
- Lecture 48 - Redox Reactions and its Applications
- Lecture 49 - Balancing of Redox and Development of Half Reaction
- Lecture 50 - Kinetics of Redox Processes
- Lecture 51 - Equilibrium of Redox - I
- Lecture 52 - Equilibrium of Redox - II and Reaction Feasibility
- Lecture 53 - Reaction Feasibility Based on  $P_e$  - I
- Lecture 54 - Reaction Feasibility Based on  $P_e$  - II
- Lecture 55 - Effect of Complexation on Redox
- Lecture 56 - Effect of Complexation and Solid Phase on Redox
- Lecture 57 - Reaction Feasibility based on  $E_h$
- Lecture 58 - Introduction to Electrochemical cell ( $E_{cell}$ )
- Lecture 59 - Applications of  $E_{cell}$
- Lecture 60 -  $\log C$ - $P_e$  and  $pH$ - $P_e$  Diagram

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Environmental Remediation of Contaminated Sites

Subject Co-ordinator - Prof. Bhanu Prakash Vellanki, Prof. Thomas Boving

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - I

Lecture 2 - Introduction - II

Lecture 3 - Course Outline

Lecture 4 - Introduction to hazardous waste laws and risk assessment

Lecture 5 - The major aspects of Risk Assessment

Lecture 6 - Risk Characterization

Lecture 7 - Risk Assessment - Deterministic approach

Lecture 8 - Risk Assessment - Stochastic Approach

Lecture 9 - Hazardous Waste laws - The TCLP Test

Lecture 10 - Hazardous rules and regulations

Lecture 11 - Remediation of contaminated GW-Plume Containment

Lecture 12 - Remediation of contaminated GW-Javandel et al's approach

Lecture 13 - Remediation of contaminated GW by Pump and Treat - I

Lecture 14 - Remediation of contaminated GW by Pump and Treat - II

Lecture 15 - Remediation of contaminated GW- Calculation of remediation time and introduction to source control

Lecture 16 - Permeable Reactive Barriers - I

Lecture 17 - Permeable Reactive Barriers - II

Lecture 18 - Permeable Reactive Barriers - III

Lecture 19 - Design of Permeable Reactive Barriers

Lecture 20 - Case Study on Permeable Reactive Barriers - I

Lecture 21 - Case Study on Permeable Reactive Barriers - II

Lecture 22 - Case Study- PRB (Utah)

Lecture 23 - Case Study (Utah) (Continued...)

Lecture 24 - Mechanism of natural attenuation and the affecting factors

Lecture 25 - Introduction to natural attenuation and its types

Lecture 26 - Pathways of Contaminant Transport and Rate of Degradation of Contaminant

Lecture 27 - Rate of Degradation of Contaminant when advection is considered

Lecture 28 - Rate of Degradation of Contaminant when both diffusion and advection are considered

Lecture 29 - Example of Rate of Degradation in natural attenuation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Case study: Natural Attenuation
- Lecture 31 - Results of Case Study: Natural Attenuation
- Lecture 32 - Introduction of Soil/Sediments contamination with some examples
- Lecture 33 - Case Study: Soil/Sediments Contamination and remediation by Excavation and Disposal
- Lecture 34 - Hazardous waste disposal site/TSDf
- Lecture 35 - Different type of fluxes through containment barrier
- Lecture 36 - Introduction to Solidification and Stabilisation and Case Study
- Lecture 37 - Different contaminant reactions during solidification and stabilisation
- Lecture 38 - Diffusion of contaminant through solidified form
- Lecture 39 - Calculations for fractions of binders, admixtures, waste and water used in solidification
- Lecture 40 - Discussion of TCLP approach in solidification and its examples
- Lecture 41 - Discussion of TCLP approach (contd.) and Cost estimation of Solidification
- Lecture 42 - Case Study: Solidification and Stabilization
- Lecture 43 - Chemical Treatment
- Lecture 44 - Case Study: In-Situ Chemical Oxidation - Part I
- Lecture 45 - Case Study: In-Situ Chemical Oxidation - Part II
- Lecture 46 - Case Study: In-Situ Chemical Oxidation - Part III
- Lecture 47 - Surfactant Extraction - Part I
- Lecture 48 - Surfactant Extraction - Part II
- Lecture 49 - Case Study: Surfactant Extraction - Part I
- Lecture 50 - Case Study: Surfactant Extraction - Part II
- Lecture 51 - Soil Vapor Extraction - Part I
- Lecture 52 - Soil Vapor Extraction - Part II
- Lecture 53 - Bioremediation - Part I
- Lecture 54 - Bioremediation - Part II
- Lecture 55 - Case Study: Bioremediation
- Lecture 56 - Case Study: Soil Vapor Extraction - Part I
- Lecture 57 - Case Study: Soil Vapor Extraction - Part II
- Lecture 58 - Phyto-remediation
- Lecture 59 - Conceptual Site Model
- Lecture 60 - Adaptive Design in Remediation Engineering
- Lecture 61 - Solubilization Theory - Part I
- Lecture 62 - Solubilization Theory - Part II
- Lecture 63 - Enhanced Aquifer Flushing Technologies

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Global Navigation Satellite Systems and Applications

Subject Co-ordinator - Prof. Arun K. Saraf

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Global Navigation Satellite System (GNSS)

Lecture 2 - How position is determined by the GNSS? - Part I

Lecture 3 - How position is determined by the GNSS? - Part II

Lecture 4 - How position is determined by the GNSS? - Part III

Lecture 5 - NAVSTAR - Global Positioning System

Lecture 6 - Global Navigation Satellite System (GLONASS)

Lecture 7 - BeiDou Navigation Satellite System (BDS)

Lecture 8 - Indian Regional Navigation Satellite System (IRNSS)

Lecture 9 - GALILEO

Lecture 10 - Quasi-Zenith Satellite System (QZSS)

Lecture 11 - Differential Global Navigation Satellite System (DGNSS)

Lecture 12 - Real-Time Kinematic (RTK)

Lecture 13 - Satellite Based Augmentation System (SBAS)

Lecture 14 - GNSS Errors

Lecture 15 - GNSS Correction Methods

Lecture 16 - Why altitude estimated by GNSS receivers is not very accurate

Lecture 17 - Global Navigation Satellite Systems (GNSS) Applications - I

Lecture 18 - Global Navigation Satellite Systems (GNSS) Applications - II

Lecture 19 - GNSS

Lecture 20 - GNSS

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geomorphology

Subject Co-ordinator - Prof. Pitambar Pati

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Geomorphology and Concept of Time Scale in a Geomorphic System
- Lecture 2 - Process of Landform Development
- Lecture 3 - Energy Flow in Geomorphic System and Role of Uniformitarianism Vs Catastrophism
- Lecture 4 - Landform Development - Equilibrium and Evolution
- Lecture 5 - Process Geomorphology - I
- Lecture 6 - Process Geomorphology - II
- Lecture 7 - Weathering and soil Formation Introduction - I
- Lecture 8 - Weathering and soil Formation Introduction - II
- Lecture 9 - Weathering and Soil Formation (Types of Weathering)
- Lecture 10 - Weathering and Soil Formation (Mechanical Weathering)
- Lecture 11 - Weathering and Soil Formation (Mechanical and Chemical Weathering)
- Lecture 12 - Weathering and Soil Formation (Chemical and Biological Weathering)
- Lecture 13 - Weathering of Silicate rocks and Weathering Products
- Lecture 14 - Factors of Weathering
- Lecture 15 - Soil Formation
- Lecture 16 - Soil Formation Processes
- Lecture 17 - Soil Classification
- Lecture 18 - Mass Wasting
- Lecture 19 - Classification of Mass Wasting - I
- Lecture 20 - Classification of Mass Wasting - II
- Lecture 21 - Hill Slope Evolution - I
- Lecture 22 - Hill Slope Evolution - II
- Lecture 23 - Arid Zone Geomorphology
- Lecture 24 - Landforms in Dry Region
- Lecture 25 - Pediment Evolution
- Lecture 26 - Aeolian Processes and Landforms - I
- Lecture 27 - Aeolian Processes and Landforms - II
- Lecture 28 - Wind Erosional Landforms - I
- Lecture 29 - Wind Erosional Landforms - II

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dune Classification - I
- Lecture 31 - Dune Classification - II
- Lecture 32 - Coastal Geomorphology - I
- Lecture 33 - Coastal Geomorphology and Landforms
- Lecture 34 - Coastal Geomorphology - II
- Lecture 35 - Coastal Geomorphology - III
- Lecture 36 - Shoreline Platform
- Lecture 37 - Coastal Geomorphology - IV
- Lecture 38 - Coastal Geomorphology - V
- Lecture 39 - Coastal Geomorphology - VI
- Lecture 40 - Coastal Geomorphology - VII
- Lecture 41 - Coastal Geomorphology - VIII
- Lecture 42 - Coastal Geomorphology - IX
- Lecture 43 - Tectonic Geomorphology
- Lecture 44 - Fluvial Process
- Lecture 45 - Fluvial Process - I
- Lecture 46 - Fluvial Process - II
- Lecture 47 - Fluvial Process - III
- Lecture 48 - Fluvial Process - IV
- Lecture 49 - Fluvial Process - V and Drainage Analysis
- Lecture 50 - Fluvial Process - VI and Drainage Analysis
- Lecture 51 - Fluvial Geomorphology River System - I
- Lecture 52 - Fluvial Geomorphology River System - II
- Lecture 53 - Glacial Geomorphology - I
- Lecture 54 - Glacial Geomorphology - II (Valley Glacier)
- Lecture 55 - Glacial Geomorphology - III
- Lecture 56 - Glacial Geomorphology - IV (Geomorphic Changes by Glacier)
- Lecture 57 - Exploration Geomorphology in Oil field Sandbody Geometry - I
- Lecture 58 - Exploration Geomorphology in Oil Field Sandbody Geometry - II
- Lecture 59 - Seismic Geomorphology - I
- Lecture 60 - Seismic Geomorphology - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Remote Sensing Essentials

Subject Co-ordinator - Dr.Arun K.Saraf

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Rudiments of Remote Sensing and Advantages

Lecture 2 - Historical Perspective of development of remote sensing technology

Lecture 3 - EM spectrum, solar reflection and thermal emission

Lecture 4 - Interaction of EM radiation with atmosphere including atmospheric scattering, absorption and emission

Lecture 5 - Interaction mechanisms of EM radiation with ground, spectral response curves

Lecture 6 - Laws of Radiation and their relevance in Remote Sensing

Lecture 7 - Basis of remote sensing image representation

Lecture 8 - Various Remote Sensing Platforms

Lecture 9 - Multi-spectral scanners and imaging devices

Lecture 10 - Significant characteristics of LANDSAT, SPOT, Sentinel sensors

Lecture 11 - Prominent characteristics of IRS, Cartosat, ResourceSat sensors

Lecture 12 - Unmanned Aerial Vehicle/Drone

Lecture 13 - Passive Microwave Remote Sensing

Lecture 14 - Image characteristics and different resolutions in Remote Sensing

Lecture 15 - Different techniques of Image acquisition

Lecture 16 - Importance of digital image processing

Lecture 17 - Digital Image Processing Software

Lecture 18 - Basic image enhancement techniques

Lecture 19 - Colour representations and transformations

Lecture 20 - Image Histograms and statistics

Lecture 21 - Atmospheric errors and corrections

Lecture 22 - Geometric transformations/Geo-referencing Technique

Lecture 23 - Digital Image Processing Software Demonstration - 1

Lecture 24 - Image enhancement techniques - 1

Lecture 25 - Image enhancement techniques - 2

Lecture 26 - Digital Image Processing Software Demonstration - 2

Lecture 27 - Spatial Filtering Techniques, Band rationing and PCA

Lecture 28 - Frequency Domain Fourier Transformation

Lecture 29 - Digital Image Processing Software Demonstration - 3

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Unsupervised image classification and density slicing techniques
- Lecture 31 - Supervised image classification techniques and limitations
- Lecture 32 - Digital Image Processing Software Demonstration - 4
- Lecture 33 - LiDAR Technique and applications
- Lecture 34 - Mosaicking, subsets, sub-sampling techniques and applications
- Lecture 35 - False Topographic Phenomena and correction techniques - 1
- Lecture 36 - False Topographic Phenomena and correction techniques - 2
- Lecture 37 - High Spatial Resolution Satellite Images and limitations
- Lecture 38 - Basic Image Compression techniques and different image file formats
- Lecture 39 - Hyperspectral Remote Sensing
- Lecture 40 - Digital Image vs Digital Photograph
- Lecture 41 - NDVI and other indices
- Lecture 42 - Active Microwave Remote Sensing - 1
- Lecture 43 - Active Microwave Remote Sensing - 2
- Lecture 44 - Radar Images interpretation and applications
- Lecture 45 - SAR Interferometry (InSAR) Technique - 1
- Lecture 46 - SAR Interferometry (InSAR) Technique - 2
- Lecture 47 - Principles of image interpretation
- Lecture 48 - Image interpretation of different geological landforms, rock types and structures
- Lecture 49 - Remote Sensing of Moon and Mars
- Lecture 50 - Google Earth and its Applications
- Lecture 51 - Integrated applications of RS and GIS in groundwater studies - 1
- Lecture 52 - Integrated applications of RS and GIS in groundwater studies - 2
- Lecture 53 - Applications of Remote Sensing in Earthquake Studies - 1
- Lecture 54 - Applications of Remote Sensing in Earthquake Studies - 2
- Lecture 55 - Different sources of free satellite images
- Lecture 56 - Limitations of Remote Sensing Techniques

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Earthquake Resistant Design of Foundations

Subject Co-ordinator - Prof. B. K. Maheshwari

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Shallow Foundations
- Lecture 3 - Shallow Foundations
- Lecture 4 - Shallow Foundations
- Lecture 5 - Shallow Foundations
- Lecture 6 - Combined Footings
- Lecture 7 - Raft Foundations
- Lecture 8 - Raft Foundations
- Lecture 9 - Footings under Dynamic Loads
- Lecture 10 - Footings under Dynamic Loads
- Lecture 11 - Footings under Dynamic Loads
- Lecture 12 - Footings under Dynamic Loads
- Lecture 13 - Pile Foundations subjected to Static Vertical Load
- Lecture 14 - Pile Foundations
- Lecture 15 - Pile Foundations under Lateral Loads
- Lecture 16 - Pile Foundations under Lateral Loads
- Lecture 17 - Pile Foundations under Lateral Loads
- Lecture 18 - Pile Foundations under Lateral Loads
- Lecture 19 - Dynamic Analysis of Piles under Vertical and Horizontal Vibrations
- Lecture 20 - Dynamic Analysis of Piles under Horizontal Vibration
- Lecture 21 - Seismic Response of Pile Foundations - 1
- Lecture 22 - Seismic Response of Pile Foundations - 2
- Lecture 23 - Combined Pile-Raft Foundations (CPRF) - General
- Lecture 24 - Geotechnical and Seismic Analyses of CPRF
- Lecture 25 - Design of Piles in Liquefiable Soils - 1
- Lecture 26 - Design of Piles in Liquefiable Soils - 2
- Lecture 27 - Introduction to Well Foundations
- Lecture 28 - Lateral Stability of Well Foundations
- Lecture 29 - Lateral Stability, Construction and Sinking of Well Foundation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Titling and Shifting of Wells, Numerical Problems
- Lecture 31 - Introduction to Soil-Structure Interaction
- Lecture 32 - Effects of Soil-Structure Interaction
- Lecture 33 - SGM and Wave Propagation
- Lecture 34 - Dispersion, Attenuation of Waves and Damping
- Lecture 35 - Ground Response Analysis (GRA)
- Lecture 36 - Soil-Pile Interaction (SPI)
- Lecture 37 - Raft Foundations â Numerical Examples
- Lecture 38 - Foundations on Slopes - 1
- Lecture 39 - Foundations on Slopes - 2
- Lecture 40 - Codal Provisions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geographic Information Systems

Subject Co-ordinator - Prof. Arun K. Saraf

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Geographic Information Systems ?
- Lecture 2 - Essential Components of GIS
- Lecture 3 - Different types of vector data
- Lecture 4 - Concept of topology
- Lecture 5 - Demonstration through GIS software
- Lecture 6 - Raster data model and comparisons with vector
- Lecture 7 - TIN data model and comparisons with raster
- Lecture 8 - Non-spatial data (attributes) and their types
- Lecture 9 - Vector data compression techniques
- Lecture 10 - Demonstration through GIS software
- Lecture 11 - Raster data compression techniques - 1
- Lecture 12 - Raster data compression techniques - 2
- Lecture 13 - Georeferencing
- Lecture 14 - Pre-processing of spatial datasets - 1
- Lecture 15 - Demonstration through GIS software
- Lecture 16 - Pre-processing of spatial datasets - 2
- Lecture 17 - Pre-processing of spatial datasets - 3
- Lecture 18 - Spatial Interpolation Techniques - 1
- Lecture 19 - Spatial Interpolation Techniques - 2
- Lecture 20 - GIS ANALYSIS - 1
- Lecture 21 - GIS Analysis - 2
- Lecture 22 - GIS Analysis - 3
- Lecture 23 - GIS Analysis - 4
- Lecture 24 - GIS Analysis - 5
- Lecture 25 - Demonstration through GIS software
- Lecture 26 - GIS Analysis - 6
- Lecture 27 - GIS Analysis - 7
- Lecture 28 - Attributes Classification Methods
- Lecture 29 - Special database systems and their types - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Demonstration through GIS software
- Lecture 31 - Spatial database systems and their types - 2
- Lecture 32 - Concept of NoData in Raster
- Lecture 33 - Different map projections
- Lecture 34 - Concept of digital elevation model (DEM) and how it is represented
- Lecture 35 - Demonstration through GIS software
- Lecture 36 - Various techniques to generate digital elevation model - 1
- Lecture 37 - Various techniques to generate digital elevation model - 2
- Lecture 38 - Various techniques to generate digital elevation model - 3
- Lecture 39 - Digital Elevation Models and different types of resolutions
- Lecture 40 - Demonstration through GIS software
- Lecture 41 - How to assess quality of a DEM?
- Lecture 42 - Integration of DEMs with satellite data
- Lecture 43 - Demonstration through GIS software...
- Lecture 44 - Common derivatives of DEMs - Slope and aspect - 1
- Lecture 45 - Common derivatives of DEMs - Slope and aspect - 2
- Lecture 46 - Common derivatives of DEMs - Slope and aspect - 3
- Lecture 47 - Demonstration through GIS software
- Lecture 48 - DEMs derivatives - 1
- Lecture 49 - DEMs derivatives - 2
- Lecture 50 - DEMs derivatives - 3
- Lecture 51 - DEMs derivatives - 4
- Lecture 52 - Shaded relief models and their applications
- Lecture 53 - DEM based Surface Hydrologic Modelling - 1
- Lecture 54 - DEM based Surface Hydrologic Modelling - 2
- Lecture 55 - DEMs and Dam Simulation and its application in groundwater hydrology
- Lecture 56 - Applications of DEMs in Viewshed and Flood Hazard Mapping
- Lecture 57 - Applications of DEMs in solar and wind energy potential estimations
- Lecture 58 - DEMs Sources, limitations and future of Digital Elevation Models
- Lecture 59 - Errors in GIS and key elements of maps
- Lecture 60 - Limitations of GIS



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Water and Waste Water Treatment

Subject Co-ordinator - Prof. Bhanu Prakash Vellanki

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Importance of water and wastewater treatment

Lecture 2 - Life expectancy and real-world scenario

Lecture 3 - Course outline

Lecture 4 - Review of fundamentals

Lecture 5 - Mass balance

Lecture 6 - Mass Balance: Batch reactor, CSTR, and Plug flow reactors

Lecture 7 - Mass balance: Comparison of CSTR and Plug flow reactor

Lecture 8 - Mass Balance: Non ideal system and Water quality parameters

Lecture 9 - Water quality: DO and ways to measure it

Lecture 10 - Water quality: Nutrients in water

Lecture 11 - Water quality: Total suspended solids and Pathogens

Lecture 12 - Wastewater treatment plant: basic principals

Lecture 13 - Wastewater treatment plant: Preliminary treatment

Lecture 14 - Wastewater treatment plant: Sedimentation and basics

Lecture 15 - Sedimentation: Discrete and Flocculant settling

Lecture 16 - Design of primary settling tank

Lecture 17 - Biological treatment: BOD and Nutrient removal

Lecture 18 - Analysis of biological removal process(ASP)

Lecture 19 - Activated sludge process: Material balance for aeration basin

Lecture 20 - Oxygen transfer: types and basic principals

Lecture 21 - Relevance of F/M ratio and Design Parameters of Activated Sludge Process

Lecture 22 - Sludge Bulking and Activated Sludge Variations

Lecture 23 - Sequencing Batch Reactor

Lecture 24 - Nitrogen Removal - I

Lecture 25 - Nitrogen Removal - II and Phosphorus Removal - I

Lecture 26 - Phosphorus Removal - II

Lecture 27 - Secondary Clarifiers and Attached Growth System

Lecture 28 - Disinfection

Lecture 29 - Chlorination Disinfection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Disinfection By-products (DBPs) and Disinfectant Removal
- Lecture 31 - Water demand
- Lecture 32 - Water Quality Parameters
- Lecture 33 - Overview of Water Treatment
- Lecture 34 - Physico-Chemical treatment
- Lecture 35 - Coagulation - I
- Lecture 36 - Coagulation - II
- Lecture 37 - Rapid Mixing
- Lecture 38 - Flocculation - I
- Lecture 39 - Flocculation - II
- Lecture 40 - Flocculent settling
- Lecture 41 - Filtration
- Lecture 42 - Depth filtration
- Lecture 43 - Design of Sand filter and Surface filtration
- Lecture 44 - Disinfection
- Lecture 45 - Hardness - I
- Lecture 46 - Hardness - II
- Lecture 47 - Lime-Soda softening - I
- Lecture 48 - Lime-Soda softening - II
- Lecture 49 - Recarbonation
- Lecture 50 - Types of Softening Basin and Adsorption
- Lecture 51 - Adsorption
- Lecture 52 - Adsorption Isotherms
- Lecture 53 - Ion Exchange
- Lecture 54 - Nanofiltration and RO
- Lecture 55 - Aeration: Removal of Fe and Mn
- Lecture 56 - Residual Management
- Lecture 57 - Sludge Thickening
- Lecture 58 - Stabilization of Sludge
- Lecture 59 - Anaerobic and Aerobic digestion of sludge
- Lecture 60 - Conditioning, Dewatering and Disposal of Sludge

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Rock Engineering

Subject Co-ordinator - Prof. Priti Maheshwari

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Minerals and Rock Classes

Lecture 3 - Mineral Identification Procedure

Lecture 4 - Rock Identification Procedure

Lecture 5 - Geological Structures and Discontinuities

Lecture 6 - Spherical Representation of Geological Data - 1

Lecture 7 - Spherical Representation of Geological Data - 2

Lecture 8 - Spherical Representation of Geological Data - 3

Lecture 9 - Application of Graphical Representation of Geological Data

Lecture 10 - Laboratory Testing of Rocks - Sampling

Lecture 11 - Laboratory testing of Rocks - Preparations and UCS

Lecture 12 - Factors Influencing UCS and Modes of Failure in Compression

Lecture 13 - Failure Mechanism and Post-Failure Behaviour in Compression, Indirect Method for UCS

Lecture 14 - Indirect Method for UCS, Brazilian Test, Schmidt Rebound Hardness Test

Lecture 15 - Sound Velocity Test, Slake Durability Test, Swelling Pressure and Free Swell Test and Void Index

Lecture 16 - Shear Tests - 1

Lecture 17 - Shear Tests - 2

Lecture 18 - Engineering Classification of Intact Rocks, Concept of Rock Mass, RQD

Lecture 19 - Concept of Rock Mass, Factors Affecting Discontinuities

Lecture 20 - Factors Affecting Discontinuities

Lecture 21 - Classification of Rock Mass: Rock Mass Rating (RMR) - 1

Lecture 22 - Classification of Rock Mass: Rock Mass Rating (RMR) - 2

Lecture 23 - Classification of Rock Mass: Rock Mass Quality (Q-system) - 1

Lecture 24 - Classification of Rock Mass: Rock Mass Quality (Q-system) - 2

Lecture 25 - Classification of Rock Mass: Geological Strength Index (GSI)

Lecture 26 - Strength Criteria for Isotropic and Anisotropic Rock - 1

Lecture 27 - Strength Criteria for Isotropic and Anisotropic Rocks -2, Mohr's Failure Theory

Lecture 28 - Mohr-Coulomb Failure Criterion

Lecture 29 - Mohr-Coulomb Failure Criterion, Coulomb Navier Failure Criterion

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Concept of Instantaneous  $c$  and  $\dot{\epsilon}$  : Balmer Approach
- Lecture 31 - Empirical Failure Criteria: Basics of Regression Analysis
- Lecture 32 - Hoek and Brown Criterion (1980)
- Lecture 33 - Parameters of Failure Criteria
- Lecture 34 - Failure Criteria for Rock Mass
- Lecture 35 - Tunneling: Underground Excavations
- Lecture 36 - Tunneling: Ground Conditions
- Lecture 37 - Elastic Stress Distribution Around Circular Tunnels - 1
- Lecture 38 - Elastic Stress Distribution Around Circular Tunnels - 2
- Lecture 39 - Elastic Analysis of Circular Tunnels - Displacements
- Lecture 40 - Thick Wall Cylinder in Biaxial Stress Field
- Lecture 41 - Elasto-Plastic Stress Distribution Around Circular Tunnel
- Lecture 42 - Underground Excavation Failure Mechanisms
- Lecture 43 - Structurally Controlled Failure: Roof Failure
- Lecture 44 - Structurally Controlled Failure: Sidewall Failures - 1
- Lecture 45 - Structurally Controlled Failure: Sidewall Failures - 2
- Lecture 46 - Rock Mass Support Interaction Analysis - 1
- Lecture 47 - Rock Mass Support Interaction Analysis - 2
- Lecture 48 - Rock Slope Stability
- Lecture 49 - Rock Slope Stability - Plane Failure
- Lecture 50 - Rock Slope Stability - Wedge Failure
- Lecture 51 - Rock Slope Stability - Circular Failure
- Lecture 52 - Rock Slope Stability - Toppling Failure - 1
- Lecture 53 - Rock Slope Stability - Toppling Failure - 2
- Lecture 54 - Rock Slope Stability - Toppling Failure - 3
- Lecture 55 - Rock Slope Stabilization
- Lecture 56 - Foundations on Weak Rocks
- Lecture 57 - Ultimate Bearing Capacity Using Bellâs Approach
- Lecture 58 - Bearing Capacity from Classification Approaches and Based on UCS
- Lecture 59 - Bearing Capacity Based on Plate Load test; Treatment of Foundations
- Lecture 60 - Dam Foundation Problems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Finite Element Method and Computational Structural Dynamics

Subject Co-ordinator - Prof. Manish Shrikhande

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Scientific Computations - I
- Lecture 2 - Introduction to Scientific Computations - II
- Lecture 3 - Basic Concepts of Linear Algebra
- Lecture 4 - Polynomial Interpolation and Numerical Quadrature - I
- Lecture 5 - Polynomial Interpolation and Numerical Quadrature - II
- Lecture 6 - Polynomial Interpolation and Numerical Quadrature - III
- Lecture 7 - Polynomial Interpolation and Numerical Quadrature - IV
- Lecture 8 - Mathematical Modelling and Approximate Solutions - I
- Lecture 9 - Mathematical Modelling and Approximate Solutions - II
- Lecture 10 - Mathematical Modelling and Approximate Solutions - III
- Lecture 11 - Approximation via Variational Principles
- Lecture 12 - Introduction to the Finite Element Concept
- Lecture 13 - Finite Elements of  $C^0$  Continuity in 1-D - I
- Lecture 14 - Finite Elements of  $C^0$  Continuity in 1-D - II
- Lecture 15 - Finite Elements of  $C^0$  Continuity in 1-D - III
- Lecture 16 - Finite Elements of  $C^0$  Continuity in 1-D - IV
- Lecture 17 - Finite Elements of  $C^1$  Continuity in 1-D - I
- Lecture 18 - Finite Elements of  $C^1$  Continuity in 1-D - II
- Lecture 19 - Finite Elements of  $C^0$  Continuity in 2-D and 3-D - I
- Lecture 20 - Finite Elements of  $C^0$  Continuity in 2-D and 3-D - II
- Lecture 21 - Finite Elements of  $C^0$  Continuity in 2-D and 3-D - III
- Lecture 22 - Finite Elements of  $C^0$  Continuity in 2-D and 3-D - IV
- Lecture 23 - Finite Elements of  $C^0$  Continuity in 2-D and 3-D - V
- Lecture 24 - Finite Elements of  $C^0$  Continuity in 2-D and 3-D - VI
- Lecture 25 - Finite Elements of  $C^0$  Continuity in 2-D and 3-D - VII
- Lecture 26 - Finite Elements of  $C^0$  Continuity in 2-D and 3-D - VIII
- Lecture 27 - Finite Elements of  $C^0$  Continuity in 2-D and 3-D - IX
- Lecture 28 - Finite Elements of  $C^0$  Continuity in 2-D and 3-D - X
- Lecture 29 - Finite Elements of  $C^0$  Continuity in 2-D and 3-D - XI

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Finite Elements of  $C^0$  Continuity in 2-D and 3-D - XII
- Lecture 31 - Mapped Elements - I
- Lecture 32 - Mapped Elements - II
- Lecture 33 - Mapped Elements - III
- Lecture 34 - Mapped Elements - IV
- Lecture 35 - Mapped Elements - V
- Lecture 36 - Variational Crimes
- Lecture 37 - The Patch Test
- Lecture 38 - Finite Elements for Plates and Shells - I
- Lecture 39 - Finite Elements for Plates and Shells - II
- Lecture 40 - Finite Elements for Plates and Shells - III
- Lecture 41 - The Time Dimension and Dynamic Effects - I
- Lecture 42 - The Time Dimension and Dynamic Effects - II
- Lecture 43 - Solution of Linear Simultaneous Equations - I
- Lecture 44 - Solution of Linear Simultaneous Equations - II
- Lecture 45 - Solution of Linear Simultaneous Equations - III
- Lecture 46 - Solution of Linear Simultaneous Equations - IV
- Lecture 47 - The Algebraic Eigenvalue Problem - I
- Lecture 48 - The Algebraic Eigenvalue Problem - II
- Lecture 49 - The Algebraic Eigenvalue Problem - III
- Lecture 50 - The Algebraic Eigenvalue Problem - IV
- Lecture 51 - Time Marching - I
- Lecture 52 - Time Marching - II
- Lecture 53 - Time Marching - III
- Lecture 54 - Discrete Fourier Transform - I
- Lecture 55 - Discrete Fourier Transform - II
- Lecture 56 - Discrete Fourier Transform - III
- Lecture 57 - Discrete Fourier Transform - IV
- Lecture 58 - Discrete Fourier Transform - V
- Lecture 59 - Discrete Fourier Transform - VI
- Lecture 60 - Discrete Fourier Transform - VII

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Sustainable Transportation systems

Subject Co-ordinator - Prof. Bhola Ram Gurjar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Transportation Systems - I
- Lecture 2 - Introduction to Transportation Systems - II
- Lecture 3 - Concept of Sustainability
- Lecture 4 - Current Scenario of Transportation in India
- Lecture 5 - Climate Change: Indicators and Impacts
- Lecture 6 - Impacts of Transportation Systems - I
- Lecture 7 - Impacts of Transportation Systems - II
- Lecture 8 - Impacts of Transportation Systems - III
- Lecture 9 - Impacts of Transportation Systems - IV
- Lecture 10 - Impacts of Transportation Systems - V
- Lecture 11 - Introduction to Environment Impact Assessment (EIA)
- Lecture 12 - EIA Processes - I
- Lecture 13 - EIA Processes - II
- Lecture 14 - Methodologies of EIA
- Lecture 15 - EIA Process in India
- Lecture 16 - Global practices in EIA process
- Lecture 17 - EIA Case Study - I
- Lecture 18 - EIA Case Study - II
- Lecture 19 - EIA Case Study - III
- Lecture 20 - EIA Case Study - IV
- Lecture 21 - EIA Case Study - V
- Lecture 22 - Introduction of Land use
- Lecture 23 - Land use Planning and Zoning
- Lecture 24 - Transit Oriented Development (TOD)
- Lecture 25 - TOD Implementation
- Lecture 26 - TOD Case study-I: Section of Delhi Metro
- Lecture 27 - TOD Case study-II: TOD planning for Belgrade, Serbia
- Lecture 28 - TOD Case study-III: Naya Raipur
- Lecture 29 - Introduction to Sustainable Transport Planning

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- Lecture 30 - Sustainable Transport Planning and Approaches-I: The Traditional Transport Planning Process
- Lecture 31 - Sustainable Transport Planning and Approaches-II: The Contemporary Planning Process
- Lecture 32 - Sustainable Transport Planning and Approaches-III: Management Strategies
- Lecture 33 - Life Cycle Assessment (LCA): An Introduction
- Lecture 34 - Life Cycle Assessment: Theory and Practice
- Lecture 35 - LCA Case Study
- Lecture 36 - Material Flow Analysis (MFA)
- Lecture 37 - Material Flow Analysis: Case Study
- Lecture 38 - Concept of Circular Economy
- Lecture 39 - Circular Economy in Transport Sector
- Lecture 40 - Modelling of Transport Emissions - I
- Lecture 41 - Modelling of Transport Emissions - II
- Lecture 42 - Dispersion Models for Transport Emissions
- Lecture 43 - Traffic Noise Emission Models
- Lecture 44 - Initiatives and Policies for Environmental Sustainability
- Lecture 45 - National Clean Air Programme and Transport Sector
- Lecture 46 - Decarbonizing the Transport Sector
- Lecture 47 - Alternate Fuels and Sustainable Transportation
- Lecture 48 - Electric Vehicles and Sustainability
- Lecture 49 - Emerging Transport Technology - Hyperloop
- Lecture 50 - Case Study-I: Bus Rapid Transit System (BRTS)
- Lecture 51 - Case Study-II: Mass Rapid Transit (MRT) Systems
- Lecture 52 - Case Study-III: Sustainability in Airports
- Lecture 53 - Case Study-IV: Sustainable Water Transport
- Lecture 54 - Case Study-V: Non-Motorized Transport (NMT)
- Lecture 55 - openLCA - An LCA Tool
- Lecture 56 - openLCA Application - Case Study
- Lecture 57 - Material Flow Analysis Tool - STAN
- Lecture 58 - Sustainability Indicators
- Lecture 59 - Sustainable Transport Appraisal Rating (STAR)
- Lecture 60 - Measuring Sustainability



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Air Pollution and Control

Subject Co-ordinator - Prof. Bhola Ram Gurjar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Air Pollution - I
- Lecture 2 - Introduction to Air Pollution - II
- Lecture 3 - Impact of Air Pollution on Human Health
- Lecture 4 - Impact of Air Pollution on Vegetation and Animals
- Lecture 5 - Impact of Air Pollution on Building Materials and Structures
- Lecture 6 - Impact of Air Pollution on Atmosphere, Soil and Water Bodies
- Lecture 7 - Sources and Classification of Air Pollutants
- Lecture 8 - Atmospheric Formation and Fate of Air Pollutants
- Lecture 9 - Meteorological Parameters and Air Pollution
- Lecture 10 - Atmospheric Stability and Lapse Rates
- Lecture 11 - Atmospheric Stability and Plume Behaviour
- Lecture 12 - Boundary Layer, Mixing Height, Stack Height and Plume Rise
- Lecture 13 - Status of Air Quality Monitoring in India
- Lecture 14 - Air Quality Index (AQI)
- Lecture 15 - Introduction to Air Quality Modelling
- Lecture 16 - Gaussian Dispersion Model for Point Source
- Lecture 17 - Gaussian Dispersion Model for Line Source and Area Source
- Lecture 18 - Determination of Concentration of Pollutants using Gaussian Dispersion Model
- Lecture 19 - Assimilative Capacity of an Airshed
- Lecture 20 - Emission Inventory
- Lecture 21 - Transport Emission Inventory
- Lecture 22 - Emission Inventory for Industrial Sector
- Lecture 23 - Emission Inventory for Agriculture Sector
- Lecture 24 - Emission Inventory for Residential and Commercial Sectors
- Lecture 25 - Application of Remote Sensing/Satellite-Based Data in Air Quality Management
- Lecture 26 - Emission Inventory: Case Study
- Lecture 27 - Methods of Source Apportionment
- Lecture 28 - Source apportionment using Receptor Modeling
- Lecture 29 - Indoor Air Quality: An Introduction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Specific Sources and Types of Indoor Air Pollutants
- Lecture 31 - Health Impacts Due to Indoor Air Pollution
- Lecture 32 - Assessment of Exposure to Indoor Air Pollution
- Lecture 33 - Indoor Air Quality Modelling
- Lecture 34 - Technologies to Mitigate Indoor Air Pollution
- Lecture 35 - Personal Exposure to Fine Particles: A Case Study
- Lecture 36 - Indoor Air Quality in Nursery Buildings, UAE â Case Study
- Lecture 37 - Global and Regional Environmental Issues - Ozone Depletion
- Lecture 38 - Global and Regional Environmental Issues - Global Warming
- Lecture 39 - Global and Regional Environmental Issues - Climate Change
- Lecture 40 - Global and Regional Environmental Issues - Acid Rain
- Lecture 41 - Introduction to Air Pollution Control
- Lecture 42 - Air Pollution Control Devices - Part 1
- Lecture 43 - Air Pollution Control Devices - Part 2
- Lecture 44 - Air Pollution Control Devices - Part 3
- Lecture 45 - Air Pollution Control Devices - Part 4
- Lecture 46 - Tutorial-II - Practice Examples on Particulate Emission Control Devices
- Lecture 47 - Tutorial-III - Practice Examples on Gaseous Emission Control Devices
- Lecture 48 - Air Quality Standards
- Lecture 49 - Air Pollution Legislations and Regulations
- Lecture 50 - National Policies for Managing the Ambient Air Quality (AAQ)
- Lecture 51 - International Environmental Treaties to Reduce Air Pollution and GHG Emissions
- Lecture 52 - Impact of Lockdown on Air Quality
- Lecture 53 - Sector Wise Mitigation Measures to Control Air Pollution
- Lecture 54 - Challenges and the Way Forward
- Lecture 55 - Sampling and Analysis of PM10 in Ambient Air
- Lecture 56 - Sampling and Analysis of PM2.5 in Ambient Air
- Lecture 57 - Sampling and Analysis of SO2 and NO2 in Ambient Air
- Lecture 58 - Stack Emission Monitoring using Isokinetic Sampling
- Lecture 59 - Indoor Air Quality Assessment using Multi Gas Monitor
- Lecture 60 - Sampling and Analysis of PM10 and PM2.5 using Spectrometer

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Underground Space Technology

Subject Co-ordinator - Prof. Priti Maheshwari

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basics of Rock Engineering: Introduction
- Lecture 2 - Basics of Rock Engineering: coring, sampling, UCS of intact rock
- Lecture 3 - Basics of Rock Engineering: Tensile strength and shear strength of intact rock
- Lecture 4 - Basics of Rock Engineering: Classification of intact rocks, concept of rock mass, RQD
- Lecture 5 - Basics of Rock Engineering: Classification of rock mass - 1
- Lecture 6 - Basics of Rock Engineering: Classification of rock mass: Q-system and GSI
- Lecture 7 - Basics of Rock Engineering: Failure criteria for rocks - 1
- Lecture 8 - Basics of Rock Engineering: Empirical failure criteria
- Lecture 9 - Tunneling: Underground excavations
- Lecture 10 - Tunneling: Ground conditions
- Lecture 11 - Planning of and exploration for underground construction projects
- Lecture 12 - Underground excavation failure mechanisms
- Lecture 13 - Application of stereographic projection method: roof failure
- Lecture 14 - Application of stereographic projection method: sidewall failures - 1
- Lecture 15 - Application of stereographic projection method: sidewall failures - 2
- Lecture 16 - Elastic stress distribution around circular tunnels - 1
- Lecture 17 - Elastic stress distribution around circular tunnels - 2
- Lecture 18 - Elastic analysis of circular tunnels-displacements
- Lecture 19 - Thick wall cylinder in biaxial stress field
- Lecture 20 - Stress distribution around non-circular openings in elastic ground conditions - 1
- Lecture 21 - Stress distribution around non-circular openings in elastic ground conditions - 2
- Lecture 22 - Stress distribution under different in-situ stress conditions: design principles
- Lecture 23 - Stress distribution for multiple openings
- Lecture 24 - Openings in laminated rocks - 1
- Lecture 25 - Openings in laminated rocks - 2
- Lecture 26 - Openings in laminated rocks - 3
- Lecture 27 - Openings in laminated rocks - 4
- Lecture 28 - Elasto-plastic analysis of tunnels: Tresca yield criterion - 1
- Lecture 29 - Elasto-plastic analysis of tunnels: Tresca yield criterion - 2

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Elasto-plastic analysis of tunnels: Mohr-Coulomb criterion
- Lecture 31 - Application of rock mass classification system: Terzaghi's rock load theory - 1
- Lecture 32 - Application of rock mass classification system: Terzaghi's rock load theory - 2
- Lecture 33 - Application of rock mass classification system: rock mass rating (RMR)
- Lecture 34 - Tunnel hazards
- Lecture 35 - Tunnel hazards: squeezing ground conditions
- Lecture 36 - Application of rock mass classification system: rock mass quality system - 1
- Lecture 37 - Application of rock mass classification system: rock mass quality system - 2, NATM, NMT
- Lecture 38 - Modulus of deformation of rock mass using Q-system, rock mass number, plate loading test
- Lecture 39 - Modulus of deformation of rock mass: uni-axial jacking/plate jacking test
- Lecture 40 - Modulus of deformation of rock mass: radial jacking test and Goodman jack test
- Lecture 41 - Rock mass support interaction analysis: ground response and support reaction curves - 1
- Lecture 42 - Rock mass support interaction analysis: ground response and support reaction curves - 2
- Lecture 43 - Rock mass support interaction analysis: influencing factors, Ladanyi's E-P analysis
- Lecture 44 - Ladanyi's elasto-plastic analysis of tunnels: analysis of stresses and deformations
- Lecture 45 - Rock-support interaction analysis: required support line, analysis of available support
- Lecture 46 - Rock-support interaction analysis: for shotcrete/concrete lining and blocked steel sets
- Lecture 47 - Rock-support interaction analysis: for ungrouted rock bolts, grouted rock bolts/cables
- Lecture 48 - Calculation sequence for rock-support interaction analysis - 1
- Lecture 49 - Calculation sequence for rock-support interaction analysis - 2
- Lecture 50 - Calculation sequence for rock-support interaction analysis - example
- Lecture 51 - Methods of tunnel excavation, various support systems: shotcrete
- Lecture 52 - Shotcrete
- Lecture 53 - Various support systems: rock bolts
- Lecture 54 - Permeability and groutability - 1
- Lecture 55 - Permeability and groutability - 2
- Lecture 56 - Rock stress determination: flat jack test
- Lecture 57 - Rock stress determination: hydraulic fracturing technique
- Lecture 58 - Instrumentation and monitoring of tunnels - 1
- Lecture 59 - Instrumentation and monitoring of tunnels - 2
- Lecture 60 - Few case studies

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Environmental Modeling and Simulation

Subject Co-ordinator - Prof. Gargi Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Part I  
Lecture 2 - Introduction - Part II  
Lecture 3 - 1D Models - Part I  
Lecture 4 - 1D Models - Part II  
Lecture 5 - Logistic Growth Models - Part I  
Lecture 6 - Logistic Growth Models - Part II  
Lecture 7 - 1D Models: Auto Catalysis  
Lecture 8 - Semi Quantitative Approach to Solve 1D Models  
Lecture 9 - Using MATLAB for 1D systems  
Lecture 10 - Using R for 1D Systems  
Lecture 11 - Bifurcations - I  
Lecture 12 - Bifurcations - II  
Lecture 13 - Bifurcations - III  
Lecture 14 - Bifurcations - IV  
Lecture 15 - Bifurcations - V  
Lecture 16 - Insect Outbreak Model  
Lecture 17 - 2D Systems - I  
Lecture 18 - 2D Systems - II  
Lecture 19 - 2D Systems - III  
Lecture 20 - 2D Systems - IV  
Lecture 21 - 2D Systems - V  
Lecture 22 - 2D Systems - VI  
Lecture 23 - 2D Systems - VII  
Lecture 24 - 2D Systems - VIII  
Lecture 25 - 2D Systems - IX  
Lecture 26 - 2D Systems - X  
Lecture 27 - 2D Systems - XI  
Lecture 28 - 2D Systems - XII  
Lecture 29 - Limit Cycles - I

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Limit cycles - II and Bifurcations
- Lecture 31 - Bifurcations
- Lecture 32 - Bifurcations - I
- Lecture 33 - Bifurcations - II
- Lecture 34 - Bifurcations - III
- Lecture 35 - Application of Empirical Approach - I
- Lecture 36 - Application of Empirical Approach - II
- Lecture 37 - Application of Empirical Approach - III
- Lecture 38 - Gaussian Plumes - Air - I
- Lecture 39 - Gaussian Plumes - Air - II
- Lecture 40 - Gaussian Plumes - Air - III
- Lecture 41 - Gaussian Plumes - Air - IV
- Lecture 42 - Gaussian Plumes - Air - V
- Lecture 43 - Gaussian Plumes - Air - VI
- Lecture 44 - Ground Water - I
- Lecture 45 - Ground Water - II
- Lecture 46 - Environmental Transport Processes
- Lecture 47 - Environmental Non-reactive and Reactive Processes - I
- Lecture 48 - Environmental Non-reactive and Reactive Processes - II
- Lecture 49 - Environmental Non-reactive and Reactive Processes - III
- Lecture 50 - Homogeneous reactors
- Lecture 51 - Heterogeneous Reactors - I
- Lecture 52 - Heterogeneous Reactors - II
- Lecture 53 - Ground Water Extraction
- Lecture 54 - 2D Model Using MATLAB
- Lecture 55 - Phase Portrait of 1D Models Using R
- Lecture 56 - Phase Portrait of 2D Models Using R
- Lecture 57 - Simulations - I
- Lecture 58 - Simulations - II
- Lecture 59 - Application: Climate change and GDP - I
- Lecture 60 - Application: Climate change and GDP - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Advanced Geomatics Engineering

Subject Co-ordinator - Prof. Pradeep Kumar Garg

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Geomatics Engineering
- Lecture 2 - Various Applications of Geomatics Engineering
- Lecture 3 - Photogrammetry - An Introduction
- Lecture 4 - Photogrammetry - Geometry of Aerial Photographs
- Lecture 5 - Photogrammetry - Scale of Aerial Photographs
- Lecture 6 - Photogrammetry - Relief Displacement
- Lecture 7 - Photogrammetry - Stereo Pairs and Stereovision
- Lecture 8 - Photogrammetry - Stereovision with Stereoscopes
- Lecture 9 - Photogrammetry - Parallax in Photographs
- Lecture 10 - Height Determination from Stereo-Pairs
- Lecture 11 - Photogrammetry - 3D Mapping, DEM, DTM and DSM
- Lecture 12 - Digital Photogrammetry
- Lecture 13 - Remote Sensing - An Introduction
- Lecture 14 - Remote Sensing - Electromagnetic Spectrum
- Lecture 15 - Remote Sensing - Energy Interaction with Atmosphere / Earth Surface
- Lecture 16 - Remote Sensing - Blackbody and Atmospheric Window
- Lecture 17 - Spectral Signature in Remote Sensing
- Lecture 18 - Remote Sensing - Types of Resolutions
- Lecture 19 - Multi-concepts in Remote Sensing
- Lecture 20 - Remote Sensing - Satellite Orbits
- Lecture 21 - Remote Sensing - Various Sensors
- Lecture 22 - Remote Sensing Sensors and Platforms - I
- Lecture 23 - Remote Sensing Sensors and Platforms - II
- Lecture 24 - Very High Resolution Remote Sensing Data
- Lecture 25 - Remote Sensing - Thermal, Microwave, and Hyperspectral Images
- Lecture 26 - Remote Sensing - Visual Interpretation Method
- Lecture 27 - GPS Surveying - Introduction and Components
- Lecture 28 - GPS Surveying - Working Principle
- Lecture 29 - GPS Surveying - Various Methods

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - GPS Surveying - Sources of Errors
- Lecture 31 - GPS - Applications
- Lecture 32 - LiDAR - An Introduction
- Lecture 33 - Data Collection with Mobile Laser Scanners
- Lecture 34 - Data Collection with Airborne LiDAR Systems
- Lecture 35 - Unmanned Aerial Vehicles - An Introduction
- Lecture 36 - Classifications of UAVs/Drones
- Lecture 37 - Various Components of Drone and Their Functions
- Lecture 38 - Flying Drones for Data Collection
- Lecture 39 - Unmanned Aerial Vehicles - Various Applications
- Lecture 40 - Digital Image Processing - An Introduction
- Lecture 41 - Pre-processing - Atmospheric Corrections
- Lecture 42 - Pre-processing - Geometric Corrections
- Lecture 43 - Pre-processing - Resampling Methods
- Lecture 44 - Digital Image Enhancement Methods
- Lecture 45 - Spatial Filtering in Digital Remote Sensing
- Lecture 46 - Digital Image Transformation Methods
- Lecture 47 - Supervised Classification Methods
- Lecture 48 - Unsupervised Classification Methods
- Lecture 49 - Accuracy Assessment of Classification
- Lecture 50 - Geographic Information System - An Introduction
- Lecture 51 - Various Components of a GIS
- Lecture 52 - GIS - Various Data Types and Their Characteristics
- Lecture 53 - Geographic Information System - Data Input
- Lecture 54 - GIS Databases and Their Uses
- Lecture 55 - GIS - Based Extraction of Parameters from DEM
- Lecture 56 - Buffering and Overlay Analysis in GIS
- Lecture 57 - Spatial and Network Analysis in GIS
- Lecture 58 - Geomatics Applications - Site Suitability Analysis
- Lecture 59 - Geomatics Applications - Transportation Route Planning
- Lecture 60 - Geomatics Applications - Smart City Planning



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Pavement Materials (Under Pavement Engineering)

Subject Co-ordinator - Prof. Nikhil Saboo

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Soil as a Highway Material
- Lecture 2 - Particle Size Distribution - Part 1
- Lecture 3 - Particle Size Distribution - Part 2
- Lecture 4 - Consistency Limits and Classification of Soils - Part 1
- Lecture 5 - Consistency Limits and Classification of Soils - Part 2
- Lecture 6 - Strength Properties of Soil - Part 1
- Lecture 7 - Strength Properties of Soil - Part 2
- Lecture 8 - Strength Properties of Soil - Part 3
- Lecture 9 - Strength Properties of Soil - Part 4
- Lecture 10 - Expansive Soils and Stabilization Techniques
- Lecture 11 - Introduction to Mineral Aggregates: Origin and Types
- Lecture 12 - Production and Storage of Aggregates
- Lecture 13 - Classification and Gradation of Aggregates - Part 1
- Lecture 14 - Classification and Gradation of Aggregates - Part 2
- Lecture 15 - Mineralogy of Aggregates and its Importance
- Lecture 16 - Aggregates Shape and Surface Texture
- Lecture 17 - Aggregate Properties - Part 1
- Lecture 18 - Aggregate Properties - Part 2
- Lecture 19 - Aggregate Properties - Part 3
- Lecture 20 - Aggregate Properties - Part 4
- Lecture 21 - Bitumen Basics
- Lecture 22 - Chemistry of Bitumen
- Lecture 23 - Physical Properties of Bitumen - Part 1
- Lecture 24 - Physical Properties of Bitumen - Part 2
- Lecture 25 - Physical Properties of Bitumen - Part 3
- Lecture 26 - Introduction to Viscoelasticity
- Lecture 27 - Rheological Properties of Bitumen - Part 1
- Lecture 28 - Rheological Properties of Bitumen - Part 2
- Lecture 29 - Grading of Bitumen - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Grading of Bitumen - Part 2
- Lecture 31 - Modified Bitumen
- Lecture 32 - Bitumen Emulsion
- Lecture 33 - Production of Bituminous Mixtures
- Lecture 34 - Role and Desirable Properties: Mix Design
- Lecture 35 - Volumetrics in Mix Design - Part 1
- Lecture 36 - Volumetrics in Mix Design - Part 2
- Lecture 37 - Volumetrics in Mix Design - Part 3
- Lecture 38 - Volumetrics in Mix Design - Part 4
- Lecture 39 - Volumetrics in Mix Design - Part 5
- Lecture 40 - Marshall and Superpave Mix Design - Part 1
- Lecture 41 - Marshall and Superpave Mix Design - Part 2
- Lecture 42 - Hot Recycled Mixtures - Part 1
- Lecture 43 - Hot Recycled Mixtures - Part 2
- Lecture 44 - Hot Recycled Mixtures - Part 3
- Lecture 45 - Cold Bituminous Mixtures
- Lecture 46 - Performance Based Mix Design Concepts
- Lecture 47 - Characterization of Bituminous Mixtures - Part 1
- Lecture 48 - Characterization of Bituminous Mixtures - Part 2
- Lecture 49 - Cementitious Materials - Part 1
- Lecture 50 - Cementitious Materials - Part 2
- Lecture 51 - Types of Cement, Admixtures, Geopolymers - Part 1
- Lecture 52 - Types of Cement, Admixtures, Geopolymers - Part 2
- Lecture 53 - Mix Design of PQC - IRC 44
- Lecture 54 - Mix Design of PQC - Examples - Part 1
- Lecture 55 - Mix Design of PQC - Examples - Part 2
- Lecture 56 - Mix Design of DLC - IRC SP 49
- Lecture 57 - Mix Design of Pervious Concrete - Part 1
- Lecture 58 - Mix Design of Pervious Concrete - Part 2
- Lecture 59 - Overview of Alternate Pavement Materials - Part 1
- Lecture 60 - Overview of Alternate Pavement Materials - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Geometric Design of Highways

Subject Co-ordinator - Prof. Rajat Rastogi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Design Controls - 1  
Lecture 2 - Design Controls - 2  
Lecture 3 - Design Controls - 3  
Lecture 4 - Design Controls - 4  
Lecture 5 - Design Controls and Space Requirements  
Lecture 6 - Space and Sight Distance Requirements - 1  
Lecture 7 - Sight Distance Requirements - 2  
Lecture 8 - Sight Distance Requirements - 3  
Lecture 9 - Sight Distance Requirements - 4  
Lecture 10 - Sight Distance Requirements - 5  
Lecture 11 - Cross-Section Elements - 1  
Lecture 12 - Cross-Section Elements - 2  
Lecture 13 - Cross-Section Elements - 3  
Lecture 14 - Cross-Section Elements - 4  
Lecture 15 - Cross-Section Elements - 5  
Lecture 16 - Cross-Section Elements - 6  
Lecture 17 - Cross-Section Elements - 7  
Lecture 18 - Cross-Section Elements - 8  
Lecture 19 - Cross-Section Elements - 9  
Lecture 20 - Crossing Facility and Road Furniture - 1  
Lecture 21 - Road Furniture - 2  
Lecture 22 - Road Furniture - 3  
Lecture 23 - Road Furniture - 4  
Lecture 24 - Road Furniture - 5  
Lecture 25 - Road Furniture - 6  
Lecture 26 - Road Furniture - 7  
Lecture 27 - Alignment Design - 1  
Lecture 28 - Alignment Design - 2  
Lecture 29 - Alignment Design - 3

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Lecture 30	- Alignment Design	- 4
Lecture 31	- Alignment Design	- 5
Lecture 32	- Alignment Design	- 6
Lecture 33	- Alignment Design	- 7
Lecture 34	- Alignment Design	- 8
Lecture 35	- Alignment Design	- 9
Lecture 36	- Alignment Design	- 10
Lecture 37	- Alignment Design	- 11
Lecture 38	- Alignment Design	- 12
Lecture 39	- Alignment Design	- 13
Lecture 40	- Alignment Design	- 14
Lecture 41	- Alignment Design	- 15
Lecture 42	- Alignment Design	- 16
Lecture 43	- Intersection Layouts	- 1
Lecture 44	- Intersection Layouts	- 2
Lecture 45	- Intersection Layouts	- 3
Lecture 46	- Intersection Layouts	- 4
Lecture 47	- Intersection Layouts	- 5
Lecture 48	- Intersection Layouts	- 6
Lecture 49	- Intersection Layouts	- 7
Lecture 50	- Intersection Layouts	- 8
Lecture 51	- Intersection Layouts	- 9
Lecture 52	- Intersection Layouts	- 10
Lecture 53	- Design of Facilities	- 1
Lecture 54	- Design of Facilities	- 2
Lecture 55	- Design of Facilities	- 3
Lecture 56	- Design of Facilities	- 4
Lecture 57	- Design of Facilities	- 5
Lecture 58	- Design of Facilities	- 6
Lecture 59	- Design of Facilities	- 7
Lecture 60	- Design of Facilities	- 8
Lecture 61	- Design of Facilities	- 9
Lecture 62	- Design of Facilities	- 10

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Plate Tectonics

Subject Co-ordinator - Prof. Pitambar Pati

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Interior of Earth - I
- Lecture 2 - Interior of Earth - II
- Lecture 3 - Interior of Earth - III
- Lecture 4 - Interior of Earth - IV
- Lecture 5 - Interior of Earth - V
- Lecture 6 - Interior of Earth - VI
- Lecture 7 - Oceanic Crust - I
- Lecture 8 - Oceanic Crust - II
- Lecture 9 - Continental Crust - I
- Lecture 10 - Continental Crust - II
- Lecture 11 - Types of Plates and Plate Margins
- Lecture 12 - Basic Assumption of Plate Tectonics
- Lecture 13 - Relative Motion of Lithospheric Plates
- Lecture 14 - Euler's Theory on Lithospheric Plate Motion
- Lecture 15 - Constructive/Creative Plate Margin
- Lecture 16 - Slow and Fast Spreading Ridges
- Lecture 17 - Magma Chamber Properties at Mid-Oceanic Ridge
- Lecture 18 - Age-Depth Relationship Around the Mid-Oceanic Ridge
- Lecture 19 - Along Axis Segmentation of the Mid Oceanic Ridge
- Lecture 20 - Propagating Rifts and Microplate Development
- Lecture 21 - Conservative Plate Margin - I
- Lecture 22 - Conservative Plate Margin - II, Continental Transform Faults
- Lecture 23 - Conservative Plate Margin - III, Transform Continental Margins
- Lecture 24 - Conservative Plate Margin - IV, Continental Transform Faults
- Lecture 25 - Destructive Plate Margins - I
- Lecture 26 - Destructive Plate Margins - II, The Oceanic Trench
- Lecture 27 - Destructive Plate Margins - III, The Island Arc System
- Lecture 28 - Destructive Plate Margins - IV, The Back Arc Basin and Accretionary Prism
- Lecture 29 - Destructive Plate Margins - V, Seismicity in the Subduction Zone

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Destructive Plate Margins - VI, Gravity Anomaly and Thermal Structure at Subduction Zone
- Lecture 31 - Magmatism and Metamorphism at Different Plate Settings - I, Magmatism at Subduction Zone
- Lecture 32 - Magmatism and Metamorphism at Different Plate Settings - II, Metamorphic at Subduction Zone
- Lecture 33 - Orogeny and Epiorogeny - I, Ocean-Continent Collision
- Lecture 34 - Orogeny and Epiorogeny - II, Continent-Continent Collision
- Lecture 35 - Orogeny and Epiorogeny - III, Arc-Continent Collision
- Lecture 36 - Fault Plane Solution
- Lecture 37 - Plate Tectonics and Mineralisation - I
- Lecture 38 - Plate Tectonics and Mineralisation - II
- Lecture 39 - Plate Tectonics and Mineralisation at Divergent Margins - III
- Lecture 40 - Plate Tectonics and Mineralisation at Divergent Margins - IV
- Lecture 41 - Plate Tectonics and Mineralisation at Convergent Margins - V
- Lecture 42 - Plate Tectonics and Mineralisation at Convergent Margins - VI
- Lecture 43 - Plate Tectonics and Mineralisation at Convergent Margins - VII
- Lecture 44 - Plate Tectonics and Mineralisation at Intraplate Tectono-Metallogenic System - VIII
- Lecture 45 - Plate Tectonics and Hydrocarbon Exploration - I
- Lecture 46 - Plate Tectonics and Hydrocarbon Exploration - II
- Lecture 47 - Plate Tectonics and Climate Change
- Lecture 48 - Stability of Triple Junction
- Lecture 49 - Volcano
- Lecture 50 - Volcano and its Products - I
- Lecture 51 - Volcano and its Products - II
- Lecture 52 - Himalayan Tectonics - I
- Lecture 53 - Himalayan Tectonics - II
- Lecture 54 - Indian Seismicity
- Lecture 55 - Neotectonics - I
- Lecture 56 - Neotectonics - II
- Lecture 57 - Continental Drift - I
- Lecture 58 - Continental Drift - II
- Lecture 59 - Seafloor Spreading
- Lecture 60 - Global Positioning System (GPS) and Plate

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Earthquake Geotechnical Engineering

Subject Co-ordinator - Prof. B.K. Maheshwari

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Engineering Seismology  
Lecture 4 - Engineering Seismology (Continued...)  
Lecture 5 - Strong Ground Motion  
Lecture 6 - Strong Ground Motion (Continued...)  
Lecture 7 - Seismic Hazard Analysis  
Lecture 8 - Seismic Hazard Analysis (Continued...)  
Lecture 9 - Wave Propagation  
Lecture 10 - Wave Propagation (Continued...)  
Lecture 11 - Stress Conditions  
Lecture 12 - Field Tests  
Lecture 13 - Field Tests (Continued...)  
Lecture 14 - Field Tests (Continued...)  
Lecture 15 - Laboratory Tests  
Lecture 16 - Laboratory Tests (Continued...)  
Lecture 17 - Laboratory Tests (Continued...)  
Lecture 18 - Constitutive Relationships of Soils  
Lecture 19 - Constitutive Relationships of Soils (Continued...)  
Lecture 20 - Constitutive Relationships of Soils (Continued...)  
Lecture 21 - One-Dimensional  
Lecture 22 - One-Dimensional (Continued...)  
Lecture 23 - One-Dimensional (Continued...)  
Lecture 24 - Two Dimensional  
Lecture 25 - Soil-Structure Interaction  
Lecture 26 - Soil-Structure Interaction (Continued...)  
Lecture 27 - Local Site Effects  
Lecture 28 - Local Site Effects (Continued...)  
Lecture 29 - Local Site Effects (Continued...)

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- Lecture 30 - Local Site Effects (Continued...)
- Lecture 31 - Introduction
- Lecture 32 - Liquefaction Susceptibility
- Lecture 33 - Liquefaction Susceptibility (Continued...)
- Lecture 34 - Initiation of Liquefaction
- Lecture 35 - Initiation of Liquefaction (Continued...)
- Lecture 36 - Initiation of Liquefaction (Continued...)
- Lecture 37 - Initiation of Liquefaction (Continued...)
- Lecture 38 - Initiation of Liquefaction (Continued...)
- Lecture 39 - Initiation of Liquefaction (Continued...)
- Lecture 40 - Effects of Liquefaction
- Lecture 41 - Slope Stability Analysis
- Lecture 42 - Slope Stability Analysis (Continued...)
- Lecture 43 - Slope Stability Analysis (Continued...)
- Lecture 44 - Slope Stability Analysis (Continued...)
- Lecture 45 - Slope Stability Analysis (Continued...)
- Lecture 46 - Introduction to Retaining Walls
- Lecture 47 - Static Pressure on Retaining Walls
- Lecture 48 - Static Pressure on Retaining Walls (Continued...)
- Lecture 49 - Design of Retaining Walls
- Lecture 50 - Design of Retaining Walls (Continued...)
- Lecture 51 - Slope Stability and Retaining Walls: Design of Retaining Walls
- Lecture 52 - Ground Improvement Techniques: Types of GIT
- Lecture 53 - Ground Improvement Techniques: Types of GIT
- Lecture 54 - Ground Improvement Techniques: Types of GIT
- Lecture 55 - Ground Improvement Techniques: Geosynthetics
- Lecture 56 - Ground Improvement Techniques: Geosynthetics
- Lecture 57 - Ground Improvement Techniques: Vertical Drains
- Lecture 58 - Ground Improvement Techniques: Vertical Drains
- Lecture 59 - Ground Improvement Techniques: Reinforced Fibers
- Lecture 60 - Ground Improvement Techniques: Verification and IS Code



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Ground Improvement Techniques

Subject Co-ordinator - Dr. G.L. Sivakumar Babu

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Need for Ground Improvement
- Lecture 2 - Classification of ground modification techniques
- Lecture 3 - Emerging trends in ground improvement
- Lecture 4 - Mechanical modification
- Lecture 5 - Compaction Control
- Lecture 6 - Deep compaction
- Lecture 7 - Dynamic compaction
- Lecture 8 - Vibro-compaction methods
- Lecture 9 - Case studies in stone columns
- Lecture 10 - Prefabricated Vertical Drains (PVDS) - I
- Lecture 11 - Prefabricated drains (PVDS) - II
- Lecture 12 - Dewatering - I
- Lecture 13 - Dewatering - II
- Lecture 14 - Electro-kinetic stabilization
- Lecture 15 - Heating and freezing methods, Blasting methods - I
- Lecture 16 - Heating and freezing methods, Blasting methods - II
- Lecture 17 - Ground Treatment with lime - I
- Lecture 18 - Ground Treatment with lime - II
- Lecture 19 - Ground treatment with cement
- Lecture 20 - Grouting procedures
- Lecture 21 - Grouting
- Lecture 22 - Micropiles
- Lecture 23 - Introduction to Geosynthetics - I
- Lecture 24 - Introduction to Geosynthetics - II
- Lecture 25 - Reinforced soil principles and mechanisms
- Lecture 26 - Material properties
- Lecture 27 - Factors affecting reinforced soil
- Lecture 28 - Bearing capacity improvement - I
- Lecture 29 - Bearing capacity improvement - II

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- Lecture 30 - Reinforced soil slopes
- Lecture 31 - Reinforced Soil Walls
- Lecture 32 - Reinforced Soil Walls - I
- Lecture 33 - Soil Nailing
- Lecture 34 - Design of embankments on soft soil using geosynthetics
- Lecture 35 - Design of embankments on soft soil using geocells, Use of geosynthetics for filtration and drainage
- Lecture 36 - Applications in filtration and drainage & erosion control
- Lecture 37 - Geosynthetics in pavements
- Lecture 38 - Sustainable development and energy geotechnology
- Lecture 39 - Microbial geotechnology and Ground Improvement
- Lecture 40 - Nano-technologies in ground improvement and site remediation

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Stochastic Hydrology

Subject Co-ordinator - Prof. P.P. Mujumdar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Bivariate Distributions
- Lecture 3 - Independence ; Functions of Random Variables
- Lecture 4 - Moments of a Distribution
- Lecture 5 - Normal Distribution
- Lecture 6 - Other Continuous Distributions
- Lecture 7 - Parameter Estimation
- Lecture 8 - Covariance and Correlation
- Lecture 9 - Data Generation
- Lecture 10 - Time Series Analysis (1)
- Lecture 11 - Time Series Analysis (2)
- Lecture 12 - Time Series Analysis (3)
- Lecture 13 - Frequency Domain Analysis (1)
- Lecture 14 - Frequency Domain Analysis (2) and ARIMA Models (1)
- Lecture 15 - ARIMA Models (2)
- Lecture 16 - ARIMA Models (3)
- Lecture 17 - ARIMA Models (4)
- Lecture 18 - Case Studies (1)
- Lecture 19 - Case Studies (2)
- Lecture 20 - Case Studies (3)
- Lecture 21 - Case Studies (4)
- Lecture 22 - Markov Chains (1)
- Lecture 23 - Markov Chains (2)
- Lecture 24 - Frequency Analysis (1)
- Lecture 25 - Frequency Analysis (2)
- Lecture 26 - Frequency Analysis (3) and Probability Plotting (1)
- Lecture 27 - Probability Plotting (2)
- Lecture 28 - Goodness of Fit
- Lecture 29 - IDF Relationships

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multiple Linear Regression
- Lecture 31 - Principal Component Analysis
- Lecture 32 - Regression on Principal Components
- Lecture 33 - Multivariate Stochastic Models (1)
- Lecture 34 - Multivariate Stochastic Models (2)
- Lecture 35 - Multivariate Stochastic Models (3)
- Lecture 36 - Data Consistency Checks (1)
- Lecture 37 - Data Consistency Checks (2)
- Lecture 38 - Data Consistency Checks (3)
- Lecture 39 - Recent Applications
- Lecture 40 - Summary of the Course

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Stochastic Structural Dynamics

Subject Co-ordinator - Prof. C.S. Manohar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition of probability measure and conditional probability
- Lecture 2 - Scalar random variables - 1
- Lecture 3 - Scalar random variables - 2
- Lecture 4 - Multi-dimensional random variables - 1
- Lecture 5 - Multi-dimensional random variables - 2
- Lecture 6 - Random processes - 1
- Lecture 7 - Random processes - 2
- Lecture 8 - Random processes - 3
- Lecture 9 - Random processes - 4, Random vibrations of sdof systems - 1
- Lecture 10 - Random processes - 4, Random vibrations of sdof systems - 1
- Lecture 11 - Random vibrations of sdof systems - 2
- Lecture 12 - Random vibrations of sdof systems - 3
- Lecture 13 - Random vibrations of sdof systems - 4
- Lecture 14 - Random vibrations of mdof systems - 1
- Lecture 15 - Random vibrations of mdof systems - 2
- Lecture 16 - Random vibrations of mdof systems - 3
- Lecture 17 - Random vibrations of mdof systems - 4
- Lecture 18 - Failure of randomly vibrating systems - 1
- Lecture 19 - Failure of randomly vibrating systems - 2
- Lecture 20 - Failure of randomly vibrating systems - 3
- Lecture 21 - Failure of randomly vibrating systems - 4
- Lecture 22 - Markov vector approach - 1
- Lecture 23 - Markov vector approach - 2
- Lecture 24 - Markov vector approach - 3
- Lecture 25 - Markov vector approach - 4
- Lecture 26 - Markov vector approach - 5, Monte Carlo simulation approach - 1
- Lecture 27 - Markov vector approach - 5 & Monte Carlo simulation approach - 1
- Lecture 28 - Monte Carlo simulation approach - 2
- Lecture 29 - Monte Carlo simulation approach - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Monte Carlo simulation approach - 4
- Lecture 31 - Monte Carlo simulation approach - 5
- Lecture 32 - Monte Carlo simulation approach - 6
- Lecture 33 - Monte Carlo simulation approach - 7
- Lecture 34 - Probabilistic methods in earthquake engineering - 1
- Lecture 35 - Probabilistic methods in earthquake engineering - 2
- Lecture 36 - Probabilistic methods in earthquake engineering - 3
- Lecture 37 - Probabilistic methods in earthquake engineering - 4
- Lecture 38 - Fatigue failure & Vibration energy flow models
- Lecture 39 - Problem solving session - 1
- Lecture 40 - Problem solving session - 2
- Lecture 41 - Problem solving session - 3
- Lecture 42 - Problem solving session - 4

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Water Resources Systems : Modeling Techniques and Analysis

Subject Co-ordinator - Prof. P.P. Mujumdar

Co-ordinating Institute - IISc - Bangalore

- Lecture 1 - Introduction
- Lecture 2 - Definitions and types of systems
- Lecture 3 - Optimization
- Lecture 4 - Optimization
- Lecture 5 - Constrained optimization (1)
- Lecture 6 - Constrained optimization (2)
- Lecture 7 - Kuhn-Tucker conditions and Introduction to Linear Programming
- Lecture 8 - Linear Programming
- Lecture 9 - Linear Programming
- Lecture 10 - Linear Programming
- Lecture 11 - Linear Programming
- Lecture 12 - Linear Programming
- Lecture 13 - Linear Programming
- Lecture 14 - Introduction to Dynamic Programming
- Lecture 15 - Dynamic Programming
- Lecture 16 - Dynamic Programming
- Lecture 17 - Dynamic Programming
- Lecture 18 - Simulation
- Lecture 19 - Multi-objective planning
- Lecture 20 - Reservoir sizing
- Lecture 21 - Reservoir capacity using Linear Programming (1)
- Lecture 22 - Reservoir capacity using Linear Programming (2)
- Lecture 23 - Reservoir operation
- Lecture 24 - Multi-reservoir systems
- Lecture 25 - Stationary policy using Dynamic Programming
- Lecture 26 - Hydropower generation
- Lecture 27 - Basic probability theory (1)
- Lecture 28 - Basic probability theory (2)
- Lecture 29 - Chance constrained Linear Programming for reservoir operation and design (1)
- Lecture 30 - Chance constrained Linear Programming for reservoir operation and design (2)
- Lecture 31 - Stochastic Dynamic Programming for reservoir operation (1)
- Lecture 32 - Stochastic Dynamic Programming for reservoir operation (2)
- Lecture 33 - Stochastic Dynamic Programming for reservoir operation (3)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 34 - Fuzzy optimization (1)
- Lecture 35 - Fuzzy optimization (2)
- Lecture 36 - Fuzzy optimization for water quality control and reservoir operation
- Lecture 37 - Conjunctive use of ground and surface water
- Lecture 38 - Hydropower optimization
- Lecture 39 - Crop yield optimization
- Lecture 40 - Multi-basin and multi-reservoir systems



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - Finite Element method for vibration and Stability analyses

Subject Co-ordinator - Prof. C.S. Manohar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Equations of motion using Hamilton's principle
- Lecture 2 - Equations of motion for continuous systems and Rayleigh's quotient
- Lecture 3 - Rayleigh Ritz method and method of weighted residuals
- Lecture 4 - FEM
- Lecture 5 - Beam elements. Reference system. Assembly of matrices. Imposition of BCS. Final equation of motion
- Lecture 6 - FE modelling of planar structures
- Lecture 7 - FE modelling of planar structures (Continued...)
- Lecture 8 - FRF-s and damping models-1
- Lecture 9 - FRF-s and damping models-2
- Lecture 10 - Material damping models. Dynamic stiffness and transfer matrices
- Lecture 11 - Twisting of circular bars and rectangular bars. Analysis of grids
- Lecture 12 - 3D frames
- Lecture 13 - Mathematical preliminaries and terminologies; Euler's forward and backward difference methods
- Lecture 14 - Forward and backward Euler method. Central difference method
- Lecture 15 - Second order implicit methods
- Lecture 16 - Energy conservation. Nonlinear systems
- Lecture 17 - Model reduction schemes
- Lecture 18 - Substructuring schemes
- Lecture 19 - Plane stress models
- Lecture 20 - Plane stress models (Continued...)
- Lecture 21 - 3d Solid element
- Lecture 22 - Axisymmetric models. Plate bending elements.
- Lecture 23 - Plate bending elements (Continued...)
- Lecture 24 - Plate bending elements (Continued...)
- Lecture 25 - Plate bending elements (Continued...)
- Lecture 26 - Introduction
- Lecture 27 - Introduction (Continued...)
- Lecture 28 - Nonlinear dynamical systems, fixed points and bifurcations
- Lecture 29 - Energy methods in stability analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - FEM for stability analysis. Euler-Bernoulli beam and general formulations
- Lecture 31 - 3D beam element; plate element; imperfection sensitive structures; beams on elastic foundations;
- Lecture 32 - Dynamic analysis of stability and analysis of time varying systems
- Lecture 33 - Dynamic analysis of stability and analysis of time varying systems
- Lecture 34 - FE modelling of vehicle structure interactions
- Lecture 35 - Inverse response sensitivity analysis
- Lecture 36 - Inverse response sensitivity analysis (Continued...)
- Lecture 37 - Introduction and review of continuum mechanics
- Lecture 38 - Review of measures of strain and stress; balance laws
- Lecture 39 - Total and updated Lagrangian formulations
- Lecture 40 - Closure

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Introduction to Engineering Seismology

Subject Co-ordinator - Dr. P. Anbazhagan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Earthquake hazard
- Lecture 3 - Different Earthquake Hazards
- Lecture 4 - Different Earthquake Hazards (Continued...)
- Lecture 5 - Earthquake Terminologies
- Lecture 6 - Plate Tectonics
- Lecture 7 - Faults; Seismic Sources
- Lecture 8 - Types of Earthquakes; Causes of Earthquakes
- Lecture 9 - Introduction to Wave Propagation
- Lecture 10 - Seismic Wave propagation;
- Lecture 11 - Instrumentation to record Earthquake
- Lecture 12 - Seismic Sensors
- Lecture 13 - Seismic Instrumentation in India
- Lecture 14 - Seismic Instrumentation in India (Continued...)
- Lecture 15 - Intensity scales of Earthquake
- Lecture 16 - Road Damage Intensity Scale; and Seismic Vulnerability assessment
- Lecture 17 - Quantification of Earthquake (magnitude)
- Lecture 18 - Energy released due to earthquakes
- Lecture 19 - Interpretation of Earthquake records; Baseline correction
- Lecture 20 - Interpretation of Earthquake records (Continued...); Time Domain Parameters
- Lecture 21 - Time Domain Parameters (Continued...)
- Lecture 22 - Duration parameters; Duration Prediction Equations
- Lecture 23 - Frequency Domain Characteristics; Response Spectrum
- Lecture 24 - Fourier Spectrum
- Lecture 25 - Seismic Source Parameters;
- Lecture 26 - Time history; response Spectra (design); Stochastic models
- Lecture 27 - Ground Motion Simulation models
- Lecture 28 - Prediction Relationships
- Lecture 29 - Recapitulation - 1

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Recapitulation - 2
- Lecture 31 - Recapitulation - 3
- Lecture 32 - Recapitulation - 4
- Lecture 33 - Recapitulation - 5
- Lecture 34 - Recapitulation - 6
- Lecture 35 - Recapitulation - 7
- Lecture 36 - Recapitulation - 8
- Lecture 37 - Earthquake Prediction
- Lecture 38 - Earthquake prediction (Continued...)
- Lecture 39 - Seismic Gap
- Lecture 40 - Earthquake Prediction (some Precautions)
- Lecture 41 - Seismic zonation and microzonation
- Lecture 42 - Seismic zonation and microzonation (Continued...)
- Lecture 43 - Seismic microzonation of various Indian cities
- Lecture 44 - Seismic microzonation of various Indian cities (Continued...)
- Lecture 45 - Global Equation model
- Lecture 46 - Global Earthquake risk map
- Lecture 47 - Seismic Microzonation of Bangalore
- Lecture 48 - Seismic Microzonation of Bangalore
- Lecture 49 - Seismic zonation of India
- Lecture 50 - IS 1893 version 2002 and 2016 explained
- Lecture 51 - Zonation Map of India
- Lecture 52 - Seismicity of India
- Lecture 53 - Seismicity of India
- Lecture 54 - SeismoTectonics of India - 1
- Lecture 55 - SeismoTectonics of India - 2
- Lecture 56 - SeismoTectonics of India - 3
- Lecture 57 - Seismic Hazard Analysis - Introduction
- Lecture 58 - SHA (Continued...) - Seismic Study area and Seismotectonic Map
- Lecture 59 - SHA (Continued...) - Seismic Data Collection
- Lecture 60 - SHA (Continued...) - Maximum Magnitude Estimation
- Lecture 61 - SHA - Source and Source-Site Distance
- Lecture 62 - SHA - Prediction Equation for India
- Lecture 63 - SHA - Selection of GMPE
- Lecture 64 - SHA - Estimation of Hazard

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Natural Language Processing

Subject Co-ordinator - Prof. Pushpak Bhattacharya

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Stages of NLP
- Lecture 3 - Stages of NLP Continue...
- Lecture 4 - Two approaches to NLP
- Lecture 5 - Sequence Labelling and Noisy Channel
- Lecture 6 - Noisy Channel
- Lecture 7 - Argmax Based Computation
- Lecture 8 - Noisy Channel Application to NLP
- Lecture 9 - Brief on Probabilistic Parsing & Start of Part of Speech Tagging
- Lecture 10 - Part of Speech Tagging
- Lecture 11 - Part of Speech Tagging counted ...
- Lecture 12 - Part of Speech Tagging counted ... and Indian Language in Focus; Morphology Analysis
- Lecture 13 - PoS Tagging contd... , Indian Language Consideration; Accuracy Measure
- Lecture 14 - PoS Tagging; Fundamental Principle; Why Challenging; accuracy
- Lecture 15 - PoS Tagging; Accuracy Measurement; Word categories
- Lecture 16 - AI and Probability; HMM
- Lecture 17 - HMM
- Lecture 18 - HMM, Viterbi, Forward Backward Algorithm
- Lecture 19 - HMM, Viterbi, Forward Backward Algorithm (Continued...)
- Lecture 20 - HMM, Forward Backward Algorithms, Baum Welch Algorithm
- Lecture 21 - HMM, Forward Backward Algorithms, Baum Welch Algorithm (Continued...)
- Lecture 22 - Natural Language Processing and Informational Retrieval
- Lecture 23 - CLIA; IR Basics
- Lecture 24 - IR Models
- Lecture 25 - IR Models
- Lecture 26 - NLP and IR
- Lecture 27 - Least Square Method; Recap of PCA; Towards Latent Semantic Indexing (LSI)
- Lecture 28 - PCA; SVD; Towards Latent Semantic Indexing (LSI)
- Lecture 29 - Wordnet and Word Sense Disambiguation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Wordnet and Word Sense Disambiguation (Continued...)
- Lecture 31 - Wordnet; Metonymy and Word Sense Disambiguation
- Lecture 32 - Word Sense Disambiguation
- Lecture 33 - Word Sense Disambiguation; Overlap Based Method; Supervised Method
- Lecture 34 - Word Sense Disambiguation
- Lecture 35 - Word Sense Disambiguation
- Lecture 36 - Resource Constrained WSD; Parsing
- Lecture 37 - Parsing
- Lecture 38 - Parsing Algorithm
- Lecture 39 - Parsing Ambiguous Sentences; Probabilistic Parsing
- Lecture 40 - Probabilistic Parsing Algorithms

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Design and Analysis of Algorithms

Subject Co-ordinator - Prof. Sundar Viswanathan, Prof. Ajit A Diwan, Prof. Abhiram G Ranade

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of the course
- Lecture 2 - Framework for Algorithms Analysis
- Lecture 3 - Algorithms Analysis Framework - II
- Lecture 4 - Asymptotic Notations
- Lecture 5 - Algorithm Design Techniques
- Lecture 6 - Divide And Conquer - I
- Lecture 7 - Divide And Conquer - II Median Finding
- Lecture 8 - Divide And Conquer - III Surfing Lower Bounds
- Lecture 9 - Divide And Conquer - IV Closest Pair
- Lecture 10 - Greedy Algorithms - I
- Lecture 11 - Greedy Algorithms - II
- Lecture 12 - Greedy Algorithms - III
- Lecture 13 - Greedy Algorithms - IV
- Lecture 14 - Pattern Matching - I
- Lecture 15 - Pattern Matching - II
- Lecture 16 - Combinational Search and Optimization - I
- Lecture 17 - Combinational Search and Optimization - II
- Lecture 18 - Dynamic Programming
- Lecture 19 - Longest Common Subsequences
- Lecture 20 - Matrix Chain Multiplication
- Lecture 21 - Scheduling with Startup and Holding Costs
- Lecture 22 - Average case Analysis of Quicksort
- Lecture 23 - Bipartite Maximum Matching
- Lecture 24 - Lower Bounds for Sorting
- Lecture 25 - Element Distinctness Lower Bounds
- Lecture 26 - NP-Completeness - I - Motivation
- Lecture 27 - NP-Completeness - II
- Lecture 28 - NP-Completeness - III
- Lecture 29 - NP-Completeness - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - NP-Completeness - V
- Lecture 31 - NP-Completeness - VI
- Lecture 32 - Approximation Algorithms
- Lecture 33 - Approximation Algorithms
- Lecture 34 - Approximation Algorithms for NP



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Software Engineering

Subject Co-ordinator - Prof. N.L. Sarda, Prof. Umesh Bellur, Prof. Rushikesh K Joshi

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Software Engineering - Challenges
- Lecture 2 - Introduction to Software Engineering
- Lecture 3 - Overview of Phases
- Lecture 4 - Overview of Phases
- Lecture 5 - Requirements Engineering / Specification
- Lecture 6 - Formal Specification
- Lecture 7 - Algebraic Specification Methods
- Lecture 8 - Systems Modeling Overview
- Lecture 9 - Process Modeling - DFD , Function Decomp
- Lecture 10 - Process Modeling - DFD, Function Decomp
- Lecture 11 - Data Modeling - ER Diagrams, Mapping
- Lecture 12 - Data Modeling - ER Diagrams, Mapping
- Lecture 13 - Production Quality Software - Introduction
- Lecture 14 - Software Design - Primary Consideration
- Lecture 15 - Design Patterns
- Lecture 16 - Class and Component Level Design
- Lecture 17 - Architectural Design
- Lecture 18 - Software Testing - I
- Lecture 19 - Software Testing - II
- Lecture 20 - Structural Programming and Some implementation
- Lecture 21 - Software Metrics and Quality
- Lecture 22 - Verification and Validation
- Lecture 23 - Case Study
- Lecture 24 - Case Study
- Lecture 25 - Software Evolution
- Lecture 26 - Agile Development
- Lecture 27 - Software Reuse CBSE
- Lecture 28 - Reuse Continued
- Lecture 29 - Introduction to Project Management

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Project Scope Management
- Lecture 31 - Project Time Management
- Lecture 32 - Estimation - I
- Lecture 33 - Estimation - II
- Lecture 34 - Project Quality Management
- Lecture 35 - Quality Management Systems - I
- Lecture 36 - Quality Management Systems
- Lecture 37 - Project Configuration Management
- Lecture 38 - Project Risk Management
- Lecture 39 - Other PM Processes

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Software Testing (2017)

Subject Co-ordinator - Prof. Meenakshi D'souza

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Motivation  
Lecture 2 - Terminologies  
Lecture 3 - Testing based on Models and Criteria  
Lecture 4 - Automation - JUnit as an example  
Lecture 5 - Basics of Graphs  
Lecture 6 - Structural Graph Coverage Criteria  
Lecture 7 - Elementary Graph Algorithms - Part 1  
Lecture 8 - Elementary Graph Algorithms - Part 2  
Lecture 9 - Algorithms  
Lecture 10 - Assignment 2  
Lecture 11 - Data Flow Graphs  
Lecture 12 - Algorithms  
Lecture 13 - Graph Coverage Criteria  
Lecture 14 - Testing Source Code  
Lecture 15 - Data Flow Graph Coverage Criteria  
Lecture 16 - Software Design and Integration Testing  
Lecture 17 - Design Integration Testing and Graph Coverage  
Lecture 18 - Specification Testing and Graph Coverage  
Lecture 19 - Graph Coverage and Finite state Machines  
Lecture 20 - Assignment 4  
Lecture 21 - Logic  
Lecture 22 - Logic  
Lecture 23 - Coverage Criteria, (Continued...)  
Lecture 24 - Logic Coverage Criteria  
Lecture 25 - Logic Coverage Criteria  
Lecture 26 - Logic Coverage Criteria  
Lecture 27 - Logic Coverage Criteria  
Lecture 28 - Logic Coverage Criteria  
Lecture 29 - Logic Coverage Criteria

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Week 6 Assignment Solving
- Lecture 31 - Functional Testing
- Lecture 32 - Input Space Partitioning
- Lecture 33 - Input Space Partitioning
- Lecture 34 - Input Space Partitioning Coverage Criteria
- Lecture 35 - Syntax-Based Testing
- Lecture 36 - Mutation Testing
- Lecture 37 - Mutation Testing for Programs
- Lecture 38 - Mutation Testing
- Lecture 39 - Mutation Testing Vs. Graphs and Logic Based Testing
- Lecture 40 - Assignment Solving for Week8
- Lecture 41 - Mutation testing
- Lecture 42 - Mutation Testing
- Lecture 43 - Mutation testing
- Lecture 44 - Software Testing Course
- Lecture 45 - Testing of web Applications and Web Services
- Lecture 46 - Testing of web Applications and Web Services
- Lecture 47 - Testing of web Applications and Web Services
- Lecture 48 - Testing of Object-Oriented Applications
- Lecture 49 - Testing of Object-Oriented Applications
- Lecture 50 - Symbolic Testing - 1
- Lecture 51 - Symbolic Testing - 2
- Lecture 52 - DART
- Lecture 53 - DART
- Lecture 54 - DART
- Lecture 55 - Testing of Object-Oriented Applications
- Lecture 56 - Testing of Mobile Applications
- Lecture 57 - Non-Functional System Testing
- Lecture 58 - Regression Testing
- Lecture 59 - Assignment
- Lecture 60 - Software Testing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Design and Pedagogy of the Introductory Programming

Subject Co-ordinator - Prof. Abhiram G Ranade

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview  
Lecture 2 - Introduction and Survey.0  
Lecture 3 - Introduction and Survey.1  
Lecture 4 - Introduction and Survey.2  
Lecture 5 - Basic Ideas in Our Approach.0  
Lecture 6 - Basic Ideas in Our Approach.1  
Lecture 7 - Basic Ideas in Our Approach.2  
Lecture 8 - Basic Ideas in Our Approach.3  
Lecture 9 - Basic Ideas in Our Approach.4  
Lecture 10 - Basic Ideas in Our Approach.5  
Lecture 11 - Basic Ideas in Our Approach.6  
Lecture 12 - Pedagogy.0  
Lecture 13 - Pedagogy.1  
Lecture 14 - Pedagogy.2  
Lecture 15 - Pedagogy.3  
Lecture 16 - Pedagogy.4  
Lecture 17 - Advanced Programming Topics.0  
Lecture 18 - Advanced Programming Topics.1  
Lecture 19 - Advanced Programming topics.2  
Lecture 20 - In class questions, Assignments, Examinations.0  
Lecture 21 - In class questions, Assignments, Examinations.1  
Lecture 22 - Summing up

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:An Introduction to Programming through C++

Subject Co-ordinator - Prof. Abhiram G Ranade

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Part 1  
Lecture 2 - Introduction - Part 2  
Lecture 3 - Introduction - Part 3  
Lecture 4 - Introduction - Part 4  
Lecture 5 - Problem Solving using Computer - Part 1  
Lecture 6 - Problem Solving using Computer - Part 2  
Lecture 7 - Problem Solving using Computer - Part 3  
Lecture 8 - Problem Solving using Computer - Part 4  
Lecture 9 - Problem Solving using Computer - Part 5  
Lecture 10 - Basic Elements of Program - Part 1  
Lecture 11 - Basic Elements of Program - Part 2  
Lecture 12 - Basic Elements of Program - Part 3  
Lecture 13 - Basic Elements of Program - Part 4  
Lecture 14 - Program Design - Part 1  
Lecture 15 - Program Design - Part 2  
Lecture 16 - Program Design - Part 3  
Lecture 17 - Simple cpp Graphics  
Lecture 18 - Conditional Execution - Part 1  
Lecture 19 - Most general form of if - Part 2  
Lecture 20 - More general form of conditions - Part 3  
Lecture 21 - A somewhat large program example - Part 4  
Lecture 22 - Switch statement and logical data - Part 5  
Lecture 23 - Loops - Part 1  
Lecture 24 - Mark averaging - Part 2  
Lecture 25 - The break and continue statements - Part 3  
Lecture 26 - The for statement - Part 4  
Lecture 27 - Euclid's algorithm for GCD - Part 5  
Lecture 28 - Correctness proof for GCD - Part 6  
Lecture 29 - Computing Mathematical Functions - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Computing Mathematical Functions - Part 2
- Lecture 31 - Computing Mathematical Functions - Part 3
- Lecture 32 - Computing Mathematical Functions - Part 4
- Lecture 33 - Loops in various applications - Part 1
- Lecture 34 - Loops in various applications - Part 2
- Lecture 35 - Loops in various applications - Part 3
- Lecture 36 - Loops in various applications - Part 4
- Lecture 37 - Loops in various applications - Part 5
- Lecture 38 - Functions - Part 1
- Lecture 39 - Functions - Part 2
- Lecture 40 - Functions - Part 3
- Lecture 41 - Functions - Part 4
- Lecture 42 - Functions - Part 5
- Lecture 43 - Recursion - Part 1
- Lecture 44 - Recursion - Part 2
- Lecture 45 - Recursion - Part 3
- Lecture 46 - Virahanka Numbers - Part 1
- Lecture 47 - Virahanka Numbers - Part 2
- Lecture 48 - Virahanka Numbers - Part 3
- Lecture 49 - Program Organization and Functions - Part 1
- Lecture 50 - Program Organization and Functions - Part 2
- Lecture 51 - Program Organization and Functions - Part 3
- Lecture 52 - Program Organization and Functions - Part 4
- Lecture 53 - Advanced Features of Functions - Part 1
- Lecture 54 - Advanced Features of Functions - Part 2
- Lecture 55 - Advanced Features of Functions - Part 3
- Lecture 56 - Advanced Features of Functions - Part 4
- Lecture 57 - Array Part-1 - Part 1
- Lecture 58 - Array Part-1 - Part 2
- Lecture 59 - Array Part-1 - Part 3
- Lecture 60 - Array Part-1 - Part 4
- Lecture 61 - Array Part-1 - Part 5
- Lecture 62 - Array Part-1 - Part 6
- Lecture 63 - Array Part-1 - Part 7
- Lecture 64 - Array Part-1 - Part 8
- Lecture 65 - Array Part-1 - Part 9
- Lecture 66 - Array Part-2 - Part 1
- Lecture 67 - Array Part-2 - Part 2
- Lecture 68 - Array Part-2 - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Array Part-2 - Part 4
- Lecture 70 - More on Arrays - Part 1
- Lecture 71 - More on Arrays - Part 2
- Lecture 72 - More on Arrays - Part 3
- Lecture 73 - More on Arrays - Part 4
- Lecture 74 - Arrays and recursion - Part 1
- Lecture 75 - Arrays and recursion - Part 2
- Lecture 76 - Arrays and recursion - Part 3
- Lecture 77 - Arrays and recursion - Part 4
- Lecture 78 - Arrays and recursion - Part 5
- Lecture 79 - Structures - Part 1
- Lecture 80 - Structures - Part 2
- Lecture 81 - Structures - Part 3
- Lecture 82 - Structures - Part 4
- Lecture 83 - Structures Part 2 - Part 1
- Lecture 84 - Structures Part 2 - Part 2
- Lecture 85 - Structures Part 2 - Part 3
- Lecture 86 - Classes - Part 1
- Lecture 87 - Classes - Part 2
- Lecture 88 - Classes - Part 3
- Lecture 89 - Classes - Part 4
- Lecture 90 - Classes - Part 5
- Lecture 91 - Classes - Part 6
- Lecture 92 - Representing variable length entities - Part 1
- Lecture 93 - Representing variable length entities - Part 2
- Lecture 94 - Representing variable length entities - Part 3
- Lecture 95 - Representing variable length entities - Part 4
- Lecture 96 - Representing variable length entities - Part 5
- Lecture 97 - Representing variable length entities - Part 6
- Lecture 98 - Representing variable length entities - Part 7
- Lecture 99 - The Standard Library - Part 1
- Lecture 100 - The Standard Library - Part 2
- Lecture 101 - The Standard Library - Part 3
- Lecture 102 - The Standard Library - Part 4
- Lecture 103 - The Standard Library - Part 5
- Lecture 104 - Data structure based programming - Part 1
- Lecture 105 - Data structure based programming - Part 2
- Lecture 106 - Data structure based programming - Part 3
- Lecture 107 - Data structure based programming - Part 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Data structure based programming - Part 5
- Lecture 109 - Medium size programs - Part 1
- Lecture 110 - Medium size programs - Part 2
- Lecture 111 - Medium size programs - Part 3
- Lecture 112 - Medium size programs - Part 4
- Lecture 113 - A graphical editor and solver for circuits - Part 1
- Lecture 114 - A graphical editor and solver for circuits - Part 2
- Lecture 115 - A graphical editor and solver for circuits - Part 3
- Lecture 116 - A graphical editor and solver for circuits - Part 4
- Lecture 117 - Cosmological simulation - Part 1
- Lecture 118 - Cosmological simulation - Part 2
- Lecture 119 - Cosmological simulation - Part 3
- Lecture 120 - Cosmological simulation - Part 4

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Demystifying Networking

Subject Co-ordinator - Prof.Sridhar Iyer

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Analogy for CEO's Problem
- Lecture 3 - Discussing the CEO's Problem
- Lecture 4 - From the CEO's Company to Layers in a Network
- Lecture 5 - Layers in Detail
- Lecture 6 - Layered Nature of a Network
- Lecture 7 - Introduction to Internet Data Capturing using Wireshark
- Lecture 8 - Network data captured while requesting a website
- Lecture 9 - What is Cisco Packet Tracer
- Lecture 10 - Modes of Cisco Packet Tracer
- Lecture 11 - Getting Cisco Packet Tracer
- Lecture 12 - Logical and Physical Typologies in Cisco Packet Tracer
- Lecture 13 - Devices on Cisco Packet Tracer
- Lecture 14 - Introduction to the Cisco Packet Tracer Activity for Week 1
- Lecture 15 - Introduction to the campus network on Cisco Packet Tracer
- Lecture 16 - Loading the page in Simulation Mode
- Lecture 17 - Inspecting the packets in Simulation Mode
- Lecture 18 - Editing the dummy website on Cisco Packet Tracer
- Lecture 19 - Summary of the Cisco Packet Tracer Activity
- Lecture 20 - Introduction to Anupam's Adventure
- Lecture 21 - Anupam's adventure brings us to IP Addressing
- Lecture 22 - Addressing at various layers
- Lecture 23 - IP Addresses
- Lecture 24 - Address Translation
- Lecture 25 - Introduction to IP Addressing
- Lecture 26 - Creating a network with Sub-net mask
- Lecture 27 - Nomenclature of a sub-net mask
- Lecture 28 - Network addresses and Private networks
- Lecture 29 - Introduction to the Addressing Topology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Addressing a local network and DHCP
- Lecture 31 - Addressing a local network manually
- Lecture 32 - Addressing in Public and Private Networks
- Lecture 33 - Verifying Connectivity using Ping
- Lecture 34 - Using network address translation to communicate on internet
- Lecture 35 - Using Sub nets and Summary of addressing
- Lecture 36 - Summary of the week
- Lecture 37 - Analogy for the week 2
- Lecture 38 - Discussion on dabbawala analogy
- Lecture 39 - From dabbawalas to routers and switches
- Lecture 40 - What is routing ?
- Lecture 41 - Static routing in a router in CPT
- Lecture 42 - How does a switch forwards packets CPT
- Lecture 43 - How to add static route in a router? (CPT)
- Lecture 44 - Traveler's dilemma
- Lecture 45 - Duscussing the Traveler's dilemma
- Lecture 46 - From Traveler's dilemma to Dynamic Routing
- Lecture 47 - Dynamic Routing with Distance Vector
- Lecture 48 - Distance Vector Routing in Detail
- Lecture 49 - Dynamic Routing with Link State
- Lecture 50 - Setting up dynamic routing in Packet Tracer
- Lecture 51 - Summary of the week
- Lecture 52 - Introduction to analogy for week 3
- Lecture 53 - Analogy for week 3
- Lecture 54 - Questions on analogy for week 3
- Lecture 55 - Understanding the new order requirements
- Lecture 56 - Introduction to Transport Layer
- Lecture 57 - Introduction to TCP
- Lecture 58 - Introduction to UDP
- Lecture 59 - Exploring UDP on Cisco Packet Tracer
- Lecture 60 - TCP Connection Establishment
- Lecture 61 - TCP Connection Closure
- Lecture 62 - Summay of TCP and UDP on Cisco Packet Tracer
- Lecture 63 - The story of the delivery fiasco
- Lecture 64 - From delivery fisaco to Port Numbers
- Lecture 65 - Application Layer in depth
- Lecture 66 - Port number in Wireshark
- Lecture 67 - Summary of port number and PAT
- Lecture 68 - Summary of the entire TCP IP stack

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Introducing the analogy for week 4
- Lecture 70 - The secret box
- Lecture 71 - Questions on analogy for week 4
- Lecture 72 - Secret of the secret box
- Lecture 73 - From secret box to encryption
- Lecture 74 - Introduction to security and CIA
- Lecture 75 - Information Security and Defence in Depth
- Lecture 76 - Information Classification and Access Control
- Lecture 77 - Process Management
- Lecture 78 - Introduction to Network Security
- Lecture 79 - Network Breach and Countermeasures
- Lecture 80 - Internet Security
- Lecture 81 - Securing the Internet Usage
- Lecture 82 - Internet Security Products
- Lecture 83 - Personal Computing Device Recommendations
- Lecture 84 - Responsible Behavior on the Internet
- Lecture 85 - Best practices for home Network and Media Devices
- Lecture 86 - Closing thoughts on security
- Lecture 87 - The story of a family trip
- Lecture 88 - The troubleshooting approach
- Lecture 89 - Troubleshooting Physical and Data Link Layers
- Lecture 90 - Troubleshooting Network Layer
- Lecture 91 - Troubleshooting Transport and Application Layers
- Lecture 92 - Troubleshooting Summary
- Lecture 93 - Troubleshooting Heuristics
- Lecture 94 - Troubleshooting Challenge - 1
- Lecture 95 - Troubleshooting challenge - 2
- Lecture 96 - Troubleshooting Challenge - 3
- Lecture 97 - Thats How we Troubleshoot
- Lecture 98 - Week Summary
- Lecture 99 - Course Closure
- Lecture 100 - Course Credits

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Learning Analytics Tools

Subject Co-ordinator - Prof. Ramkumar Rajendran

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Intro to Data Analytics. What is Learning Analytics?  
Lecture 2 - Academic Analytics, and Educational Data Mining  
Lecture 3 - Four Levels of Analytics  
Lecture 4 - Four Levels of Learning Analytics Overview - II  
Lecture 5 - Data Collection from Different learning environment  
Lecture 6 - Data collection in TELE  
Lecture 7 - Data Preprocessing  
Lecture 8 - Ethics in Learning Analytics, Student Privacy  
Lecture 9 - Demo of Weka  
Lecture 10 - Introduction to Machine Learning - Part 1  
Lecture 11 - Introduction to Machine Learning - Part 2  
Lecture 12 - Training and testing data  
Lecture 13 - Performance Metrics - I  
Lecture 14 - Performance Metrics - II  
Lecture 15 - Performance Metrics - III  
Lecture 16 - Demo of Orange  
Lecture 17 - Descriptive Analytics - I  
Lecture 18 - Descriptive Analytics - II  
Lecture 19 - Charts - I  
Lecture 20 - Charts - II  
Lecture 21 - Charts - III  
Lecture 22 - Comparing Charts  
Lecture 23 - Descriptive Analytics â Example I  
Lecture 24 - Descriptive Analytics â Example II  
Lecture 25 - Excel tool  
Lecture 26 - Diagnostics Analytics  
Lecture 27 - Correlation  
Lecture 28 - Correlation Matrix  
Lecture 29 - Spearmanâ s Rank Correlation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Data Mining
- Lecture 31 - iSAT
- Lecture 32 - Diagnostic Analytics - SPM
- Lecture 33 - Sequential pattern mining (SPM-II)
- Lecture 34 - Differential Sequence Mining (DSM)
- Lecture 35 - Process Mining
- Lecture 36 - Diagnostic Analytics - Clustering
- Lecture 37 - K-means Clustering
- Lecture 38 - Hierarchical Clustering
- Lecture 39 - Clustering - Examples
- Lecture 40 - Predictive Analytics
- Lecture 41 - Linear Regression
- Lecture 42 - Multiple Regression
- Lecture 43 - Logistic Regression
- Lecture 44 - Linear Regression - Example
- Lecture 45 - Predictive Analytics - II
- Lecture 46 - Naive Bayes Classifier
- Lecture 47 - Decision Tree
- Lecture 48 - Decision Tree Classifier
- Lecture 49 - DT, NB - Examples
- Lecture 50 - Text Analytics
- Lecture 51 - Introduction to NLP
- Lecture 52 - NLP-II
- Lecture 53 - NLP-Tools
- Lecture 54 - NLP-Examples
- Lecture 55 - Intro Multimodal Learning Analytics
- Lecture 56 - Affective Computing - 1
- Lecture 57 - Affective Computing - 2
- Lecture 58 - Eye Tracking
- Lecture 59 - Revision of Learning Analytics tools course
- Lecture 60 - Source of Data collection and Research Community
- Lecture 61 - Machine Learning tools used in industry

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Design and Engineering of Computer Systems

Subject Co-ordinator - Prof. Mythili Vutukuru

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Computer Systems  
Lecture 2 - Principles of Computer Systems Design  
Lecture 3 - Overview of CPU hardware  
Lecture 4 - Overview of memory and I/O hardware  
Lecture 5 - Introduction to Operating Systems  
Lecture 6 - Week 1: Tutorial 1  
Lecture 7 - Week 1: Tutorial 2  
Lecture 8 - Processes  
Lecture 9 - Kernel mode execution  
Lecture 10 - Threads  
Lecture 11 - CPU scheduling policies  
Lecture 12 - Virtual machines and containers  
Lecture 13 - Week 2: Tutorial 1  
Lecture 14 - Week 2: Tutorial 2  
Lecture 15 - Week 2: Tutorial 3  
Lecture 16 - Memory management in OS  
Lecture 17 - Paging  
Lecture 18 - Demand paging  
Lecture 19 - File system and memory  
Lecture 20 - Optimizing memory access  
Lecture 21 - Week 3: Tutorial 1  
Lecture 22 - Week 3: Tutorial 2  
Lecture 23 - Week 3: Tutorial 3  
Lecture 24 - Filesystem Datastructures  
Lecture 25 - Filesystem Implementation  
Lecture 26 - Network I/O via Sockets  
Lecture 27 - Network I/O Implementation  
Lecture 28 - Memory and I/O virtualization  
Lecture 29 - Week 4: Tutorial 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Week 4: Tutorial 2
- Lecture 31 - Introduction to computer networking
- Lecture 32 - Internet Routing and Forwarding
- Lecture 33 - Transport protocols
- Lecture 34 - Application layer protocols
- Lecture 35 - Network Security
- Lecture 36 - Week 5: Tutorial 1
- Lecture 37 - Week 5: Tutorial 2
- Lecture 38 - Multithreaded application design
- Lecture 39 - Inter-process communication
- Lecture 40 - Multi-tier application design
- Lecture 41 - Examples of end-to-end systems design
- Lecture 42 - Deployment of computer systems
- Lecture 43 - Week 6: Tutorial 1
- Lecture 44 - Week 6: Tutorial 2
- Lecture 45 - Performance measurement
- Lecture 46 - Performance analysis
- Lecture 47 - Performance profiling and optimization
- Lecture 48 - Caching
- Lecture 49 - Performance scalability
- Lecture 50 - Week 7: Tutorial 1
- Lecture 51 - Fault tolerance and reliability
- Lecture 52 - Replication and consistency
- Lecture 53 - Atomicity
- Lecture 54 - Distributed transactions
- Lecture 55 - Case studies of distributed systems design



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Software Conceptual Design

Subject Co-ordinator - Prof. Sridhar Iyer, Prof. Prajish Prasad, Prof. T. G. Lakshmi

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Game Theory and Mechanism Design

Subject Co-ordinator - Prof. Swaprava Nath

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction: Game Theory
- Lecture 2 - Introduction: Mechanism Design
- Lecture 3 - The game of chess
- Lecture 4 - Proof of the chess theorem
- Lecture 5 - Normal form games
- Lecture 6 - Dominance
- Lecture 7 - Nash equilibrium
- Lecture 8 - Maxmin strategies
- Lecture 9 - Elimination of dominated strategies
- Lecture 10 - Preservation of PSNE
- Lecture 11 - Matrix games
- Lecture 12 - Relation between Maxmin and PSNE in matrix
- Lecture 13 - Mixed strategies
- Lecture 14 - Mixed strategy Nash equilibrium (MSNE)
- Lecture 15 - Find MSNE
- Lecture 16 - MSNE characterization theorem proof
- Lecture 17 - Algorithm to find MSNE
- Lecture 18 - Correlated equilibrium (CE)
- Lecture 19 - Computing correlated equilibrium
- Lecture 20 - Extensive form games
- Lecture 21 - Subgame perfection
- Lecture 22 - Limitations of SPNE
- Lecture 23 - Imperfect Information Extensive Form Games (IIEFG)
- Lecture 24 - Strategies in IIEFGs
- Lecture 25 - Equivalence of Strategies in IIEFGs
- Lecture 26 - Perfect Recall
- Lecture 27 - Equilibrium in IIEFG
- Lecture 28 - Game Theory in Practice: P2P file sharing
- Lecture 29 - Bayesian Games

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strategy, Utility in Bayesian Games
- Lecture 31 - Equilibrium in Bayesian Games
- Lecture 32 - Examples of Bayesian Equilibrium
- Lecture 33 - Introduction to Mechanism Design
- Lecture 34 - Revelation Principle
- Lecture 35 - Introduction to Arrow's Impossibility Result
- Lecture 36 - Proof of Arrow's Result
- Lecture 37 - Introduction to the Social Choice Setup
- Lecture 38 - Introduction to Gibbard-Satterthwaite Theorem
- Lecture 39 - Proof of Gibbard-Satterthwaite Theorem
- Lecture 40 - Domain Restriction
- Lecture 41 - Median Voting Rule
- Lecture 42 - Median Voter Theorem - Part 1
- Lecture 43 - Median Voter Theorem - Part 2
- Lecture 44 - The Task Sharing Domain
- Lecture 45 - The Uniform Rule
- Lecture 46 - Mechanism Design with Transfers
- Lecture 47 - Examples of Quasi-linear Preferences
- Lecture 48 - Pareto Optimality and Groves Payments
- Lecture 49 - Introduction to VCG Mechanism
- Lecture 50 - VCG in Combinatorial Allocations
- Lecture 51 - Applications to Internet Advertising
- Lecture 52 - Slot Allocation and Payments in Position
- Lecture 53 - Pros and Cons of VCG Mechanism
- Lecture 54 - Affine Maximizers
- Lecture 55 - Single Object Allocation
- Lecture 56 - Myerson's Lemma
- Lecture 57 - Illustration of Myerson's Lemma
- Lecture 58 - Optimal Mechanism Design
- Lecture 59 - Single Agent Optimal Mechanism Design
- Lecture 60 - Multiple Agent Optimal Mechanism Design
- Lecture 61 - Examples of Optimal Mechanisms
- Lecture 62 - Endnotes and Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Computer and Network Performance

Subject Co-ordinator - Prof. Varsha Apte

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, why do delays happen, contention for resources
- Lecture 2 - Performance metrics and parameters
- Lecture 3 - Introducing Queuing Systems
- Lecture 4 - Memoryless Distributions
- Lecture 5 - Operational Laws
- Lecture 6 - Asymptotic Analysis of G/G/1, G/G/1/K queues
- Lecture 7 - Asymptotic Analysis of G/G/c/K queues
- Lecture 8 - Little's Law
- Lecture 9 - Little's Law examples and A Case Study of Open Load test on a Web server
- Lecture 10 - Some results for M/G/1 queue and Memoryless Arrivals
- Lecture 11 - Continuing the Case Study of Open Load test on a web server (Response Time)
- Lecture 12 - Open queuing networks - tandem queuing network
- Lecture 13 - Open queuing networks - general (Jackson) queuing networks
- Lecture 14 - Open queuing networks - examples
- Lecture 15 - Closed Queuing Systems
- Lecture 16 - Closed Queuing System (Continued...)
- Lecture 17 - Case study of Closed Load Test on a Web Server
- Lecture 18 - General formulation of Jacksonian Closed Queuing Networks
- Lecture 19 - Mean Value Analysis for Closed Queuing Networks
- Lecture 20 - Mean Value Analysis examples, Case Study of a Load test on a web server, Closing Remarks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Games and Information

Subject Co-ordinator - Prof. Ankur A. Kulkarni

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, why do delays happen, contention for resources
- Lecture 2 - Performance metrics and parameters
- Lecture 3 - Introducing Queuing Systems
- Lecture 4 - Memoryless Distributions
- Lecture 5 - Operational Laws
- Lecture 6 - Aumann model of incomplete information: Definition and Examples
- Lecture 7 - Knowledge operator: Definition and Examples
- Lecture 8 - Common knowledge: Definition and Examples
- Lecture 9 - The structural theorem of common knowledge
- Lecture 10 - Proof of the structural theorem (forward direction)
- Lecture 11 - Proof of the structural theorem (backward direction)
- Lecture 12 - Aumann model of incomplete information with belief: Definition and Examples
- Lecture 13 - Aumann's agreement theorem
- Lecture 14 - Zero-sum game definition and Security strategies
- Lecture 15 - Saddle point strategies
- Lecture 16 - Further properties of saddle point strategies
- Lecture 17 - Mixed strategies
- Lecture 18 - Weierstrass lemma and existence of a mixed saddle point strategy
- Lecture 19 - Von Neumann minmax theorem
- Lecture 20 - Computing mixed saddle point strategy: Holmes and Moriarty
- Lecture 21 - Computing mixed strategy saddle point: 2X2 matrix game
- Lecture 22 - Computing mixed strategy saddle point: 2X3 matrix game
- Lecture 23 - Nash equilibrium of a non zero-sum game and its relation with Kakutani fixed
- Lecture 24 - Proof: Existence of Nash equilibrium (Condition 1 of Kakutani fixed point)
- Lecture 25 - Proof: Existence of Nash equilibrium (Condition 2 of Kakutani fixed point)
- Lecture 26 - Existence of Nash equilibrium for infinite strategy space (Using Brouwer's)
- Lecture 27 - Quantal Response: Motivation
- Lecture 28 - Quantal Response: Formal model
- Lecture 29 - Dynamic games definition

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Solution concept in dynamic games
- Lecture 31 - Relation of the heuristic solution with the Nash equilibrium of the standard
- Lecture 32 - Example of a Threat equilibrium
- Lecture 33 - Interpreting the threat equilibrium in standard normal form of the dynamic game
- Lecture 34 - Extensive form games - I
- Lecture 35 - Extensive form games - II
- Lecture 36 - Single Act Games
- Lecture 37 - Informationally inferior games
- Lecture 38 - Information Structure in Single Act Games
- Lecture 39 - Nested and Ladder Nested Extensive form games
- Lecture 40 - Equilibrium Algorithm
- Lecture 41 - Stage-wise multi act games
- Lecture 42 - Feedback equilibrium
- Lecture 43 - Mixed and Behavioral Strategies
- Lecture 44 - Conditions for equivalence for mixed and behavioral strategies
- Lecture 45 - Kuhn's Theorem - I
- Lecture 46 - Kuhn's Theorem - II
- Lecture 47 - Kuhn's Theorem - III
- Lecture 48 - Games of incomplete information
- Lecture 49 - Bayesian Nash equilibrium - I
- Lecture 50 - Bayesian Nash equilibrium - II
- Lecture 51 - Self-enforcement of Nash equilibrium
- Lecture 52 - Stackelberg game
- Lecture 53 - Principal-Agent Models - I
- Lecture 54 - Principal-Agent Models - II
- Lecture 55 - Moral Hazard and Adverse selection
- Lecture 56 - Games with contracts
- Lecture 57 - Correlated Equilibrium - I
- Lecture 58 - Correlated Equilibrium - II
- Lecture 59 - Correlated Equilibrium - III
- Lecture 60 - Bayesian Game with mediated communication
- Lecture 61 - Revelation Principle

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Computational Geometry

Subject Co-ordinator - Prof. Sandeep Sen

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Visibility Problems
- Lecture 3 - 2D Maxima
- Lecture 4 - Line Sweep Method
- Lecture 5 - Segment Intersection Problem
- Lecture 6 - Line Sweep
- Lecture 7 - Convex Hull
- Lecture 8 - Convex Hull Contd
- Lecture 9 - Quick Hull
- Lecture 10 - More Convex Hull Algorithms
- Lecture 11 - Intersection of Half Planes and Duality
- Lecture 12 - Intersection of Half Planes and Duality Contd
- Lecture 13 - Lower Bounds
- Lecture 14 - Planar Point Location
- Lecture 15 - Point Location and Triangulation Contd...
- Lecture 16 - Triangulation of Arbitrary Polygon
- Lecture 17 - Voronoi Diagram
- Lecture 18 - Voronoi Diagram Construction
- Lecture 19 - Delaunay Triangulation
- Lecture 20 - Quick sort and Backward Analysis
- Lecture 21 - Generalized RIC
- Lecture 22 - RIC Continued
- Lecture 23 - Arrangements
- Lecture 24 - Zone Theorem and Application
- Lecture 25 - Levels
- Lecture 26 - Range Searching
- Lecture 27 - Orthogonal Range searching
- Lecture 28 - Priority Search Trees
- Lecture 29 - Non - Orthogonal Range Searching

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Half - Plane Range Query
- Lecture 31 - Well Separated Partitioning
- Lecture 32 - Quadtrees Epsilon -WSPD
- Lecture 33 - Construction of Epsilon - WSPD
- Lecture 34 - Epsilon - WSPD to Geometric Spanner
- Lecture 35 - Epsilon-Nets & VC Dimension
- Lecture 36 - Epsilon-Nets & VC Dimension contd
- Lecture 37 - Geometric Set Cover
- Lecture 38 - Geometric Set Cover (with Bounded VC Dimension)
- Lecture 39 - Shape Representation
- Lecture 40 - Shape Comparison



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Logic for CS

Subject Co-ordinator - Prof. S. Arun Kumar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Propositional Logic Syntax  
Lecture 3 - Semantics of Propositional Logic  
Lecture 4 - Logical and Algebraic Concepts  
Lecture 5 - Identities and Normal forms  
Lecture 6 - Tautology Checking  
Lecture 7 - Propositional Unsatisfiability  
Lecture 8 - Analytic Tableaux  
Lecture 9 - Consistency and Completeness  
Lecture 10 - The Completeness Theorem  
Lecture 11 - Maximally Consistent Sets  
Lecture 12 - Formal Theories  
Lecture 13 - Proof Theory  
Lecture 14 - Derived Rules  
Lecture 15 - The Hilbert System  
Lecture 16 - The Hilbert System  
Lecture 17 - Introduction to Predicate Logic  
Lecture 18 - The Semantic of Predicate Logic  
Lecture 19 - Substitutions  
Lecture 20 - Models  
Lecture 21 - Structures and Substructures  
Lecture 22 - First-Order Theories  
Lecture 23 - Predicate Logic  
Lecture 24 - Existential Quantification  
Lecture 25 - Normal Forms  
Lecture 26 - Skolemization  
Lecture 27 - Substitutions and Instantiations  
Lecture 28 - Unification  
Lecture 29 - Resolution in FOL

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - More on Resolution in FOL
- Lecture 31 - Resolution
- Lecture 32 - Resolution and Tableaux
- Lecture 33 - Completeness of Tableaux Method
- Lecture 34 - Completeness of the Hilbert System
- Lecture 35 - First-Order Theories
- Lecture 36 - Towards Logic Programming
- Lecture 37 - Verification of Imperative Programs
- Lecture 38 - Verification of WHILE Programs
- Lecture 39 - References

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Computer Architecture (Prof. Anshul Kumar)

Subject Co-ordinator - Prof. Anshul Kumar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Computer Architecture
- Lecture 2 - History of Computers
- Lecture 3 - Instruction Set Architecture - I
- Lecture 4 - Instruction Set Architecture - II
- Lecture 5 - Instruction Set Architecture - III
- Lecture 6 - Recursive Programs
- Lecture 7 - Architecture Space
- Lecture 8 - Architecture Examples
- Lecture 9 - Performance
- Lecture 10 - Performance
- Lecture 11 - Binary Arithmetic, ALU Design
- Lecture 12 - ALU Design, Overflow
- Lecture 13 - Multiplier Design
- Lecture 14 - Divider Design
- Lecture 15 - Fast Addition , Multiplication
- Lecture 16 - Floating Point Arithmetic
- Lecture 17 - Processor Design - Introduction
- Lecture 18 - Processor Design
- Lecture 19 - Processor Design - Simple Design
- Lecture 20 - Processor Design - Multi Cycle Approach
- Lecture 21 - Processor Design - Control for Multi Cycle
- Lecture 22 - Processor Design - Micro programmed Control
- Lecture 23 - Processor Design - Exception Handling
- Lecture 24 - Pipelined Processor Design Basic Idea
- Lecture 25 - Pipelined Processor Design
- Lecture 26 - Pipelined Processor Design
- Lecture 27 - Pipelined Processor Design
- Lecture 28 - Memory Hierarchy
- Lecture 29 - Memory Hierarchy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Memory Hierarchy
- Lecture 31 - Memory Hierarchy
- Lecture 32 - Memory Hierarchy
- Lecture 33 - Input / Output Subsystem
- Lecture 34 - Input / Output Subsystem
- Lecture 35 - Input / Output Subsystem
- Lecture 36 - Input / Output Subsystem
- Lecture 37 - Input / Output Subsystem
- Lecture 38 - Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Data Structures And Algorithms

Subject Co-ordinator - Prof. Naveen Garg

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Data Structures and Algorithms

Lecture 2 - Stacks

Lecture 3 - Queues and Linked Lists

Lecture 4 - Dictionaries

Lecture 5 - Hashing

Lecture 6 - Trees

Lecture 7 - Tree Walks / Traversals

Lecture 8 - Ordered Dictionaries

Lecture 9 - Deletion

Lecture 10 - Quick Sort

Lecture 11 - AVL Trees

Lecture 12 - AVL Trees

Lecture 13 - Trees

Lecture 14 - Red Black Trees

Lecture 15 - Insertion in Red Black Trees

Lecture 16 - Disk Based Data Structures

Lecture 17 - Case Study

Lecture 18 - Tries

Lecture 19 - Data Compression

Lecture 20 - Priority Queues

Lecture 21 - Binary Heaps

Lecture 22 - Why Sorting

Lecture 23 - More Sorting

Lecture 24 - Graphs

Lecture 25 - Data Structures for Graphs

Lecture 26 - Two Applications of Breadth First Search

Lecture 27 - Depth First Search

Lecture 28 - Applications of DFS

Lecture 29 - DFS in Directed Graphs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Applications of DFS in Directed Graphs
- Lecture 31 - Minimum Spanning Trees
- Lecture 32 - The Union
- Lecture 33 - Prims Algorithm for Minimum Spanning Trees
- Lecture 34 - Single Source Shortest Paths
- Lecture 35 - Correctness of Dijkstras Algorithm
- Lecture 36 - Single Source Shortest Paths

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Introduction to Computer Graphics

Subject Co-ordinator - Prof. Prem K Kalra

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Raster Graphics  
Lecture 3 - Raster Graphics (Continued...)  
Lecture 4 - Clipping  
Lecture 5 - Polygon Clipping and Polygon Scan Conversion  
Lecture 6 - Transformations  
Lecture 7 - Transformations (Continued...)  
Lecture 8 - 3D Viewing  
Lecture 9 - 3D Viewing (Continued...)  
Lecture 10 - Curves  
Lecture 11 - Assignment - I  
Lecture 12 - Curves (Continued...)  
Lecture 13 - Curves (Continued...)  
Lecture 14 - Curves (Continued...)  
Lecture 15 - Curves (Continued...)  
Lecture 16 - Surfaces  
Lecture 17 - Surfaces (Continued...)  
Lecture 18 - Surfaces (Continued...)  
Lecture 19 - Surfaces (Continued...)  
Lecture 20 - Hierarchical Models  
Lecture 21 - Rendering  
Lecture 22 - Rendering (Continued...)  
Lecture 23 - Rendering (Continued...)  
Lecture 24 - Ray Tracing  
Lecture 25 - Ray Tracing (Continued...)  
Lecture 26 - Ray Tracing (Continued...)  
Lecture 27 - Assignment  
Lecture 28 - Hidden Surface Elimination  
Lecture 29 - Hidden Surface Elimination (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hidden Surface Elimination (Continued...)
- Lecture 31 - Fractals
- Lecture 32 - Fractals (Continued...)
- Lecture 33 - Computer Animation
- Lecture 34 - Animation (Continued...)
- Lecture 35 - Animation (Continued...)



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Principles of Programming Languages

Subject Co-ordinator - Prof. S. Arun Kumar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Syntax  
Lecture 3 - Grammars  
Lecture 4 - Ambiguity  
Lecture 5 - PLO  
Lecture 6 - Semantics  
Lecture 7 - Syntactic Classes  
Lecture 8 - Transition Systems  
Lecture 9 - PLO  
Lecture 10 - Binding  
Lecture 11 - Environments  
Lecture 12 - Declarations  
Lecture 13 - Commands  
Lecture 14 - Stores  
Lecture 15 - Summary  
Lecture 16 - Declarations and Commands  
Lecture 17 - Blocks  
Lecture 18 - Qualification  
Lecture 19 - Pragmatics  
Lecture 20 - Data  
Lecture 21 - Structured Data  
Lecture 22 - Sequences  
Lecture 23 - Control  
Lecture 24 - Non-Determinacy  
Lecture 25 - Programming Languages  
Lecture 26 - Programming Languages  
Lecture 27 - Programming Languages  
Lecture 28 - Data as Functions  
Lecture 29 - Data and Fixpoints

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Normal Forms
- Lecture 31 - Programming Languages
- Lecture 32 - Monomorphism
- Lecture 33 - Polymorphism
- Lecture 34 - Type Checking
- Lecture 35 - Contexts
- Lecture 36 - Abstracts
- Lecture 37 - Procedures
- Lecture 38 - Meanings
- Lecture 39 - Parameters
- Lecture 40 - The Future

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Parallel Computing

Subject Co-ordinator - Dr. Subodh Kumar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Parallel Programming Paradigms
- Lecture 3 - Parallel Architecture
- Lecture 4 - Parallel Architecture (case studies)
- Lecture 5 - Open MP
- Lecture 6 - Open MP (Continued.)
- Lecture 7 - Open MP (Continued..)
- Lecture 8 - Open MP & PRAM Model of Computation
- Lecture 9 - PRAM
- Lecture 10 - Models of Parallel Computation, Complexity
- Lecture 11 - Memory Consistency
- Lecture 12 - Memory Consistency & Performance Issues
- Lecture 13 - Parallel Program Design
- Lecture 14 - Shared Memory & Message Passing
- Lecture 15 - MPI
- Lecture 16 - MPI (Continued.)
- Lecture 17 - MPI (Continued..)
- Lecture 18 - Algorithmic Techniques
- Lecture 19 - Algorithmic Techniques (Continued.)
- Lecture 20 - Algorithmic Techniques (Continued..)
- Lecture 21 - CUDA
- Lecture 22 - CUDA (Continued.)
- Lecture 23 - CUDA (Continued..)
- Lecture 24 - CUDA (Continued...)
- Lecture 25 - CUDA (Continued....)
- Lecture 26 - CUDA (Continued.....)
- Lecture 27 - CUDA (Continued.....)
- Lecture 28 - Algorithms, Merging & Sorting
- Lecture 29 - Algorithms, Merging & Sorting (Continued.)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Algorithms, Merging & Sorting (Continued..)
- Lecture 31 - Algorithms, Merging & Sorting (Continued...)
- Lecture 32 - Algorithms, Merging & Sorting (Continued....)
- Lecture 33 - Lower Bounds Lock Free Synchronization, Load Stealing
- Lecture 34 - Lock Free Synchronization, Graph Algorithms

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Operating Systems

Subject Co-ordinator - Prof. Sorav Bansal

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introductio to UNIX System Calls - Part 1

Lecture 2 - Introductio to UNIX System Calls - Part 2

Lecture 3 - Threads, Address Spaces, Filesystem Devices

Lecture 4 - PC Architecture

Lecture 5 - x86 Instruction Set, GCC Calling Conventions

Lecture 6 - Physical Memory Map, I/O, Segmentation

Lecture 7 - Segmentation, Trap Handling

Lecture 8 - Traps, Trap Handlers

Lecture 9 - Kernel Data Structures, Memory Management

Lecture 10 - Segmentation Review, Introduction to Paging

Lecture 11 - Paging

Lecture 12 - Process Address Spaces Using Paging

Lecture 13 - Translation Lookaside Buffer, Large Pages, Boot Sector

Lecture 14 - Loading the kernel, Initializing the Page table

Lecture 15 - Setting up page tables for user processes

Lecture 16 - Processes in action

Lecture 17 - Process structure, Context Switching

Lecture 18 - Process Kernel stack, Scheduler, Fork, Context-Switch, Process Control Block, Trap Entry and Return

Lecture 19 - Creating the first process

Lecture 20 - Handling User Pointers, Concurrency

Lecture 21 - Locking

Lecture 22 - Fine-grained Locking and its challenges

Lecture 23 - Locking variations

Lecture 24 - Condition variables

Lecture 25 - Multiple producer, multiple consumer queue; semaphores; monitors

Lecture 26 - Transactions and lock-free primitives read/write locks

Lecture 27 - Synchronization in xv6

Lecture 28 - More synchronization in xv6

Lecture 29 - Demand Paging; Introduction to Page Replacement

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Page Replacement, Thrashing
- Lecture 31 - Storage Devices, Filesystem Interfaces
- Lecture 32 - File System Implementation
- Lecture 33 - File System Operation
- Lecture 34 - Crash Recovery and Logging
- Lecture 35 - Logging in Linux ext3 filesystem
- Lecture 36 - Protection and Security
- Lecture 37 - Scheduling Policies
- Lecture 38 - Lock-free multiprocessor coordination, Read-Copy-Update
- Lecture 39 - Microkernel, Exokernel, Multikernel
- Lecture 40 - Virtualization, Cloud Computing, Technology Trends

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computer Architecture (2017)

Subject Co-ordinator - Prof. Smruti R.Sarangi

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Computer Architecture  
Lecture 2 - The Language of Bits - Part-I  
Lecture 3 - The Language of Bits - Part-II  
Lecture 4 - The Language of Bits - Part-III  
Lecture 5 - Assembly Language - Part-I  
Lecture 6 - Assembly Language - Part-II  
Lecture 7 - Assembly Language - Part-III  
Lecture 8 - ARM Assembly Language - Part-I  
Lecture 9 - ARM Assembly Language - Part-II  
Lecture 10 - x86 Assembly Language - Part-I  
Lecture 11 - x86 Assembly Language - Part-II  
Lecture 12 - x86 Assembly Language - Part-III  
Lecture 13 - x86 Assembly Language - Part-IV  
Lecture 14 - A Primer on Digital Logic - Part-I  
Lecture 15 - A Primer on Digital Logic - Part-II  
Lecture 16 - A Primer on Digital Logic - Part-III  
Lecture 17 - Computer Arithmetic - Part-I  
Lecture 18 - Computer Arithmetic - Part-II  
Lecture 19 - Computer Arithmetic - Part-III  
Lecture 20 - Computer Arithmetic - Part-IV  
Lecture 21 - Computer Arithmetic - Part-V  
Lecture 22 - Computer Arithmetic - Part-VI  
Lecture 23 - Processor Design - Part-I  
Lecture 24 - Processor Design - Part-II  
Lecture 25 - Processor Design - Part-III  
Lecture 26 - Principles of Pipelining - Part-I  
Lecture 27 - Principles of Pipelining - Part-II  
Lecture 28 - Principles of Pipelining - Part-III  
Lecture 29 - Principles of Pipelining - Part-IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Memory Systems - Part-I
- Lecture 31 - The Memory Systems - Part-II
- Lecture 32 - The Memory Systems - Part-III
- Lecture 33 - The Memory Systems - Part-IV



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Parallel Programming in OpenMP

Subject Co-ordinator - Dr. Yogish Sabharwal

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Parallel Programming
- Lecture 2 - Parallel Architectures and Programming Models
- Lecture 3 - Pipelining
- Lecture 4 - Superpipelining and VLIW
- Lecture 5 - Memory Latency
- Lecture 6 - Cache and Temporal Locality
- Lecture 7 - Cache, Memory bandwidth and Spatial Locality
- Lecture 8 - Intuition for Shared and Distributed Memory architectures
- Lecture 9 - Shared and Distributed Memory architectures
- Lecture 10 - Interconnection networks in Distributed Memory architectures
- Lecture 11 - OpenMP: A parallel Hello World Program
- Lecture 12 - Program with Single thread
- Lecture 13 - Program Memory with Multiple threads and Multi-tasking
- Lecture 14 - Context Switching
- Lecture 15 - OpenMP: Basic thread functions
- Lecture 16 - OpenMP: About OpenMP
- Lecture 17 - Shared Memory Consistency Models and the Sequential Consistency Model
- Lecture 18 - Race Conditions
- Lecture 19 - OpenMP: Scoping variables and some race conditions
- Lecture 20 - OpenMP: thread private variables and more constructs
- Lecture 21 - Computing sum: first attempt at parallelization
- Lecture 22 - Manual distribution of work and critical sections
- Lecture 23 - Distributing for loops and reduction
- Lecture 24 - Vector-Vector operations (Dot product)
- Lecture 25 - Matrix-Vector operations (Matrix-Vector Multiply)
- Lecture 26 - Matrix-Matrix operations (Matrix-Matrix Multiply)
- Lecture 27 - Introduction to tasks
- Lecture 28 - Task queues and task execution
- Lecture 29 - Accessing variables in tasks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Completion of tasks and scoping variables in tasks
- Lecture 31 - Recursive task spawning and pitfalls
- Lecture 32 - Understanding LU Factorization
- Lecture 33 - Parallel LU Factorization
- Lecture 34 - Locks
- Lecture 35 - Advanced Task handling
- Lecture 36 - Matrix Multiplication using tasks
- Lecture 37 - The OpenMP Shared Memory Consistency Model
- Lecture 38 - Applications finite element method
- Lecture 39 - Applications deep learning
- Lecture 40 - Introduction to MPI and basic calls
- Lecture 41 - MPI calls to send and receive data
- Lecture 42 - MPI calls for broadcasting data
- Lecture 43 - MPI non blocking calls
- Lecture 44 - Application distributed histogram updation
- Lecture 45 - MPI collectives and MPI broadcast
- Lecture 46 - MPI gathering and scattering collectives
- Lecture 47 - MPI reduction and alltoall collectives
- Lecture 48 - Discussion on MPI collectives design
- Lecture 49 - Characterization of interconnects
- Lecture 50 - Linear arrays 2D mesh and torus
- Lecture 51 - d dimensional torus
- Lecture 52 - Hypercube
- Lecture 53 - Trees and cliques
- Lecture 54 - Hockney model
- Lecture 55 - Broadcast and Reduce with recursive doubling
- Lecture 56 - Scatter and Gather with recursive doubling
- Lecture 57 - Reduce scatter and All gather with recursive doubling
- Lecture 58 - Discussion of message sizes in analysis
- Lecture 59 - Revisiting Reduce scatter on 2D mesh
- Lecture 60 - Reduce scatter and Allreduce on the Hypercube
- Lecture 61 - Alltoall on the Hypercube
- Lecture 62 - Lower bounds
- Lecture 63 - Pipeline based algorithm for Allreduce
- Lecture 64 - An improved algorithm for Alltoall on the Hypercube using E-cube routing
- Lecture 65 - Pipeline based algorithm for Broadcast
- Lecture 66 - Introduction to parallel graph algorithms
- Lecture 67 - Breadth First Search BFS using matrix algebra
- Lecture 68 - BFS Shared memory parallelization using OpenMP

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Distributed memory settings and data distribution
- Lecture 70 - Distributed BFS algorithm
- Lecture 71 - Performance considerations
- Lecture 72 - Prims Algorithm
- Lecture 73 - OpenMP based shared memory parallelization for MST
- Lecture 74 - MPI based distributed memory parallelization for MST
- Lecture 75 - Sequential Algorithm Adaptation from Prims
- Lecture 76 - Parallelization Strategy for Prims algorithm
- Lecture 77 - Dry run with the parallel strategy
- Lecture 78 - Johnsons algorithm with 1D data distribution
- Lecture 79 - Speedup analysis on a grid graph
- Lecture 80 - Floyd's algorithm for all pair shortest paths
- Lecture 81 - Floyd's algorithm with 2D data distribution
- Lecture 82 - Adaptation to transitive closures
- Lecture 83 - Parallelization strategy for connected components
- Lecture 84 - Analysis for parallel connected components

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Synthesis of Digital Systems

Subject Co-ordinator - Prof. Preeti Ranjan Panda

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Outline - What is Synthesis?
- Lecture 2 - Chip Design Flow and Hardware Modelling
- Lecture 3 - VHDL
- Lecture 4 - VHDL
- Lecture 5 - VHDL
- Lecture 6 - VHDL
- Lecture 7 - Introduction to High-level Synthesis
- Lecture 8 - Language front-end Design Representation
- Lecture 9 - Compiler Transformation in High Level Synthesis
- Lecture 10 - Memory Modelling and Compiler Transformation in High Level Synthesis
- Lecture 11 - Compiler Transformations in High Level Synthesis
- Lecture 12 - Hardware Transformations and ASAP / ALAP Scheduling
- Lecture 13 - Scheduling in High Level Synthesis
- Lecture 14 - Force Directed Scheduling and Register Allocation
- Lecture 15 - High Level Synthesis and Timing Issues
- Lecture 16 - Finite State Machine Synthesis
- Lecture 17 - Finite State Machine Synthesis
- Lecture 18 - The Retiming Problem
- Lecture 19 - Efficient Solution to Retiming and Introduction to Logic Synthesis
- Lecture 20 - Binary Decision Diagrams
- Lecture 21 - Introduction to Logic Synthesis
- Lecture 22 - Two-level Logic Optimisation
- Lecture 23 - Multi-Level Logic Optimisation
- Lecture 24 - Multi-level Logic Synthesis
- Lecture 25 - Introduction to Timing Analysis
- Lecture 26 - Timing Analysis and Critical Paths

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:An Introduction to Artificial Intelligence

Subject Co-ordinator - Prof. Mausam

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction  
Lecture 3 - Introduction  
Lecture 4 - Introduction  
Lecture 5 - Introduction  
Lecture 6 - Introduction  
Lecture 7 - Introduction  
Lecture 8 - Introduction  
Lecture 9 - Introduction  
Lecture 10 - Uniform Search  
Lecture 11 - Uniformed Search  
Lecture 12 - Uniformed Search  
Lecture 13 - Uniformed Search  
Lecture 14 - Uniformed Search  
Lecture 15 - Informed Search  
Lecture 16 - Informed Search  
Lecture 17 - Informed Search  
Lecture 18 - Informed Search Proof of optimality of A\* - Part 4  
Lecture 19 - Informed Search  
Lecture 20 - Informed Search  
Lecture 21 - Informed Search  
Lecture 22 - Local Search  
Lecture 23 - Local Search  
Lecture 24 - Local Search  
Lecture 25 - Local Search  
Lecture 26 - Local Search  
Lecture 27 - Local Search  
Lecture 28 - Local Search  
Lecture 29 - Adversarial Search

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- Lecture 30 - Adversarial Search
- Lecture 31 - Adversarial Search
- Lecture 32 - Adversarial Search
- Lecture 33 - Adversarial Search
- Lecture 34 - Adversarial Search
- Lecture 35 - Adversarial Search
- Lecture 36 - Constraint Satisfaction Problems
- Lecture 37 - Constraint Satisfaction Problems
- Lecture 38 - Constraint Satisfaction Problems
- Lecture 39 - Constraint Satisfaction Problems
- Lecture 40 - Constraint Satisfaction Problems
- Lecture 41 - Constraint Satisfaction Problems
- Lecture 42 - Logic in AI
- Lecture 43 - Logic in AI
- Lecture 44 - Logic in AI
- Lecture 45 - Logic in AI
- Lecture 46 - Logic in AI
- Lecture 47 - Logic in AI
- Lecture 48 - Logic in AI
- Lecture 49 - Logic in AI
- Lecture 50 - Uncertainty in AI
- Lecture 51 - Uncertainty in AI
- Lecture 52 - Uncertainty in AI
- Lecture 53 - Bayesian Networks
- Lecture 54 - Bayesian Networks
- Lecture 55 - Bayesian Networks
- Lecture 56 - Bayesian Networks
- Lecture 57 - Bayesian Networks
- Lecture 58 - Bayesian Networks
- Lecture 59 - Bayesian Networks
- Lecture 60 - Bayesian Networks
- Lecture 61 - Bayesian Networks
- Lecture 62 - Bayesian Networks
- Lecture 63 - Bayesian Networks
- Lecture 64 - Bayesian Networks
- Lecture 65 - Introduction, Part 10
- Lecture 66 - Decision Theory
- Lecture 67 - Decision Theory
- Lecture 68 - Probabilistic Uncertainty and Value of perfect information

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Expected Utility vs Expected Value
- Lecture 70 - Markov Decision Processes
- Lecture 71 - Markov Decision Processes
- Lecture 72 - Markov Decision Processes
- Lecture 73 - Markov Decision Processes
- Lecture 74 - Markov Decision Processes
- Lecture 75 - Markov Decision Processes
- Lecture 76 - Reinforcement Learning
- Lecture 77 - Reinforcement Learning
- Lecture 78 - Reinforcement Learning
- Lecture 79 - Reinforcement Learning
- Lecture 80 - Reinforcement Learning
- Lecture 81 - Reinforcement Learning
- Lecture 82 - Reinforcement Learning
- Lecture 83 - Reinforcement Learning
- Lecture 84 - Deep Learning
- Lecture 85 - Deep Learning
- Lecture 86 - Deep Learning
- Lecture 87 - Deep Learning
- Lecture 88 - Deep Learning
- Lecture 89 - Deep Learning
- Lecture 90 - Deep Learning
- Lecture 91 - Deep Learning
- Lecture 92 - Ethics of AI
- Lecture 93 - Ethics of AI
- Lecture 94 - Ethics of AI
- Lecture 95 - Ethics of AI
- Lecture 96 - Wrapup

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Advanced Computer Architecture (2021)

Subject Co-ordinator - Prof. Smruti R. Sarangi

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Out-of-Order Pipelines - Part I  
Lecture 3 - Out-of-Order Pipelines - Part II  
Lecture 4 - Out-of-Order Pipelines - Part III  
Lecture 5 - The Fetch and Decode Stages - Part I  
Lecture 6 - The Fetch and Decode Stages - Part II  
Lecture 7 - The Fetch and Decode Stages - Part III  
Lecture 8 - The Issue, Execute, and Commit Stages - Part I  
Lecture 9 - The Issue, Execute, and Commit Stages - Part II  
Lecture 10 - The Issue, Execute, and Commit Stages - Part III  
Lecture 11 - The Issue, Execute, and Commit Stages - Part IV  
Lecture 12 - Alternative Approaches to Issue and Commit - Part I  
Lecture 13 - Alternative Approaches to Issue and Commit - Part II  
Lecture 14 - Alternative Approaches to Issue and Commit - Part III  
Lecture 15 - Alternative Approaches to Issue and Commit - Part IV  
Lecture 16 - Graphics Processors - Part I  
Lecture 17 - Graphics Processors - Part II  
Lecture 18 - Graphics Processors - Part III  
Lecture 19 - Caches - Part I  
Lecture 20 - Caches - Part II  
Lecture 21 - Caches - Part III  
Lecture 22 - Caches - Part IV  
Lecture 23 - Caches - Part V  
Lecture 24 - Caches - Part VI  
Lecture 25 - Multicore Systems - Part I  
Lecture 26 - Multicore Systems - Part II  
Lecture 27 - Multicore Systems - Part III  
Lecture 28 - Multicore Systems - Part IV  
Lecture 29 - Multicore Systems - Part V

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- Lecture 30 - Multicore Systems - Part VI
- Lecture 31 - Multicore Systems - Part VII
- Lecture 32 - Multicore Systems - Part VIII
- Lecture 33 - Multicore Systems - Part IX

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Advanced Distributed systems

Subject Co-ordinator - Prof. Smruti R. Sarangi

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Design Verification and Test of Digital VLSI Circuits

Subject Co-ordinator - Dr. Santosh Biswas, Prof. Jatindra Kumar Deka

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Digital VLSI Design Flow

Lecture 2 - High Level Design Representation

Lecture 3 - Transformations for High Level Synthesis

Lecture 4 - Introduction to HLS

Lecture 5 - Scheduling Algorithms - 1

Lecture 6 - Scheduling Algorithms - 2

Lecture 7 - Binding and Allocation Algorithms

Lecture 8 - Two level Boolean Logic Synthesis - 1

Lecture 9 - Two level Boolean Logic Synthesis - 2

Lecture 10 - Two level Boolean Logic Synthesis - 3

Lecture 11 - Heuristic Minimization of Two-Level Circuits

Lecture 12 - Finite State Machine Synthesis

Lecture 13 - Multilevel Implementation

Lecture 14 - Introduction to formal methods for design verification

Lecture 15 - Temporal Logic

Lecture 16 - Syntax and Semantics of CTL

Lecture 17 - Syntax and Semantics of CTL â Continued

Lecture 18 - Equivalence between CTL Formulas

Lecture 19 - Introduction to Model Checking

Lecture 20 - Model Checking Algorithms - I

Lecture 21 - Model Checking Algorithms - II

Lecture 22 - Model Checking with Fairness

Lecture 23 - Binary Decision Diagram

Lecture 24 - Ordered Binary Decision Diagram

Lecture 25 - Operation on Ordered Binary Decision Diagram

Lecture 26 - Ordered Binary Decision Diagram for State Transition Systems

Lecture 27 - Symbolic Model Checking

Lecture 28 - Introduction to Digital VLSI Testing

Lecture 29 - Functional and Structural Testing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fault Equivalence
- Lecture 31 - Fault Simulation - 1
- Lecture 32 - Fault Simulation - 2
- Lecture 33 - Fault Simulation - 3
- Lecture 34 - Testability Measures (SCOAP)
- Lecture 35 - Introduction to Automatic Test Pattern Generation (ATPG) and ATPG Algebras
- Lecture 36 - D-Algorithm - 1
- Lecture 37 - D-Algorithm - 2
- Lecture 38 - ATPG for Synchronous Sequential Circuits
- Lecture 39 - Scan Chain based Sequential Circuit Testing - 1
- Lecture 40 - Scan Chain based Sequential Circuit Testing - 2
- Lecture 41 - Built in Self Test - 1
- Lecture 42 - Built in Self Test - 2
- Lecture 43 - Memory Testing - 1
- Lecture 44 - Memory Testing - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computer Organization and Architecture - A Pedagogy

Subject Co-ordinator - Prof.Arnab sarkar, Prof.Jatindra Kumar Deka, Dr. Santosh Biswas

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Model of Computer and Working Principle

Lecture 2 - Digital Logic Building Blocks

Lecture 3 - Information Representation and Number Systems

Lecture 4 - Basic Elements of a Processor

Lecture 5 - Storage and I/O Interface

Lecture 6 - Execution of Program and Programming Languages

Lecture 7 - Components of Central Processing Unit (CPU) and External Interface

Lecture 8 - Main Memory

Lecture 9 - Instruction Execution

Lecture 10 - Instruction Format

Lecture 11 - Instruction Set

Lecture 12 - Addressing Modes

Lecture 13 - Flags and Conditional Instructions

Lecture 14 - Instruction

Lecture 15 - Instruction Cycle and Micro-operations

Lecture 16 - Control Signals and Timing Sequence

Lecture 17 - Control Signals for Complete Instruction Execution

Lecture 18 - Handling Different Addressing Modes

Lecture 19 - Handling Control Transfer Instructions

Lecture 20 - Design of Hardwired controlled Control Unit

Lecture 21 - Microinstructions and Microprograms

Lecture 22 - Organization and Optimization of Microprogrammed controlled Control Unit

Lecture 23 - Different Internal CPU Bus Organization

Lecture 24 - Basics of Memory and Cache - Part 1

Lecture 25 - Basics of Memory and Cache - Part 2

Lecture 26 - Direct-mapped Caches

Lecture 27 - Associative and Multi-level Caches

Lecture 28 - Summary - Caches

Lecture 29 - Basics of Virtual Memory and Address Translation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Paging and Segmentation
- Lecture 31 - TLBs and Page Fault Handling
- Lecture 32 - Cache Indexing and Tagging Variations, Demand Paging
- Lecture 33 - Page Replacement Algorithms
- Lecture 34 - Page Frame Allocation and Thrashing
- Lecture 35 - Summary - Virtual Memory
- Lecture 36 - Input-Output Primitives
- Lecture 37 - Interrupt Driven I/O
- Lecture 38 - DMA Transfer
- Lecture 39 - Storage Devices

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Embedded Systems-Design Verification and Test

Subject Co-ordinator - Prof.Jatindra Kumar Deka, Dr. Santosh Biswas, Prof.Arnab Sarkar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Modeling Techniques - 1

Lecture 3 - Modeling Techniques - 2

Lecture 4 - Hardware/Software Partitioning - 1

Lecture 5 - Hardware/Software Partitioning - 2

Lecture 6 - Introduction to Hardware Design

Lecture 7 - Hardware Architectural Synthesis - 1

Lecture 8 - Hardware Architectural Synthesis - 2

Lecture 9 - Hardware Architectural Synthesis - 3

Lecture 10 - Hardware Architectural Synthesis - 4

Lecture 11 - Hardware Architectural Synthesis - 5

Lecture 12 - Hardware Architectural Synthesis - 6

Lecture 13 - Hardware Architectural Synthesis - 7

Lecture 14 - System Level Analysis

Lecture 15 - Uniprocessor Scheduling - 1

Lecture 16 - Uniprocessor Scheduling - 2

Lecture 17 - Multiprocessor Scheduling - 1

Lecture 18 - Multiprocessor Scheduling - 2

Lecture 19 - Introduction and Basic Operators of Temporal Logic

Lecture 20 - Syntax and Semantics of CTL

Lecture 21 - Equivalence between CTL formulas

Lecture 22 - Model Checking Algorithm

Lecture 23 - Binary Decision Diagram

Lecture 24 - Use of OBDDs for State Transition System

Lecture 25 - Symbolic Model Checking

Lecture 26 - Introduction to Digital VLSI Testing

Lecture 27 - Automatic Test Pattern Generation (ATPG)

Lecture 28 - Scan Chain based Sequential Circuit Testing

Lecture 29 - Software-Hardware Co-validation Fault Models and High Level Testing for Complex Embedded Systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Testing for embedded cores
- Lecture 31 - Bus and Memory Testing
- Lecture 32 - Testing for advanced faults in Real time Embedded Systems
- Lecture 33 - BIST for Embedded Systems
- Lecture 34 - Concurrent Testing for Fault tolerant Embedded Systems - 1
- Lecture 35 - Concurrent Testing for Fault tolerant Embedded Systems - 2
- Lecture 36 - Testing for Re-programmable hardware
- Lecture 37 - Interaction Testing between Hardware and Software



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Multi-Core Computer Architecture-Storage and Interconnectivity

Subject Co-ordinator - Prof. John Jose

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Overview of the Course
- Lecture 2 - Instruction Execution Principles
- Lecture 3 - Introduction to Instruction Pipeline
- Lecture 4 - Introduction to Superscalar Pipelines
- Lecture 5 - Instruction Pipeline and Performance - I
- Lecture 6 - Instruction Pipeline and Performance - II
- Lecture 7 - Introduction to Cache Memory
- Lecture 8 - Block Replacement Techniques and Write Strategy
- Lecture 9 - gem5 Simulator - An Overview
- Lecture 10 - Cache Memory
- Lecture 11 - Basic Cache Optimization Techniques
- Lecture 12 - gem5 Simulator - Cache Optimisation
- Lecture 13 - Advanced Cache Optimization Techniques - I
- Lecture 14 - Advanced Cache Optimization Techniques - II
- Lecture 15 - Cache Memory Optimizations
- Lecture 16 - Introduction to DRAM System
- Lecture 17 - DRAM Controllers and Address Mapping
- Lecture 18 - Address Translation Mechanisms
- Lecture 19 - Main Memory Concepts
- Lecture 20 - Introduction to Tiled Chip Multicore Processors
- Lecture 21 - Routing Techniques in Network On Chip
- Lecture 22 - Network On Chip Router Micro-Architecture
- Lecture 23 - gem5 Simulator - NoC Optimisation
- Lecture 24 - Energy Efficient Bufferless NoC Routers
- Lecture 25 - Sidebuffered Deflection Routers
- Lecture 26 - Concepts in Network on Chip
- Lecture 27 - QoS of NoC and Caches in TCMP Systems
- Lecture 28 - Emerging Trends in Network On Chips
- Lecture 29 - Concepts in TCMP Systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Multi-Core Computer Architecture

Subject Co-ordinator - Prof. John Jose

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of Basic Computer Organization
- Lecture 2 - Instruction Set and Addressing Modes
- Lecture 3 - Instruction Encoding
- Lecture 4 - Performance Evaluation Methods
- Lecture 5 - Tutorial on Performance Evaluation
- Lecture 6 - Introduction to RISC Instruction Pipeline
- Lecture 7 - Instruction Pipeline Hazards
- Lecture 8 - Tutorial on Instruction Pipeline and Hazards
- Lecture 9 - Control Hazards and Branch Prediction
- Lecture 10 - MIPS Pipeline for Multi-Cycle Operations
- Lecture 11 - Tutorial on Longer Pipeline and Branch Prediction
- Lecture 12 - Compiler Techniques to Explore ILP
- Lecture 13 - Dynamic Scheduling to Explore ILP
- Lecture 14 - Dynamic Scheduling with Tomasulo's Algorithm
- Lecture 15 - Dynamic Scheduling with Speculative Execution
- Lecture 16 - Tutorial on Static and Dynamic Scheduling
- Lecture 17 - Advanced Pipelining and Superscalar Processors
- Lecture 18 - Introduction to GPU architectures
- Lecture 19 - Case study on GPU architectures
- Lecture 20 - Tutorial on Superscalar processors and GPU
- Lecture 21 - Introduction to Cache Memory
- Lecture 22 - Block Replacement Techniques and Write Strategy
- Lecture 23 - Design Concepts in Cache Memory
- Lecture 24 - Optimization Techniques in Cache Memory
- Lecture 25 - Advanced Cache Optimization Techniques
- Lecture 26 - Tutorial on Advanced Concepts in Cache Memory - 1
- Lecture 27 - Tutorial on Advanced Concepts in Cache Memory - 2
- Lecture 28 - Cache coherence and memory consistency
- Lecture 29 - Design Space for snooping protocols

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Directory Based Cache coherence
- Lecture 31 - Cache coherence in multiprocessor design [T]
- Lecture 32 - Introduction to DRAM System
- Lecture 33 - DRAM Controllers and Address Mapping
- Lecture 34 - Secondary Storage Systems
- Lecture 35 - Design Concepts in Storage Systems
- Lecture 36 - Introduction to Tiled Chip Multicore Processors
- Lecture 37 - Routing Techniques in Network On Chip
- Lecture 38 - Network On Chip Router Micro-Architecture
- Lecture 39 - Concepts in Network on Chip
- Lecture 40 - Energy Efficient Bufferless NoC Routers
- Lecture 41 - Sidebuffered Deflection Routers
- Lecture 42 - Concepts in Deflection Routers [T]
- Lecture 43 - QoS of NoC and Caches in TCMP Systems
- Lecture 44 - Emerging Trends in Network On Chips
- Lecture 45 - Domain Specific Accelerators
- Lecture 46 - Introduction to VEGA Microprocessors (Case Study)
- Lecture 47 - Concepts in TCMP Systems
- Lecture 48 - How to Explore Computer Architecture?

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Randomized Algorithms

Subject Co-ordinator - Prof. Benny George K

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Randomized Algorithms
- Lecture 2 - Randomized Mincut Algorithm
- Lecture 3 - Randomized Find
- Lecture 4 - Probability Review
- Lecture 5 - Expectation of Random Variables
- Lecture 6 - Conditional Probability and Conditional Expectation2
- Lecture 7 - Birthday Paradox
- Lecture 8 - Markov and Chebychev's Inequalities
- Lecture 9 - Median Algorithm
- Lecture 10 - Chernoff Bound
- Lecture 11 - Permutation Routing on a Hypercube
- Lecture 12 - Permutation Routing on a Hypercube (Analysis)
- Lecture 13 - Introduction to Probabilistic Method
- Lecture 14 - More Examples on Probabilistic Method
- Lecture 15 - Lovasz Local Lemma
- Lecture 16 - Introduction to Markov Chains
- Lecture 17 - 2-SAT and Markov Chains
- Lecture 18 - 3-SAT and Markov Chains
- Lecture 19 - Electrical Networks
- Lecture 20 - Cover Time
- Lecture 21 - Rapid Mixing
- Lecture 22 - Introduction to Computational Complexity
- Lecture 23 - Pratt's Certificate
- Lecture 24 - Primality Testing
- Lecture 25 - Miller Rabin Algorithm
- Lecture 26 - All pair shortest path - I
- Lecture 27 - All pair shortest path - II
- Lecture 28 - Randomized MST
- Lecture 29 - Introduction to approximate counting

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - DNF counting
- Lecture 31 - Perfect Matching - I
- Lecture 32 - Perfect Matching - II
- Lecture 33 - Perfect Matching - III
- Lecture 34 - Treaps
- Lecture 35 - Hashing
- Lecture 36 - Probabilistically checkable proofs - I
- Lecture 37 - Probabilistically checkable proofs - II
- Lecture 38 - Probabilistically checkable proofs - III
- Lecture 39 - LFKN Protocol
- Lecture 40 - summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Parallel Algorithms

Subject Co-ordinator - Prof. Sajith Gopalan

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Shared Memory Models - 1  
Lecture 2 - Shared Memory Models - 2  
Lecture 3 - Interconnection Networks  
Lecture 4 - Cost and Optimality  
Lecture 5 - Basic Techniques - 1  
Lecture 6 - Basic Techniques - 2  
Lecture 7 - Basic Techniques - 3  
Lecture 8 - Basic Techniques - 4  
Lecture 9 - Basic Techniques - 5  
Lecture 10 - Odd Even Merge Sort (OEMS)  
Lecture 11 - OEMS, Bitonic-Sort-Merge Sort (BSMS)  
Lecture 12 - BSMS, Optimal List Colouring  
Lecture 13 - Description  
Lecture 14 - Analysis  
Lecture 15 - Applications  
Lecture 16 - Applications  
Lecture 17 - Fast optimal merge algorithm  
Lecture 18 - High level Description  
Lecture 19 - Cole's Merge Sort  
Lecture 20 - Analysis of Cole's Merge Sort; Lower bound for sorting  
Lecture 21 - Sorting Lower bound; Connected Components  
Lecture 22 - Connected Components (CREW)  
Lecture 23 - Connected Components, Vertex Colouring  
Lecture 24 - Sorting on a 2D mesh  
Lecture 25 - Sorting on a 2D mesh  
Lecture 26 - Sorting, Offline routing on a 2D mesh  
Lecture 27 - Sorting on a 3D mesh  
Lecture 28 - Mesh of Trees, Hypercube  
Lecture 29 - Hypercube (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hypercube (Continued...), butterfly network
- Lecture 31 - Butterfly, CCC and Benes Networks
- Lecture 32 - Butterfly, CCC and Benes Networks
- Lecture 33 - Shuffle Exchange Graphs, de Bruijn Graphs
- Lecture 34 - Interconnection Networks Algorithms
- Lecture 35 - Circuit Value Problem is P-complete for NC-reductions
- Lecture 36 - Ordered DFS is P-complete for NC-reductions
- Lecture 37 - Max Flow is P-complete for NC-reductions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Discrete Mathematics (Prof. Sajith Gopalan)

Subject Co-ordinator - Prof. Benny George K

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Boolean Functions

Lecture 2 - Propositional Calculus

Lecture 3 - First Order Logic

Lecture 4 - First Order Logic

Lecture 5 - Proof System for Propcal

Lecture 6 - First Order Logic

Lecture 7 - Soundness and Completeness of the First Order Proof System

Lecture 8 - Sets, Relations, Functions

Lecture 9 - Functions, Embedding of the theories of naturals numbers and integers in Set Theory

Lecture 10 - Embedding of the theories of integers and rational numbers in Set Theory; Countable Sets

Lecture 11 - Introduction to graph theory

Lecture 12 - Trees, Cycles, Graph coloring

Lecture 13 - Bipartite Graphs

Lecture 14 - Bipartite Graphs; Edge Coloring and Matching

Lecture 15 - Planar Graphs

Lecture 16 - Graph Searching; BFS and DFS

Lecture 17 - Network Flows

Lecture 18 - Counting Spanning Trees in Complete Graphs

Lecture 19 - Embedding of the theory of real numbers in Set Theory; Paradoxes

Lecture 20 - ZF Axiomatization of Set Theory

Lecture 21 - Partially ordering relations

Lecture 22 - Natural numbers, divisors

Lecture 23 - Lattices

Lecture 24 - GCD, Euclid's Algorithm

Lecture 25 - Prime Numbers

Lecture 26 - Congruences

Lecture 27 - Pigeon Hole Principle

Lecture 28 - Stirling Numbers, Bell Numbers

Lecture 29 - Generating Functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Product of Generating Functions
- Lecture 31 - Composition of Generating Function
- Lecture 32 - Principle of Inclusion Exclusion
- Lecture 33 - Rook placement problem
- Lecture 34 - Solution of Congruences
- Lecture 35 - Chinese Remainder Theorem
- Lecture 36 - Totient; Congruences; Floor and Ceiling Functions
- Lecture 37 - Introduction to Groups
- Lecture 38 - Modular Arithmetic and Groups
- Lecture 39 - Dihedral Groups, Isomorphisms
- Lecture 40 - Cyclic groups, Direct Products, Subgroups
- Lecture 41 - Cosets, Lagrange's theorem
- Lecture 42 - Rings and Fields
- Lecture 43 - Construction of Finite Fields

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Advanced Computer Architecture

Subject Co-ordinator - Prof. John Jose

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of Basic Computer Organization
- Lecture 2 - Performance Evaluation Methods
- Lecture 3 - Introduction to RISC Instruction Pipeline
- Lecture 4 - Instruction Pipeline and Performance
- Lecture 5 - Pipeline Hazards
- Lecture 6 - Control Hazards and Branch Prediction
- Lecture 7 - MIPS Pipeline for Multi-Cycle Operations
- Lecture 8 - Tutorial 2
- Lecture 9 - Compiler Techniques to Explore ILP
- Lecture 10 - Dynamic Scheduling to Explore ILP
- Lecture 11 - Dynamic Scheduling with Tomasulo's Algorithm
- Lecture 12 - Dynamic Scheduling with Speculative Execution
- Lecture 13 - Tutorial 3
- Lecture 14 - Advanced Pipelining and Superscalar Processors
- Lecture 15 - Exploiting DLP
- Lecture 16 - Tutorial 4
- Lecture 17 - Tutorial 5
- Lecture 18 - Introduction to Cache Memory
- Lecture 19 - Block Replacement Techniques and Write Strategy
- Lecture 20 - Tutorial 6
- Lecture 21 - Optimization Techniques in Cache Memory
- Lecture 22 - Advanced Cache Optimization Techniques
- Lecture 23 - Tutorial 7
- Lecture 24 - Tutorial 8
- Lecture 25 - Introduction to DRAM System
- Lecture 26 - DRAM Controllers and Address Mapping
- Lecture 27 - Secondary Storage Systems
- Lecture 28 - Tutorial 9
- Lecture 29 - Tiled Chip Multicore Processors

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- Lecture 30 - Routing Techniques in Network on Chip
- Lecture 31 - NoC Router Microarchitecture
- Lecture 32 - How to Explore Computer Architecture?
- Lecture 33 - Tutorial 10

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:User-centric Computing for Human-Computer Interaction

Subject Co-ordinator - Prof. Samit Bhattacharya

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to UCC and history
- Lecture 2 - Issues and challenges
- Lecture 3 - Latest research trends
- Lecture 4 - User-Centric Design and Software Engineering
- Lecture 5 - Components of SDLC - Contextual Inquiry
- Lecture 6 - Components of SDLC - Design Guidelines
- Lecture 7 - Components of SDLC - Prototyping
- Lecture 8 - Case study (web site design)
- Lecture 9 - Introduction to User-Centric Computing
- Lecture 10 - The UCC framework with illustrative case study
- Lecture 11 - User-centric models - introduction and descriptive models
- Lecture 12 - User-centric models - predictive models and taxonomy
- Lecture 13 - Introduction to GOMS family of models
- Lecture 14 - Keystroke-Level Model (KLM)
- Lecture 15 - (CMN)GOMS Model
- Lecture 16 - The Fitts' Law
- Lecture 17 - The Hick-Hyman Law
- Lecture 18 - 2D and 3D pointing models
- Lecture 19 - The Steering Law for constrained navigation
- Lecture 20 - Model for hierarchical menu selection
- Lecture 21 - Mobile typing models (single finger and two thumb typing)
- Lecture 22 - Model for touch performance (FFitts' law)
- Lecture 23 - Introduction to formal models in UCD
- Lecture 24 - Formal modeling of user-computer dialogue
- Lecture 25 - Case studies on the use of models
- Lecture 26 - Introduction and research question formulation
- Lecture 27 - Variables determination and experiment design
- Lecture 28 - Data analysis including model building
- Lecture 29 - Introduction to user-centric design evaluation and expert evaluation technique

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - User evaluation, empirical and model-based evaluation
- Lecture 31 - Concluding remarks

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computer Graphics

Subject Co-ordinator - Prof. Samit Bhattacharya

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to graphics
- Lecture 2 - Historical evolution, issues and challenges
- Lecture 3 - Basics of a graphics system
- Lecture 4 - Introduction to 3D graphics pipeline
- Lecture 5 - Introduction and overview on object representation techniques
- Lecture 6 - Various Boundary Representation Techniques
- Lecture 7 - Spline representation - I
- Lecture 8 - Spline representation - II
- Lecture 9 - Space representation methods
- Lecture 10 - Introduction to modeling transformations
- Lecture 11 - Matrix representation and composition of transformations
- Lecture 12 - Transformations in 3D
- Lecture 13 - Color computation - basic idea
- Lecture 14 - Simple lighting model
- Lecture 15 - Shading models
- Lecture 16 - Intensity mapping
- Lecture 17 - Color models and texture synthesis
- Lecture 18 - View transformation
- Lecture 19 - Projection transformation
- Lecture 20 - Windows-to-viewport transformation
- Lecture 21 - Clipping introduction and 2D point and line clipping
- Lecture 22 - 2D fill-area clipping and 3D clipping
- Lecture 23 - Hidden surface removal - I
- Lecture 24 - Hidden surface removal - II
- Lecture 25 - Scan conversion of basic shapes - I
- Lecture 26 - Scan conversion of basic shapes - II
- Lecture 27 - Fill area and character scan conversion
- Lecture 28 - Anti-aliasing techniques
- Lecture 29 - Graphics I/O Devices

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to GPU and Shaders
- Lecture 31 - Programming with OpenGL
- Lecture 32 - Concluding remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:C-Based VLSI Design

Subject Co-ordinator - Prof. Chandan Karfa

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to C-Based VLSI Design
- Lecture 2 - C-based VLSI Design: An Overview
- Lecture 3 - C-based VLSI Design: Problem Formulation
- Lecture 4 - C-based VLSI Design: Course Plan
- Lecture 5 - Introduction to Scheduling
- Lecture 6 - ILP formulation of Scheduling
- Lecture 7 - ILP formulation of MRLC and MLRC Scheduling
- Lecture 8 - Multiprocessor Scheduling
- Lecture 9 - Hu's algorithm for Multiprocessor Scheduling
- Lecture 10 - List based Scheduling of MLRC
- Lecture 11 - List based Scheduling of MRLC
- Lecture 12 - Forced Directed Scheduling
- Lecture 13 - Forced Directed MLRC and MRLC Scheduling Algorithm
- Lecture 14 - Path Based Scheduling
- Lecture 15 - Path Based Scheduling
- Lecture 16 - Allocation and Binding Problem Formulation
- Lecture 17 - Left Edge Algorithm
- Lecture 18 - ILP Formulation of Allocation and Binding
- Lecture 19 - Allocation and Binding for Hierarchical Graph
- Lecture 20 - Register Allocation and Binding
- Lecture 21 - Multi-port Binding Problem
- Lecture 22 - Datapath and Controller Synthesis
- Lecture 23 - HLS for Arrays
- Lecture 24 - HLS for Loops
- Lecture 25 - HLS for Loop - pipeline
- Lecture 26 - Hardware Efficient C Coding - Part I
- Lecture 27 - Hardware Efficient C Coding - Part II
- Lecture 28 - Dataflow Optimization in HLS
- Lecture 29 - Frontend Optimizations in C

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - HLS Optimizations: Case Study 1
- Lecture 31 - HLS Optimizations: Case Study 1
- Lecture 32 - Simulation based Verification
- Lecture 33 - RTL to C Reverse Engineering
- Lecture 34 - Phase-wise Verification of HLS
- Lecture 35 - Equivalence between C and RTL
- Lecture 36 - HLS for Security
- Lecture 37 - Introduction to Hardware Security
- Lecture 38 - Attacks on RTL Logic locking
- Lecture 39 - Introduction to Logic Synthesis
- Lecture 40 - FPGA Technology Mapping
- Lecture 41 - Introduction to Physical Synthesis
- Lecture 42 - Introduction to Circuit optimizations
- Lecture 43 - Recent Advances in C-Based VLSI Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Design and Implementation of Human-Computer Inter

Subject Co-ordinator - Prof. Samit Bhattacharya

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Interactive Systems
- Lecture 2 - Introduction to Usability
- Lecture 3 - Engineering for Usability
- Lecture 4 - Interactive System Life Cycle
- Lecture 5 - Usability Requirements
- Lecture 6 - Contextual Inquiry
- Lecture 7 - Functional Requirements Specification
- Lecture 8 - Case Study on SRS
- Lecture 9 - Case Study (Usability Requirement Gathering)
- Lecture 10 - Case Study (Other Requirement Gathering)
- Lecture 11 - Case Study - Non-Functional Requirements to SRS
- Lecture 12 - Introduction to Interface Design
- Lecture 13 - Shneiderman's Golden Rules
- Lecture 14 - Norman's Principles
- Lecture 15 - Prototyping
- Lecture 16 - Prototype Evaluation - I
- Lecture 17 - Prototype Evaluation - II
- Lecture 18 - Case Study on Prototype Evaluation - I
- Lecture 19 - Case Study on Prototype Evaluation - II
- Lecture 20 - Basics of System Design
- Lecture 21 - Data Flow Diagram
- Lecture 22 - Entity Relationship Diagram
- Lecture 23 - Case Study on DFD and ER
- Lecture 24 - Introduction to Object Oriented Design
- Lecture 25 - UML
- Lecture 26 - UML Case Study
- Lecture 27 - Coding Basics
- Lecture 28 - Code Testing Basics
- Lecture 29 - Review-Based Code Testing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Code Review Case Study
- Lecture 31 - Black-Box Testing - I
- Lecture 32 - Black-Box Testing - II
- Lecture 33 - Black-Box Testing Case Study
- Lecture 34 - White-Box Testing
- Lecture 35 - White-Box Testing Case Study
- Lecture 36 - System Integration and Testing
- Lecture 37 - Empirical Usability Evaluation - I
- Lecture 38 - Empirical Usability Evaluation - II
- Lecture 39 - Experiment Design - I
- Lecture 40 - Experiment Design - II
- Lecture 41 - Empirical Data Analysis
- Lecture 42 - Project Management
- Lecture 43 - Note on Agile Development
- Lecture 44 - Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Digital Design with Verilog

Subject Co-ordinator - Prof. Chandan Karfa, Prof. Aryabartta Sahu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Digital Design with Verilog
- Lecture 2 - Switching Algebra
- Lecture 3 - Canonical Forms of Switching Functions
- Lecture 4 - Number Systems
- Lecture 5 - Binary Arithmetic
- Lecture 6 - Binary Codes
- Lecture 7 - Error Detection and Corrections Codes
- Lecture 8 - Minimization of Switching functions-Karnaugh Map
- Lecture 9 - Karnaugh Map
- Lecture 10 - Minimization of Switching functions-Properties
- Lecture 11 - Quine-McCluskey Method
- Lecture 12 - Quine-McCluskey Method-Prime Implication Chart
- Lecture 13 - ESPRESSO-Heuristic Based Switching Function Minimization
- Lecture 14 - Multi-level Logic Minimization
- Lecture 15 - Multi-level Logic Minimization-Kernels Extraction
- Lecture 16 - Digital Circuits Modelling using Verilog
- Lecture 17 - Modelling Techniques in Verilog
- Lecture 18 - Behavioral Modelling in Verilog
- Lecture 19 - Digital System Design using Verilog
- Lecture 20 - Testbench in Verilog
- Lecture 21 - Code Conversion, Parity Bit Generator
- Lecture 22 - Comparator, Multiplexer
- Lecture 23 - Encoder, Decoder
- Lecture 24 - Ripple Carry Adder, Carry Look ahead Adder
- Lecture 25 - Adder/Subtractor
- Lecture 26 - BCD Adder, Multiplier
- Lecture 27 - Latch/Storage Design
- Lecture 28 - Flipflop Design, Characteristics of Flipflop
- Lecture 29 - Flipflop, Register and Memory

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Digital Counter
- Lecture 31 - Finite State Machine Design and Implementation with many Examples
- Lecture 32 - FSM Completeness and Correctness
- Lecture 33 - Sync Counter using FSM, Implementation using different FFs and Comparison of types of FSM
- Lecture 34 - FSM State Optimization using Row Matching and Partitioning Methods
- Lecture 35 - State Optimization using Implication chart and State Encoding
- Lecture 36 - RTL Design, Introduction to ASM (Algorithmic State Machine)
- Lecture 37 - RTL/ASM Design Examples and Implementation
- Lecture 38 - ASM Data Path Inference and Control Path Generation
- Lecture 39 - Sequential Multiplier the Classic Example of RTL Design
- Lecture 40 - Introduction to FPGA and Design Flow
- Lecture 41 - Introduction to Electronic Design Automation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Parallel Computer Architecture

Subject Co-ordinator - Prof. Hemangee K. Kapoor

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Why do we need parallel architecture ?  
Lecture 2 - Multicore Revolution  
Lecture 3 - What is Parallel Architecture?  
Lecture 4 - Performance and Benchmarking  
Lecture 5 - Reporting Results  
Lecture 6 - Some Laws  
Lecture 7 - A shift from sequential to parallel  
Lecture 8 - Programming Models  
Lecture 9 - Shared Memory Paradigm  
Lecture 10 - Message Passing Paradigm  
Lecture 11 - Examples  
Lecture 12 - Cache Basics  
Lecture 13 - Memory hierarchy questions - 1  
Lecture 14 - Memory hierarchy questions - 2  
Lecture 15 - Six basic cache optimisations - 1  
Lecture 16 - Six basic cache optimisations - 2  
Lecture 17 - Virtual Memory - 1  
Lecture 18 - Virtual Memory - 2  
Lecture 19 - Cache Coherence Problem  
Lecture 20 - Concept of Serialisation  
Lecture 21 - Coherence related Conditions  
Lecture 22 - Types of Coherence Protocols - 1  
Lecture 23 - Types of Coherence Protocols - 2  
Lecture 24 - VI Protocol  
Lecture 25 - 3 State: MSI Protocol  
Lecture 26 - MESI Protocol  
Lecture 27 - Dragon Protocol  
Lecture 28 - Coherence misses  
Lecture 29 - Coherence misses example

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Correctness Requirements
- Lecture 31 - Single-Level caches with an Atomic Bus - 1
- Lecture 32 - Single-Level caches with an Atomic Bus - 2
- Lecture 33 - Multi-Level caches with an Atomic Bus - 1
- Lecture 34 - Multi-Level caches with an Atomic Bus - 2
- Lecture 35 - Split transaction Bus
- Lecture 36 - Phases in Split Transaction Bus
- Lecture 37 - Request table and Organization
- Lecture 38 - Path of a Cache Miss
- Lecture 39 - Multi-Level cache + Split transaction Bus
- Lecture 40 - Introduction to Directory Cache Coherence
- Lecture 41 - Basic Operation of a Directory
- Lecture 42 - Directory Organisations
- Lecture 43 - Directory Overhead Optimisations
- Lecture 44 - Directory Protocol optimisations
- Lecture 45 - Proving Correctness - 1
- Lecture 46 - Proving Correctness - 2
- Lecture 47 - SGI Origin Architecture
- Lecture 48 - Working of protocol
- Lecture 49 - Correctness Issues
- Lecture 50 - Sequent NUMA-Q Architecture
- Lecture 51 - Working of protocol - 1
- Lecture 52 - Working of protocol - 2
- Lecture 53 - Correctness and Protocol Interaction
- Lecture 54 - Sequential Consistency
- Lecture 55 - Implications of Sequential Consistency
- Lecture 56 - Relaxed Consistency Models - 1
- Lecture 57 - Relaxed Consistency Models - 2
- Lecture 58 - Relaxing all Orders
- Lecture 59 - Uninterruptible Instructions
- Lecture 60 - Implementation of atomic instructions
- Lecture 61 - Other synchronisation options
- Lecture 62 - Interconnect Overview
- Lecture 63 - Topologies
- Lecture 64 - Routing
- Lecture 65 - Flow Control

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Computer Algorithms - 2

Subject Co-ordinator - Prof. Shashank K. Mehta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Graph\_Basics  
Lecture 2 - Breadth\_First\_Search  
Lecture 3 - Dijkstra\_Algo  
Lecture 4 - All Pair Shortest Path  
Lecture 5 - Matriods  
Lecture 6 - Minimum Spanning Tree  
Lecture 7 - Edmond's Matching Algo I  
Lecture 8 - Edmond's Matching Algo II  
Lecture 9 - Flow Networks  
Lecture 10 - Ford Fulkerson Method  
Lecture 11 - Edmond Karp Algo  
Lecture 12 - Matrix Inversion  
Lecture 13 - Matrix Decomposition  
Lecture 14 - Knuth Morris Pratt Algo  
Lecture 15 - Rabin Karp Algo  
Lecture 16 - NFA Simulation  
Lecture 17 - Integer-Polynomial Ops-I  
Lecture 18 - Integer-Polynomial Ops-II  
Lecture 19 - Integer-Polynomial Ops-III  
Lecture 20 - Chinese Remainder-I  
Lecture 21 - Chinese Remainder-II  
Lecture 22 - Chinese Remainder-III  
Lecture 23 - Discrete Fourier Transform-I  
Lecture 24 - Discrete Fourier Transform-II  
Lecture 25 - Discrete Fourier Transform-III  
Lecture 26 - Schonhage Strassen Algo  
Lecture 27 - Linear Programming-I  
Lecture 28 - Linear Programming-II  
Lecture 29 - Geometry-I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Geometry-II
- Lecture 31 - Geometry-III
- Lecture 32 - Approximation Algo-I
- Lecture 33 - Approximation Algo-II
- Lecture 34 - Approximation Algo-III
- Lecture 35 - General

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Theory of Computation

Subject Co-ordinator - Prof. Somenath Biswas

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is theory of computation? Set membership problem, basic notions like alphabet, strings, forms
- Lecture 2 - Introduction to finite automaton
- Lecture 3 - Finite automata continued, deterministic finite automata (DFAs), language accepted by a DFA
- Lecture 4 - Regular languages, their closure properties
- Lecture 5 - DFAs solve set membership problems in linear time, pumping lemma
- Lecture 6 - More examples of nonregular languages, proof of pumping lemma, pumping lemma as a game, converse
- Lecture 7 - A generalization of pumping lemma, nondeterministic finite automata (NFAs), computation trees for
- Lecture 8 - Formal description of NFA, language accepted by NFA, such languages are also regular
- Lecture 9 - 'Guess and verify' paradigm for nondeterminism
- Lecture 10 - NFA's with epsilon transitions
- Lecture 11 - Regular expressions, they denote regular languages
- Lecture 12 - Construction of a regular expression for a language given a DFA accepting it. Algebraic closure
- Lecture 13 - Closure properties (Continued...)
- Lecture 14 - Closure under reversal, use of closure properties
- Lecture 15 - Decision problems for regular languages
- Lecture 16 - About minimization of states of DFAs. Myhill-Nerode theorem
- Lecture 17 - Continuation of proof of Myhill-Nerode theorem
- Lecture 18 - Application of Myhill-Nerode theorem. DFA minimization
- Lecture 19 - DFA minimization (Continued...)
- Lecture 20 - Introduction to context free languages (cfls) and context free grammars (cfgs). Derivation of st
- Lecture 21 - Languages generated by a cfg, leftmost derivation, more examples of cfgs and cfls
- Lecture 22 - Parse trees, inductive proof that  $L$  is  $L(G)$ . All regular languages are context free
- Lecture 23 - Towards Chomsky normal forms
- Lecture 24 - Simplification of cfgs continued, Removal of epsilon productions
- Lecture 25 - Elimination of unit productions. Converting a cfg into Chomsky normal form. Towards pumping lem
- Lecture 26 - Pumping lemma for cfls. Adversarial paradigm
- Lecture 27 - Completion of pumping lemma proof. Examples of use of pumping lemma. Converse of lemma does not
- Lecture 28 - Closure properties continued. cfls not closed under complementation
- Lecture 29 - Another example of a cfl whose complement is not a cfl. Decision problems for cfls

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - More decision problems. CYK algorithm for membership decision
- Lecture 31 - Introduction to pushdown automata (pda)
- Lecture 32 - pda configurations, acceptance notions for pdas. Transition diagrams for pdas
- Lecture 33 - Equivalence of acceptance by empty stack and acceptance by final state
- Lecture 34 - Turing machines (TM)
- Lecture 35 - Execution trace, another example (unary to binary conversion)
- Lecture 36 - Example continued. Finiteness of TM description, TM configuration, language acceptance, definition
- Lecture 37 - Notion of non-acceptance or rejection of a string by a TM. Multitrack TM, its equivalence to standard TM
- Lecture 38 - Simulation of multitape TMs by basic model. Nondeterministic TM (NDTM). Equivalence of NDTMs with basic TM
- Lecture 39 - Counter machines and their equivalence to basic TM model
- Lecture 40 - TMs can simulate computers, diagonalization proof
- Lecture 41 - Existence of non-r.e. languages, recursive languages, notion of decidability
- Lecture 42 - Separation of recursive and r.e. classes, halting problem and its undecidability

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Introduction to Problem Solving and Programming

Subject Co-ordinator - Prof. D. Gupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
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Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Riemann Hypothesis and its Applications

Subject Co-ordinator - Prof. Manindra Agrawal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture - 1  
Lecture - 2  
Lecture - 3  
Lecture - 4  
Lecture - 5  
Lecture - 6  
Lecture - 7  
Lecture - 8  
Lecture - 9  
Lecture - 10  
Lecture - 11  
Lecture - 12  
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Lecture - 29

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Biometrics

Subject Co-ordinator - Prof. Phalguni Gupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Biometrics  
Lecture 2 - Biometrics  
Lecture 3 - Biometrics  
Lecture 4 - Biometrics  
Lecture 5 - Biometrics  
Lecture 6 - Biometrics  
Lecture 7 - Biometrics  
Lecture 8 - Biometrics  
Lecture 9 - Biometrics  
Lecture 10 - Biometrics  
Lecture 11 - Biometrics  
Lecture 12 - Biometrics  
Lecture 13 - Biometrics  
Lecture 14 - Biometrics  
Lecture 15 - Biometrics  
Lecture 16 - Biometrics  
Lecture 17 - Biometrics  
Lecture 18 - Biometrics  
Lecture 19 - Biometrics  
Lecture 20 - Biometrics  
Lecture 21 - Biometrics  
Lecture 22 - Biometrics  
Lecture 23 - Biometrics  
Lecture 24 - Biometrics  
Lecture 25 - Biometrics  
Lecture 26 - Biometrics

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Parallel Algorithm

Subject Co-ordinator - Prof. Phalguni Gupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Parallel Algorithm  
Lecture 2 - Parallel Algorithm  
Lecture 3 - Parallel Algorithm  
Lecture 4 - Parallel Algorithm  
Lecture 5 - Parallel Algorithm  
Lecture 6 - Parallel Algorithm  
Lecture 7 - Parallel Algorithm  
Lecture 8 - Parallel Algorithm  
Lecture 9 - Parallel Algorithm  
Lecture 10 - Parallel Algorithm  
Lecture 11 - Parallel Algorithm  
Lecture 12 - Parallel Algorithm  
Lecture 13 - Parallel Algorithm  
Lecture 14 - Parallel Algorithm  
Lecture 15 - Parallel Algorithm  
Lecture 16 - Parallel Algorithm  
Lecture 17 - Parallel Algorithm  
Lecture 18 - Parallel Algorithm  
Lecture 19 - Parallel Algorithm  
Lecture 20 - Parallel Algorithm  
Lecture 21 - Parallel Algorithm  
Lecture 22 - Parallel Algorithm  
Lecture 23 - Parallel Algorithm  
Lecture 24 - Parallel Algorithm  
Lecture 25 - Parallel Algorithm

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Computer Architecture (Dr. Mainak Chaudhuri)

Subject Co-ordinator - Dr. Mainak Chaudhuri

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Amdahl's law, CPI equation
- Lecture 2 - CPI equation, research practices, instruction set architecture
- Lecture 3 - Instruction set architecture
- Lecture 4 - Instruction set architecture
- Lecture 5 - Instruction set architecture, case study with MIPS-I
- Lecture 6 - Case study with MIPS-I
- Lecture 7 - Case study with MIPS-I
- Lecture 8 - Binary instrumentation for architectural studies
- Lecture 9 - Binary instrumentation for architectural studies
- Lecture 10 - Basic pipelining, branch prediction
- Lecture 11 - Basic pipelining, branch prediction
- Lecture 12 - Basic pipelining, branch prediction
- Lecture 13 - Basic pipelining, branch prediction
- Lecture 14 - Basic pipelining, branch prediction
- Lecture 15 - Basic pipelining, branch prediction
- Lecture 16 - Basic pipelining, branch prediction
- Lecture 17 - Basic pipelining, branch prediction
- Lecture 18 - Basic pipelining, branch prediction
- Lecture 19 - Basic pipelining, branch prediction
- Lecture 20 - Dynamic scheduling, speculative execution
- Lecture 21 - Dynamic scheduling, speculative execution
- Lecture 22 - Dynamic scheduling, speculative execution
- Lecture 23 - Dynamic scheduling, speculative execution
- Lecture 24 - Dynamic scheduling, speculative execution
- Lecture 25 - Virtual memory and caches
- Lecture 26 - Virtual memory and caches
- Lecture 27 - Virtual memory and caches
- Lecture 28 - Topics in memory system, DRAM and SRAM technology
- Lecture 29 - Topics in memory system, DRAM and SRAM technology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Topics in memory system, DRAM and SRAM technology
- Lecture 31 - Case study
- Lecture 32 - Case study
- Lecture 33 - Case study
- Lecture 34 - Case study
- Lecture 35 - Input/Output
- Lecture 36 - Simultaneous multithreading, multi-cores

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Compiler Design (Prof. Sanjeev K Aggarwal)

Subject Co-ordinator - Prof. Sanjeev K Aggarwal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Compiler Design  
Lecture 2 - Compiler Design  
Lecture 3 - Compiler Design  
Lecture 4 - Compiler Design  
Lecture 5 - Compiler Design  
Lecture 6 - Compiler Design  
Lecture 7 - Compiler Design  
Lecture 8 - Compiler Design  
Lecture 9 - Compiler Design  
Lecture 10 - Compiler Design  
Lecture 11 - Compiler Design  
Lecture 12 - Compiler Design  
Lecture 13 - Compiler Design  
Lecture 14 - Compiler Design  
Lecture 15 - Compiler Design  
Lecture 16 - Compiler Design  
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Lecture 19 - Compiler Design  
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Lecture 22 - Compiler Design  
Lecture 23 - Compiler Design  
Lecture 24 - Compiler Design  
Lecture 25 - Compiler Design  
Lecture 26 - Compiler Design  
Lecture 27 - Compiler Design  
Lecture 28 - Compiler Design  
Lecture 29 - Compiler Design  
Lecture 30 - Compiler Design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to programming in C

Subject Co-ordinator - Prof. Satyadev Nandakumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Intro - Process of programming  
Lecture 2 - Intro - GCD  
Lecture 3 - Intro - Programming cycle  
Lecture 4 - Intro - Tracing a simple program  
Lecture 5 - Intro - Variables  
Lecture 6 - Intro - Operators  
Lecture 7 - Loops - While  
Lecture 8 - Loops - While example  
Lecture 9 - Loops - While GCD example  
Lecture 10 - Loops - Longest 1  
Lecture 11 - Loops - Longest 2  
Lecture 12 - Loops - Longest 3  
Lecture 13 - Loops - Do-while  
Lecture 14 - Loops - Matrix using nested loops  
Lecture 15 - Loops - For  
Lecture 16 - Loops - Matrix using nested for loops  
Lecture 17 - Loops - Break statement  
Lecture 18 - Loops - Continue statement  
Lecture 19 - Loops - Continue statement example  
Lecture 20 - Data types in C  
Lecture 21 - ASCII code  
Lecture 22 - Operators Expressions Associativity  
Lecture 23 - Precedence of operators  
Lecture 24 - Expression evaluation  
Lecture 25 - Functions - Introduction  
Lecture 26 - Functions - How functions are executed  
Lecture 27 - Functions - Examples - 1  
Lecture 28 - Functions - Examples - 2  
Lecture 29 - Arrays in C

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Initializing arrays
- Lecture 31 - Initializing character arrays
- Lecture 32 - Pointers in C
- Lecture 33 - Pointer arithmetic
- Lecture 34 - Function with pointer arguments
- Lecture 35 - Example - copy a subarray
- Lecture 36 - Programming using arrays and pointers
- Lecture 37 - sizeof operator
- Lecture 38 - Returning pointers from functions
- Lecture 39 - Example - return duplicate of a string
- Lecture 40 - Recursion - Linear Recursion
- Lecture 41 - Recursion - Linear Recursion - 2
- Lecture 42 - Recursion - Two-way Recursion
- Lecture 43 - Multidimensional Arrays
- Lecture 44 - Multidimensional Arrays and Pointers
- Lecture 45 - Multidimensional Arrays and Pointers - continued (2)
- Lecture 46 - Multidimensional Arrays and Pointers - continued (3)
- Lecture 47 - File Handling
- Lecture 48 - Some other file-handling functions
- Lecture 49 - Structures in C - 1
- Lecture 50 - Structures in C - 2
- Lecture 51 - Singly Linked Lists
- Lecture 52 - Doubly Linked Lists - introduction
- Lecture 53 - Organizing code into multiple files - 1
- Lecture 54 - Organizing code into multiple files - 2
- Lecture 55 - Pre and post increment

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Fundamentals of Database Systems

Subject Co-ordinator - Dr. Arnab Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Databases  
Lecture 2 - Relational Data Model  
Lecture 3 - Relational Algebra Basic Operators  
Lecture 4 - Relational Algebra Composition of Operators  
Lecture 5 - Relational Algebra Additional Operators  
Lecture 6 - Relational Algebra Extended Relational Algebra  
Lecture 7 - Relational Algebra  
Lecture 8 - SQL  
Lecture 9 - SQL  
Lecture 10 - SQL  
Lecture 11 - SQL  
Lecture 12 - Normalization Theory  
Lecture 13 - Normalization Theory  
Lecture 14 - Normalization Theory  
Lecture 15 - Normalization Theory  
Lecture 16 - Normalization Theory  
Lecture 17 - Physical Design  
Lecture 18 - Database Indexing  
Lecture 19 - Database Indexing  
Lecture 20 - Query Processing  
Lecture 21 - Query Processing  
Lecture 22 - Query Processing  
Lecture 23 - Query Processing  
Lecture 24 - Query Optimization  
Lecture 25 - Query Optimization  
Lecture 26 - Query Optimization  
Lecture 27 - Query Optimization  
Lecture 28 - Database Transactions  
Lecture 29 - Database Transactions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Recovery Systems
- Lecture 31 - Recovery Systems
- Lecture 32 - Recovery Systems
- Lecture 33 - Schedules
- Lecture 34 - Schedules
- Lecture 35 - Schedules
- Lecture 36 - Schedules
- Lecture 37 - Schedules
- Lecture 38 - Concurrency Control
- Lecture 39 - Concurrency Control
- Lecture 40 - Concurrency Control
- Lecture 41 - Concurrency Control
- Lecture 42 - Concurrency Control
- Lecture 43 - Concurrency Control
- Lecture 44 - Concurrency Control
- Lecture 45 - NoSQL
- Lecture 46 - NoSQL
- Lecture 47 - NoSQL
- Lecture 48 - Big Data

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Theory of Computation

Subject Co-ordinator - Prof. Raghunath Tewari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Finite Automata
- Lecture 2 - Basic Notation and Convention, DFA Edit Lesson
- Lecture 3 - Example of DFAs
- Lecture 4 - Computation by DFA and Regular operation
- Lecture 5 - Introduction to Nondeterminism
- Lecture 6 - NFA, definition and examples
- Lecture 7 - Equivalence of NFA and DFA, Closure properties
- Lecture 8 - Regular expressions
- Lecture 9 - Algebraic properties, RE to NFA conversion
- Lecture 10 - GNFA to RE conversion
- Lecture 11 - More closure properties of regular languages
- Lecture 12 - Non-regular languages and pumping lemma
- Lecture 13 - Examples of non-regular languages
- Lecture 14 - DFA minimization
- Lecture 15 - Introduction to CFGs
- Lecture 16 - Examples of CFGs, Reg subset of CFL
- Lecture 17 - Parse tree, derivation, ambiguity
- Lecture 18 - Normal forms, Chomsky normal form
- Lecture 19 - Non-CFLs, pumping lemma
- Lecture 20 - Examples of non- CFLs
- Lecture 21 - Pushdown Automata
- Lecture 22 - Pushdown Automata - Definition and Example
- Lecture 23 - Pushdown Automata - Examples and Relation with CFGs
- Lecture 24 - Closure Properties of CFLs
- Lecture 25 - Deterministic Context Free Languages
- Lecture 26 - Turing Machine
- Lecture 27 - More on Turing Machine
- Lecture 28 - Non deterministic Turing Machine Edit Lesson
- Lecture 29 - Configuration Graphs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Closure Properties of Decidable and Turing recognizable languages
- Lecture 31 - Decidability properties of Regular and Context Free Languages
- Lecture 32 - Undecidability
- Lecture 33 - More on Undecidability
- Lecture 34 - Reduction
- Lecture 35 - Applications of Reduction
- Lecture 36 - Rice's theorem
- Lecture 37 - Introduction to Computational Complexity Theory
- Lecture 38 - More on the class NP
- Lecture 39 - NP-Completeness
- Lecture 40 - More on NP-Completeness

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Modern Algebra

Subject Co-ordinator - Prof. Manindra Agrawal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Groups  
Lecture 2 - Groups  
Lecture 3 - Groups  
Lecture 4 - Groups  
Lecture 5 - Groups  
Lecture 6 - Groups  
Lecture 7 - Rings  
Lecture 8 - Rings  
Lecture 9 - Rings  
Lecture 10 - Rings  
Lecture 11 - Rings  
Lecture 12 - Rings  
Lecture 13 - Rings  
Lecture 14 - Fields  
Lecture 15 - Cauchy sequences and real numbers  
Lecture 16 - Properties of Fields  
Lecture 17 - Finite Fields  
Lecture 18 - Application of Fields

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Advanced Graph Theory

Subject Co-ordinator - Dr.Rajiv Misra

Co-ordinating Institute - IIT - Patna

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Graph Theory
- Lecture 2 - Paths, Cycles and Trails
- Lecture 3 - Eulerian Circuits, Vertex Degrees and Counting
- Lecture 4 - The Chinese Postman Problem and Graphic Sequences
- Lecture 5 - Trees and Distance
- Lecture 6 - Spanning Trees and Enumeration
- Lecture 7 - Matchings and Covers
- Lecture 8 - Independent Sets, Covers and Maximum Bipartite Matching
- Lecture 9 - Weighted Bipartite Matching
- Lecture 10 - Stable Matchings and Faster Bipartite Matching
- Lecture 11 - Factors and Perfect Matching in General Graphs
- Lecture 12 - Matching in General Graphs
- Lecture 13 - Connectivity and Paths
- Lecture 14 - k-Connected Graphs
- Lecture 15 - Network Flow Problems
- Lecture 16 - Vertex Coloring and Upper Bounds
- Lecture 17 - Brooks's Theorem and Color-Critical Graphs
- Lecture 18 - Counting Proper Colorings
- Lecture 19 - Planar Graphs
- Lecture 20 - Characterization of Planar Graphs
- Lecture 21 - Line Graphs and Edge-coloring
- Lecture 22 - Hamiltonian Graph, Traveling Salesman Problem and NP-Completeness
- Lecture 23 - Connected Dominating Set and Distributed Algorithm

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Cloud Computing and Distributed Systems

Subject Co-ordinator - Dr.Rajiv Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Cloud Computing
- Lecture 2 - Virtualization
- Lecture 3 - Hotspot Mitigation for Virtual Machine Migration
- Lecture 4 - Server Virtualization
- Lecture 5 - Software Defined Network
- Lecture 6 - Geo-distributed Cloud Data Centers
- Lecture 7 - Leader Election in Rings (Classical Distributed Algorithms)
- Lecture 8 - Leader Election (Ring LE and Bully LE Algorithm)
- Lecture 9 - Design of Zookeeper
- Lecture 10 - Time and Clock Synchronization in Cloud Data Centers
- Lecture 11 - Global State and Snapshot Recording Algorithms
- Lecture 12 - Distributed Mutual Exclusion
- Lecture 13 - Consensus in Cloud Computing and Paxos
- Lecture 14 - Byzantine Agreement
- Lecture 15 - Failures and Recovery Approaches in Distributed Systems
- Lecture 16 - Design of Key-Value Stores
- Lecture 17 - Design of HBase
- Lecture 18 - Peer to Peer Systems in Cloud Computing
- Lecture 19 - MapReduce
- Lecture 20 - Introduction to Spark
- Lecture 21 - Introduction to Kafka

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Big Data Computing

Subject Co-ordinator - Dr. Rajiv Misra

Co-ordinating Institute - IIT - Patna

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Big Data
- Lecture 2 - Big Data Enabling Technologies
- Lecture 3 - Hadoop Stack for Big Data
- Lecture 4 - Hadoop Distributed File System (HDFS)
- Lecture 5 - Hadoop MapReduce 1.0
- Lecture 6 - Hadoop MapReduce 2.0 - Part I
- Lecture 7 - Hadoop MapReduce 2.0 - Part II
- Lecture 8 - MapReduce Examples
- Lecture 9 - Parallel Programming with Spark
- Lecture 10 - Introduction to Spark
- Lecture 11 - Spark Built-in Libraries
- Lecture 12 - Design of Key-Value Stores
- Lecture 13 - Data Placement Strategies
- Lecture 14 - CAP Theorem
- Lecture 15 - Consistency Solutions
- Lecture 16 - Design of Zookeeper
- Lecture 17 - CQL (Cassandra Query Language)
- Lecture 18 - Design of HBase
- Lecture 19 - Spark Streaming and Sliding Window Analytics - Part I
- Lecture 20 - Spark Streaming and Sliding Window Analytics - Part II
- Lecture 21 - Sliding Window Analytics
- Lecture 22 - Introduction to Kafka
- Lecture 23 - Big Data Machine Learning - Part I
- Lecture 24 - Big Data Machine Learning - Part II
- Lecture 25 - Machine Learning Algorithm K-means using Map Reduce for Big Data Analytics
- Lecture 26 - Parallel K-means using Map Reduce on Big Data Cluster Analysis
- Lecture 27 - Decision Trees for Big Data Analytics
- Lecture 28 - Big Data Predictive Analytics - Part I
- Lecture 29 - Big Data Predictive Analytics - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Parameter Servers
- Lecture 31 - PageRank Algorithm in Big Data
- Lecture 32 - Spark GraphX and Graph Analytics - Part I
- Lecture 33 - Spark GraphX and Graph Analytics - Part II
- Lecture 34 - Case Study

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Blockchain Technology and Applica

Subject Co-ordinator - Prof. Sandeep Shukla

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Arithmetic Circuit Complexity

Subject Co-ordinator - Prof. Nitin Saxena

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Turing Machines and Introduction to Arithmetic Circuits
- Lecture 2 - Arithmetic complexity classes
- Lecture 3 - Determinant is in VP
- Lecture 4 - Determinant vs Arithmetic Branching Programs (ABP)
- Lecture 5 - Determinant as signed sum of cflow sequence
- Lecture 6 - Determinant has small ABP and Strassen's homogenization
- Lecture 7 - Depth reduction for arithmetic formulas
- Lecture 8 - Depth reduction for arithmetic circuits
- Lecture 9 - Depth 4 reduction
- Lecture 10 - Depth 3 reduction
- Lecture 11 - Equivalence of Formulas and Width 3 ABP
- Lecture 12 - Width-2 ABP Chasm
- Lecture 13 - Grigoriev-Karpinski Measure
- Lecture 14 - Lower Bound of Depth-3 circuit over finite fields
- Lecture 15 - Lower Bound for depth 3 Multilinear Circuits
- Lecture 16 - Lower Bound for Constant depth Multilinear Circuits
- Lecture 17 - Structural lemma for constant depth multilinear circuits
- Lecture 18 - Extending the proof for multilinear formulas
- Lecture 19 - Shifted Partial Derivative Measure
- Lecture 20 - Exponential Lower Bound for General depth-4 Circuits
- Lecture 21 - Lower Bound on Homogeneous Depth-4 circuits
- Lecture 22 - Introduction to PIT
- Lecture 23 - Hitting Set and Hitting Set Generator
- Lecture 24 - PIT vs Lower Bounds

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computational Complexity Theory

Subject Co-ordinator - Prof. Raghunath Tewari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - NP Completeness
- Lecture 3 - SAT is NP-complete
- Lecture 4 - More on NP completeness
- Lecture 5 - Hierarchy Theorems
- Lecture 6 - Introduction to Space Complexity
- Lecture 7 - Savitch's Theorem
- Lecture 8 - Immerman-Szelepcsenyi Theorem
- Lecture 9 - Polynomial Hierarchy
- Lecture 10 - A PSPACE Complete Problem
- Lecture 11 - More on Polynomial Hierarchy
- Lecture 12 - Alternating Turing Machines
- Lecture 13 - Equivalence of Quantifier and Oracle Based Definitions of Polynomial Hierarchy
- Lecture 14 - Boolean Circuits
- Lecture 15 - Shannon's Theorem and Karp-Lipton-Sipser Theorem
- Lecture 16 - Bounded Depth Circuit Classes
- Lecture 17 - Kannan's Theorem
- Lecture 18 - Probabilistic Complexity
- Lecture 19 - StrongBPP and WeakBPP
- Lecture 20 - One-sided and Zero-sided Error Probabilistic Complexity Classes
- Lecture 21 - Error Reduction for BPP
- Lecture 22 - BPP in PH and Logspace Randomized Classes
- Lecture 23 - Valiant-Vazirani Theorem - I
- Lecture 24 - Valiant-Vazirani Theorem - II
- Lecture 25 - Amplified version of Valiant-Vazirani Theorem
- Lecture 26 - Toda's Theorem - I
- Lecture 27 - Toda's Theorem - II
- Lecture 28 - Permanent and Determinant Functions
- Lecture 29 - Permanent is hard for #P

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interactive Proofs
- Lecture 31 - Graph Non-Isomorphism is in IP[2]
- Lecture 32 - Set Lower Bound Protocol
- Lecture 33 - MA is in AM
- Lecture 34 - Sumcheck Protocol - I
- Lecture 35 - Sumcheck Protocol - II
- Lecture 36 - Parity not in AC0 - I
- Lecture 37 - Parity not in AC0 - II
- Lecture 38 - Circuits with Counters
- Lecture 39 - Communication Complexity - I
- Lecture 40 - PCP Theorem
- Lecture 41 - Communication Complexity - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Randomized Methods in Complexity

Subject Co-ordinator - Prof. Nitin Saxena

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Outline
- Lecture 2 - Circuits and Polynomial Identity Testing
- Lecture 3 - Derandomization and Lower Bounds
- Lecture 4 -  $IP=PSPACE$
- Lecture 5 - ACC0 Lower Bounds
- Lecture 6 - ACC0 Lower Bounds (Continued...)
- Lecture 7 - Monotone Circuits
- Lecture 8 - Monotone Circuit Lower Bound and Sunflower Lemma
- Lecture 9 - Undirected Graph Connectivity in randomized logspace
- Lecture 10 - Graph Expansion Properties
- Lecture 11 - Expanders
- Lecture 12 - Error Reduction using Expanders
- Lecture 13 - Ajtai-Komlos-Szemerédi Theorem
- Lecture 14 - Explicit construction of expanders and Zig-Zag product
- Lecture 15 - Spectral analysis of Zig-Zag product
- Lecture 16 - Undirected Path in logspace
- Lecture 17 - Explicit Prg to derandomizing classes
- Lecture 18 - Hardness vs Randomness
- Lecture 19 - Hardness to NW-Generator to PRG
- Lecture 20 - Partial derandomization from worst-case hardness of permanent
- Lecture 21 - Error-correcting codes
- Lecture 22 - Introduction to various linear explicit codes
- Lecture 23 - Introduction of efficient decoding
- Lecture 24 - Local decoding of WH, Reed-Muller and Concatenated codes
- Lecture 25 - Introduction to List Decoding
- Lecture 26 - Local List decoding of WH, RM

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Probability for Computer Science

Subject Co-ordinator - Prof. Nitin Saxena

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introductory examples
- Lecture 2 - Examples and Course outline
- Lecture 3 - Probability over discrete space
- Lecture 4 - Inclusion-Exclusion principle
- Lecture 5 - Probability over infinite space
- Lecture 6 - Conditional probability, Partition formula
- Lecture 7 - Independent events, Bayes theorem
- Lecture 8 - Fallacies, Random variables
- Lecture 9 - Expectation
- Lecture 10 - Conditional Expectation
- Lecture 11 - Important Random Variables
- Lecture 12 - Continuous Random Variables
- Lecture 13 - Equality Checking, Poisson Distribution
- Lecture 14 - Concentration Inequalities, Variance
- Lecture 15 - Weak Linearity of Variance, Law of Large Numbers
- Lecture 16 - Chernoff's Bound. K-wise Independence
- Lecture 17 - Union and Factorial Estimates
- Lecture 18 - Stochastic Process: Markov Chains
- Lecture 19 - Drunkard's walk, Evolution of Markov Chains
- Lecture 20 - Stationary Distribution
- Lecture 21 - Perron-Frobenius Theorem, Page Rank Algorithm
- Lecture 22 - Page Rank Algorithm: Ergodicity
- Lecture 23 - Cell Genetics
- Lecture 24 - Random Sampling
- Lecture 25 - Biased Coin Tosses, Hashing
- Lecture 26 - Hashing, Introduction to Probabilistic Methods
- Lecture 27 - Ramsey Numbers, Large Cuts in Graphs
- Lecture 28 - Sum Free Subsets, Discrepancy
- Lecture 29 - Extremal Set Families

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Super Concentrators

Lecture 31 - Streaming Algorithms - I

Lecture 32 - Streaming Algorithms - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Circuit Complexity Theory

Subject Co-ordinator - Prof. Raghunath Tewari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Standard Bounds
- Lecture 3 - Shannon's Theorem
- Lecture 4 - Riordon-Shannon Theorem
- Lecture 5 - Khrapchenko's Theorem
- Lecture 6 - Proof of Khrapchenko's Theorem
- Lecture 7 - Application of Khrapchenko's Theorem
- Lecture 8 - Nechiporuk's Theorem
- Lecture 9 - Application of Nechiporuk's Theorem
- Lecture 10 - Subbotovskaya's Theorem - I
- Lecture 11 - Subbotovskaya's Theorem - II
- Lecture 12 - Applications of Subbotovskaya's Theorem
- Lecture 13 - Upper and Lower Bounds on the Andreev Function
- Lecture 14 - Upper and Lower Bounds on the Andreev Function
- Lecture 15 - Polynomial Size Monotone Formula for MAJORITY (Valiant's Theorem) - II
- Lecture 16 - Circuits for Addition - Ripple Adder and Carry Lookahead Adder
- Lecture 17 - Circuits for Addition - Parallel Prefix Sum Method
- Lecture 18 - Circuits for Iterated Addition and Multiplication
- Lecture 19 - Bounded Depth Circuit Classes
- Lecture 20 - Basic Circuit for Division using Newton-Raphson Method
- Lecture 21 - Division in  $NC_1$  (Beame, Cook, Hoover Theorem) - I
- Lecture 22 - Division in  $NC_1$  (Beame, Cook, Hoover Theorem) - II
- Lecture 23 - Division in  $NC_1$  (Beame, Cook, Hoover Theorem) - III
- Lecture 24 - Division in  $NC_1$  (Beame, Cook, Hoover Theorem) - IV
- Lecture 25 - Division in  $NC_1$  (Beame, Cook, Hoover Theorem) - V
- Lecture 26 - Division in  $NC_1$  (Beame, Cook, Hoover Theorem) - VI
- Lecture 27 - Relation between Bounded Depth Circuit Classes and Uniform Complexity Classes - I
- Lecture 28 - Relation between Bounded Depth Circuit Classes and Uniform Complexity Classes - II
- Lecture 29 - Reducing Circuit Depth

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - P is in P/poly
- Lecture 31 - Discussion on Lower Circuit Bounds for Bounded Depth Circuit Classes
- Lecture 32 - Monotone Circuit Lower Bound for Clique (Razborov's Theorem) - I
- Lecture 33 - Monotone Circuit Lower Bound for Clique (Razborov's Theorem) - II
- Lecture 34 - Monotone Circuit Lower Bound for Clique (Razborov's Theorem) - III
- Lecture 35 - Monotone Circuit Lower Bound for Clique (Razborov's Theorem) - IV
- Lecture 36 - Monotone Circuit Lower Bound for Clique (Razborov's Theorem) - V
- Lecture 37 - Monotone Circuit Lower Bound for Clique (Razborov's Theorem) - VI
- Lecture 38 - Circuit Lower Bound for Parity by Approximating Circuits using Polynomials (Razborov-Smolensky Theorem) - I
- Lecture 39 - Circuit Lower Bound for Parity by Approximating Circuits using Polynomials (Razborov-Smolensky Theorem) - II
- Lecture 40 - Circuit Lower Bound for Parity by Approximating Circuits using Polynomials (Razborov-Smolensky Theorem) - III
- Lecture 41 - Circuit Lower Bound for Parity using Switching Lemma (Hastad's Theorem)
- Lecture 42 - Circuit Lower Bound for Parity using Switching Lemma (Hastad's Theorem)
- Lecture 43 - Circuit Lower Bound for Parity using Switching Lemma (Hastad's Theorem)
- Lecture 44 - Proof of Hastad's Switching Lemma - I
- Lecture 45 - Proof of Hastad's Switching Lemma - II
- Lecture 46 - Communication Complexity of a Function
- Lecture 47 - Relation Between Communication Complexity and Circuit Depth (Karchmer-Wigderson Theorem) - I
- Lecture 48 - Relation Between Communication Complexity and Circuit Depth (Karchmer-Wigderson Theorem) - II
- Lecture 49 - Bounded Width Branching Programs = NC1 (Barrington's Theorem) - I
- Lecture 50 - Bounded Width Branching Programs = NC1 (Barrington's Theorem) - II
- Lecture 51 - Width 3 Branching Programs = MOD3 o MOD2 Circuits (Barrington's Theorem) - I
- Lecture 52 - Width 3 Branching Programs = MOD3 o MOD2 Circuits (Barrington's Theorem) - II
- Lecture 53 - Uniform AC0 can be simulated by depth 3 Threshold circuits of quasipolynomial size (Allender-Hertrich-Thaler)
- Lecture 54 - Uniform AC0 can be simulated by depth 3 Threshold circuits of quasipolynomial size (Allender-Hertrich-Thaler)
- Lecture 55 - Valiant-Vazirani Theorem - I
- Lecture 56 - Valiant-Vazirani Theorem - II
- Lecture 57 - Natural Proof Barrier (Razborov-Rudich Theorem) - I
- Lecture 58 - Natural Proof Barrier (Razborov-Rudich Theorem) - II
- Lecture 59 - Pseudorandom Function Generator by Goldreich, Goldwasser and Micali - I
- Lecture 60 - Pseudorandom Function Generator by Goldreich, Goldwasser and Micali - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Foundation of Cloud IoT Edge ML

Subject Co-ordinator - Prof. Rajiv Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Edge Computing

Lecture 2 - Introduction to Cloud

Lecture 3 - Introduction to IoT Platform

Lecture 4 - Time and Clock Synchronization in IoT

Lecture 5 - Enabling Intelligence at Edge Layer for IoT

Lecture 6 - ML-based Image Classifier at IoT-Edge

Lecture 7 - Introduction to Docker Containers and Kubernetes

Lecture 8 - ML based Predictive Maintenance at IoT Edge

Lecture 9 - Deep Reinforcement Learning for Cloud Edge

Lecture 10 - Deep Reinforcement Learning for Cloud Edge Example

Lecture 11 - Public Cloud Services Case Study of AWS Services

Lecture 12 - Mathematical formulations for task offloading in Edge Cloud

Lecture 13 - Task Offloading Based on LSTM Prediction and Deep Reinforcement Learning

Lecture 14 - Vertical and Horizontal Offloading for Cloud Edge

Lecture 15 - Global State and Snapshot Recording Algorithms

Lecture 16 - Hot Data Analytics for Real Time Streaming in IoT Platform

Lecture 17 - Introduction to MQTT and Kafka in IoT Platform

Lecture 18 - Introduction to Edge Data Center for IoT Platform

Lecture 19 - Design of Key Value Stores for IoT Edge Storage

Lecture 20 - Introduction to Edge ML with AWS IoT platform

Lecture 21 - Introduction to Federated Learning at IoT Edge

Lecture 22 - ML for Autonomous Driving Car

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Linear Programming and its Applications to Comput

Subject Co-ordinator - Prof. Rajat Mittal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Linear Programming, an Example
- Lecture 2 - Introduction to Linear Programming
- Lecture 3 - Gaussian Elimination with Examples
- Lecture 4 - Summary of Gaussian Elimination
- Lecture 5 - Vector Space over real numbers
- Lecture 6 - Linear Operators
- Lecture 7 - Solutions of Linear Equations
- Lecture 8 - Resource Allocation as LP
- Lecture 9 - Approximate Degree as LP
- Lecture 10 - Equivalent LP's
- Lecture 11 - Introduction to Convexity
- Lecture 12 - Different Kind of Convex Sets
- Lecture 13 - Feasible Region of LP
- Lecture 14 - Proof of Weyl's Theorem
- Lecture 15 - Definition of Convex Functions
- Lecture 16 - Properties of Convex Functions and Examples
- Lecture 17 - Basic Feasible Solution
- Lecture 18 - BFS and Vertices
- Lecture 19 - Simplex Algorithm
- Lecture 20 - Details of Simplex Algorithm
- Lecture 21 - Starting BFS
- Lecture 22 - Degeneracy
- Lecture 23 - Introduction to Duality
- Lecture 24 - Hyperplane Separation Theorems
- Lecture 25 - Farkas Lemma
- Lecture 26 - How to take dual
- Lecture 27 - Examples of taking dual
- Lecture 28 - Strong Duality
- Lecture 29 - Proof of Strong Duality

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Complementary Slackness
- Lecture 31 - Introduction to Algorithmic Game Theory
- Lecture 32 - Nash Equilibrium
- Lecture 33 - Minimax and Nash Equilibrium
- Lecture 34 - Deterministic Communication Complexity
- Lecture 35 - Randomized Communication Complexity
- Lecture 36 - Yao's Minimax Theorem
- Lecture 37 - Lower bounds using Yao's Minimax
- Lecture 38 - Set Disjointness Problem
- Lecture 39 - LP for mass flow problem
- Lecture 40 - LP for min cut problem
- Lecture 41 - Max flow = Min cut
- Lecture 42 - Primal dual approach
- Lecture 43 - Primal dual for max flow
- Lecture 44 - Set cover problem
- Lecture 45 - Rounding for set cover
- Lecture 46 - Analysis of Rounding
- Lecture 47 - Algorithm for Set Cover
- Lecture 48 - Linear Regression through LP
- Lecture 49 - Linear Classifiers through LP

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Basics of Computational Complexity

Subject Co-ordinator - Prof. Nitin Saxena

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Outline
- Lecture 3 - Formalize Problems and Machines
- Lecture 4 - Turing Machine
- Lecture 5 - Asymptotics, Church-Turing Thesis and UTM
- Lecture 6 - Halting Problem and Diagonalization
- Lecture 7 - Classes P, NP, EXP
- Lecture 8 - Comparison of Classes and Non-determination
- Lecture 9 - NP Vs Ntime
- Lecture 10 - SAT is NP-hard
- Lecture 11 - Cook-Levin Theorem
- Lecture 12 - NP-Hardness and Co-Classes
- Lecture 13 - NEXP and Godel's Computation Question
- Lecture 14 - Time, Space Hierarchy
- Lecture 15 - NDTM Hierarchy
- Lecture 16 - Ladner's Theorem and Introduction to Oracles
- Lecture 17 - Oracle and Relativizing Proofs
- Lecture 18 - Non Relativizing P=NP and Introduction to Space Complexity
- Lecture 19 - PSpace Completeness
- Lecture 20 - QBF Game and NSpace
- Lecture 21 - NL Complete
- Lecture 22 - NL = coNL
- Lecture 23 - Polynomial Hierarchy
- Lecture 24 - Polynomial Hierarchy
- Lecture 25 - PH Complete and Oracle TM
- Lecture 26 -  $NP^{NP}$  and #SAT
- Lecture 27 - Counting Classes #P and PP
- Lecture 28 - Permanent and its Cycle cover of a Graph
- Lecture 29 - #P-Complete: Graph Gadgets

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - #P-Hard: Analyse XOR
- Lecture 31 - Valient-Vazirani Lemma and Hashing
- Lecture 32 - SAT to Parity-SAT
- Lecture 33 - Parity Quantification
- Lecture 34 - Randomized Reduction of PH to Parity-P
- Lecture 35 - PH to #P
- Lecture 36 - Probabilistic TM
- Lecture 37 - Example of PTM and Introduction to RP and ZPP
- Lecture 38 - ZPP = RP and coRP
- Lecture 39 - Probability Amplification
- Lecture 40 - BPP in PH
- Lecture 41 - GNI is in BP.NP
- Lecture 42 - GI is NP-hard
- Lecture 43 - GI is NP-hard (Continued...) Going Beyond TMs
- Lecture 44 - Circuit Complexity
- Lecture 45 - TM with Advice - P/poly
- Lecture 46 - Circuits for NP and EXP
- Lecture 47 - Parallel Computation
- Lecture 48 - P-completeness and NEXP-completeness

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Edge Computing

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview of Cloud Computing

Lecture 2 - Cloud Computing and its Limitation to Support Low Latency and RTT

Lecture 3 - Introduction to Edge Computing

Lecture 4 - Edge Computing Paradigms - 004

Lecture 5 - Overview of Virtualization

Lecture 6 - Docker Containers

Lecture 7 - Kubernetes

Lecture 8 - NoSQL Databases and Key Value Stores

Lecture 9 - Edge AI Intelligence at the Edge

Lecture 10 - Edge AI Intelligence at the Edge

Lecture 11 - Mobile Edge Computing

Lecture 12 - Geo-distributed Data Centers

Lecture 13 - Time and Clock Synchronization

Lecture 14 - Edge Computing Security and Privacy

Lecture 15 - Network Virtualization

Lecture 16 - Resource Allocation in Private and Public Edge-Cloud Systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Cryptography and Network Security

Subject Co-ordinator - Dr. Debdeep Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Overview on Modern Cryptography
- Lecture 3 - Introduction to Number Theory
- Lecture 4 - Probability and Information Theory
- Lecture 5 - Classical Cryptosystems
- Lecture 6 - Cryptanalysis of Classical Ciphers
- Lecture 7 - Shannons Theory
- Lecture 8 - Shannons Theory (Continued...1)
- Lecture 9 - Shannons Theory (Continued...2)
- Lecture 10 - Symmetric Key Ciphers
- Lecture 11 - Block Cipher Standards (DES)
- Lecture 12 - Block Cipher Standards (AES)
- Lecture 13 - Block Cipher Standards (AES) (Continued...)
- Lecture 14 - Linear Cryptanalysis
- Lecture 15 - Differential Cryptanalysis
- Lecture 16 - Few other Cryptanalytic Techniques
- Lecture 17 - Overview on S-Box Design Principles
- Lecture 18 - Modes of Operation of Block Ciphers
- Lecture 19 - Stream Ciphers
- Lecture 20 - Stream Ciphers (Continued...1)
- Lecture 21 - Stream Ciphers (Continued...2)
- Lecture 22 - Pseudorandomness
- Lecture 23 - Cryptographic Hash Functions
- Lecture 24 - Cryptographic Hash Functions (Continued...1)
- Lecture 25 - Cryptographic Hash Functions (Continued...2)
- Lecture 26 - Message Authentication Codes
- Lecture 27 - More Number Theoretic Results
- Lecture 28 - The RSA Cryptosystem
- Lecture 29 - Primality Testing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Factoring Algorithms
- Lecture 31 - Some Comments on the Security of RSA
- Lecture 32 - Discrete Logarithm Problem (DLP)
- Lecture 33 - The Diffie-Hellman Problem and Security of ElGamal Systems
- Lecture 34 - An Introduction to Elliptic Curve Cryptography
- Lecture 35 - Application of Elliptic Curves to Cryptography
- Lecture 36 - Implementation of Elliptic Curve Cryptography
- Lecture 37 - Secret Sharing Schemes
- Lecture 38 - A Tutorial on Network Protocols
- Lecture 39 - System Security
- Lecture 40 - Firewalls and Intrusion Detection Systems
- Lecture 41 - Side Channel Analysis of Cryptographic Implementations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - High Performance Computer Architecture

Subject Co-ordinator - Prof. Ajit Pal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction & Course Outline  
Lecture 2 - Performance  
Lecture 3 - Instruction Set Architecture  
Lecture 4 - MIPS ISA and Processor  
Lecture 5 - MIPS ISA and Processor (Continued...)  
Lecture 6 - Pipelining - Introduction  
Lecture 7 - Instruction Pipelining  
Lecture 8 - Pipeline Hazards  
Lecture 9 - Data Hazards  
Lecture 10 - Software Pipelining  
Lecture 11 - In Quest of Higher ILP  
Lecture 12 - In Quest of Higher ILP (Continued...)  
Lecture 13 - Dynamic Instruction Scheduling  
Lecture 14 - Dynamic Instruction Scheduling (Continued...)  
Lecture 15 - Control Hazards  
Lecture 16 - Branch Prediction  
Lecture 17 - Branch Prediction (Continued...)  
Lecture 18 - Dynamic Instruction Scheduling with Branch Prediction  
Lecture 19 - Hardware-based Speculation  
Lecture 20 - Tutorial - I  
Lecture 21 - Hierarchical Memory Organization  
Lecture 22 - Hierarchical Memory Organization (Continued...1)  
Lecture 23 - Hierarchical Memory Organization (Continued...2)  
Lecture 24 - Hierarchical Memory Organization (Continued...3)  
Lecture 25 - Cache Optimization Techniques (Continued...1)  
Lecture 26 - Cache Optimization Techniques (Continued...2)  
Lecture 27 - Main Memory Organization  
Lecture 28 - Main Memory Optimizations  
Lecture 29 - Virtual Memory

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Virtual Memory (Continued...)
- Lecture 31 - Virtual Machines
- Lecture 32 - Storage Technology
- Lecture 33 - Storage Technology (Continued...)
- Lecture 34 - Case Studies
- Lecture 35 - Case Studies (Continued...1)
- Lecture 36 - Case Studies (Continued...2)
- Lecture 37 - Multithreading & Multiprocessing
- Lecture 38 - Simultaneous Multithreading
- Lecture 39 - Symmetric Multiprocessors
- Lecture 40 - Distributed Memory Multiprocessors
- Lecture 41 - Cluster, Grid and Cloud Computing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Low Power VLSI Circuits and Systems

Subject Co-ordinator - Prof. Ajit Pal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction & Course Outline
- Lecture 2 - MOS Transistors - I
- Lecture 3 - MOS Transistors - II
- Lecture 4 - MOS Transistors - III
- Lecture 5 - MOS Transistors - IV
- Lecture 6 - MOS Inverters - I
- Lecture 7 - MOS Inverters - II
- Lecture 8 - MOS Inverters - III
- Lecture 9 - MOS Inverters - IV
- Lecture 10 - Static CMOS Circuits - I
- Lecture 11 - Static CMOS Circuits - II
- Lecture 12 - MOS Dynamic Circuits - I
- Lecture 13 - MOS Dynamic Circuits - II
- Lecture 14 - Pass Transistor Logic Circuits - I
- Lecture 15 - Pass Transistor Logic Circuits - II
- Lecture 16 - MOS Memories
- Lecture 17 - Finite State Machines
- Lecture 18 - Switching Power Dissipation
- Lecture 19 - Tutorial - I
- Lecture 20 - Dynamic Power Dissipation
- Lecture 21 - Leakage Power Dissipation
- Lecture 22 - Supply Voltage Scaling - I
- Lecture 23 - Supply Voltage Scaling - II
- Lecture 24 - Supply Voltage Scaling - III
- Lecture 25 - Supply Voltage Scaling - IV
- Lecture 26 - Tutorial - II
- Lecture 27 - Minimizing Switched Capacitance - I
- Lecture 28 - Minimizing Switched Capacitance - II
- Lecture 29 - Minimizing Switched Capacitance - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Minimizing Switched Capacitance - IV
- Lecture 31 - Minimizing Switched Capacitance - V
- Lecture 32 - Minimizing Leakage Power - I
- Lecture 33 - Minimizing Leakage Power - II
- Lecture 34 - Minimizing Leakage Power - III
- Lecture 35 - Variation Tolerant Design
- Lecture 36 - Adiabatic Logic Circuits
- Lecture 37 - Battery-Driven System Design
- Lecture 38 - CAD Tools for Low Power
- Lecture 39 - Tutorial - III
- Lecture 40 - Course Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Real Time Systems

Subject Co-ordinator - Prof. Rajib Mall

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Real - Time System Characteristics
- Lecture 3 - Few Basic Issues
- Lecture 4 - Modelling Timing Constraints
- Lecture 5 - Modelling Timing Constraints (Continued.)
- Lecture 6 - Basics of Real - Time Task Scheduling
- Lecture 7 - Cyclic Scheduler
- Lecture 8 - Event - Driven Scheduling
- Lecture 9 - Rate Monotonic Scheduler
- Lecture 10 - RMA Scheduling
- Lecture 11 - Deadline Monotonic Scheduling and Other Issues
- Lecture 12 - Few Issues in Use of RMA
- Lecture 13 - Resource Sharing Among Real-Time Tasks
- Lecture 14 - Highest Locker and Priority Ceiling Protocols
- Lecture 15 - An Analysis of Priority Ceiling Protocol
- Lecture 16 - Handling Task Dependencies
- Lecture 17 - Real-Time Task Scheduling on Multiprocessors and Distributed Systems
- Lecture 18 - Real-Time Task Scheduling on Multiprocessors and Distributed Systems (Continued.)
- Lecture 19 - Clock Synchronization in Distributed Real-Time Systems
- Lecture 20 - Internal Clock Synchronization in Presence of Byzantine Clocks
- Lecture 21 - A Few Basic Issues in Real-Time Operating Systems
- Lecture 22 - Tutorial - I
- Lecture 23 - A Few Basic Issues in Real-Time Operating Systems (Continued.)
- Lecture 24 - Unix and Windows as RTOS
- Lecture 25 - Real - Time POSIX
- Lecture 26 - Real - Time POSIX (Continued.)
- Lecture 27 - Open Source and Commercial RTOS
- Lecture 28 - Open Source and Commercial RTOS (Continued.)
- Lecture 29 - Benchmarking Real - Time Computer & Operating Systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Benchmarking Real - Time Computer & Operating Systems (Continued.)
- Lecture 31 - Real - Time Communications
- Lecture 32 - Few Basic Issues in Real - Time Communications
- Lecture 33 - Review of Computer Networking
- Lecture 34 - Real - Time Communication in a LAN
- Lecture 35 - Real - Time Communication in a LAN (Continued.)
- Lecture 36 - Performance of Two Real -Time Communication Protocols
- Lecture 37 - Real - Time Communication over Packet Switched Networks
- Lecture 38 - Real - Time Communication over Packet Switched Networks (Continued.)
- Lecture 39 - Real - Time Communication over Packet Switched Networks (Continued.)
- Lecture 40 - Real - Time Databases

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Artificial Intelligence (Prof. Anupam Basu)

Subject Co-ordinator - Prof. Sudeshna Sarkar, Prof. Anupam Basu

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Artificial Intelligence  
Lecture 2 - Intelligent Agents  
Lecture 3 - State Space Search  
Lecture 4 - Uninformed Search  
Lecture 5 - Informed Search  
Lecture 6 - Informed Search - 2  
Lecture 7 - Two Players Games - I  
Lecture 8 - Two Players Games - II  
Lecture 9 - Constraint Satisfaction Problems - 1  
Lecture 10 - Constraint Satisfaction Problems - 2  
Lecture 11 - Knowledge Representation and Logic  
Lecture 12 - Interface in Propositional Logic  
Lecture 13 - First Order Logic  
Lecture 14 - Reasoning Using First Order Logic  
Lecture 15 - Resolution in FOPL  
Lecture 16 - Rule Based System  
Lecture 17 - Rule Based Systems II  
Lecture 18 - Semantic Net  
Lecture 19 - Reasoning in Semantic Net  
Lecture 20 - Frames  
Lecture 21 - Planning - 1  
Lecture 22 - Planning - 2  
Lecture 23 - Planning - 3  
Lecture 24 - Planning - 4  
Lecture 25 - Rule Based Expert System  
Lecture 26 - Reasoning with Uncertainty - I  
Lecture 27 - Reasoning with Uncertainty - II  
Lecture 28 - Reasoning with Uncertainty - III  
Lecture 29 - Reasoning with Uncertainty - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fuzzy Reasoning - I
- Lecture 31 - Fuzzy Reasoning - II
- Lecture 32 - Introduction to Learning - I
- Lecture 33 - Introduction to Learning - II
- Lecture 34 - Rule Induction and Decision Trees - I
- Lecture 35 - Rule Induction and Decision Trees - II
- Lecture 36 - Learning Using neural Networks - I
- Lecture 37 - Learning Using Neural Networks - II
- Lecture 38 - Probabilistic Learning
- Lecture 39 - Natural Language Processing - I
- Lecture 40 - Natural Language Processing - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Artificial Intelligence (Prof. P. Dasgupta)

Subject Co-ordinator - Prof. P. Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Artificial Intelligence

Lecture 2 - Problem Solving by Search

Lecture 3 - Searching with Costs

Lecture 4 - Informed State Space Search

Lecture 5 - Heuristic Search

Lecture 6 - Problem Reduction Search

Lecture 7 - Searching Game Trees

Lecture 8 - Knowledge Based Systems

Lecture 9 - First Order Logic

Lecture 10 - Inference in First Order Logic

Lecture 11 - Resolution - Refutation Proofs

Lecture 12 - Resolution Refutation Proofs

Lecture 13 - Logic Programming

Lecture 14 - Prolog Programming

Lecture 15 - Prolog

Lecture 16 - Additional Topics

Lecture 17 - Introduction to Planning

Lecture 18 - Partial Order Planning

Lecture 19 - GraphPLAN and SATPlan

Lecture 20 - SATPlan

Lecture 21 - Reasoning under uncertainty

Lecture 22 - Bayesian Networks

Lecture 23 - Reasoning with Bayes Networks

Lecture 24 - Reasoning with Bayes networks (Contd.)

Lecture 25 - Reasoning under uncertainty

Lecture 26 - Learning

Lecture 27 - Learning

Lecture 28 - Back Propagation Learning

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Computer Networks

Subject Co-ordinator - Prof. Sujoy Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Emergence of Networks & Reference Models  
Lecture 2 - Network Topology  
Lecture 3 - Physical Medium - I  
Lecture 4 - Physical Medium - II  
Lecture 5 - Multiplexing (Sharing a Medium)  
Lecture 6 - Telecom Networks  
Lecture 7 - Switches - I  
Lecture 8 - Pocket Switches  
Lecture 9 - SONET/SDH  
Lecture 10 - Fiber Optic Components  
Lecture 11 - Routing and Wavelength Assignment  
Lecture 12 - Protection and Restoration  
Lecture 13 - Multiple Access  
Lecture 14 - Token Based Mac  
Lecture 15 - Data Link Protocols  
Lecture 16 - Error Control  
Lecture 17 - Stop & Wait Protocol  
Lecture 18 - Satellite Communication  
Lecture 19 - Ethernet - CSMA/CD  
Lecture 20 - Modern Ethernet  
Lecture 21 - Local Internetworking  
Lecture 22 - Cellular Networks  
Lecture 23 - Wireless Network  
Lecture 24 - ATM  
Lecture 25 - ATM Signaling, Routing and LAN Emulation  
Lecture 26 - Introduction to Routing  
Lecture 27 - RIP - Distance Vector Routing  
Lecture 28 - IP version 4  
Lecture 29 - IP Version 6 & Mobile IP

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - UDP & Client Server
- Lecture 31 - TCP
- Lecture 32 - IP Multicasting
- Lecture 33 - DHCP and ICMP
- Lecture 34 - DNS & Directory
- Lecture 35 - Congestion Control
- Lecture 36 - QOS & Multimedia
- Lecture 37 - Network Management
- Lecture 38 - Security
- Lecture 39 - FTP - SMTP
- Lecture 40 - HTTP

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Data Communication

Subject Co-ordinator - Prof. Ajit Pal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Course Outline - Data Communication

Lecture 2 - Layered Architecture

Lecture 3 - Data and Signal

Lecture 4 - Transmission Impairments and Channel Capacity

Lecture 5 - Guided Transmission Media

Lecture 6 - Unguided Media

Lecture 7 - Transmission of Digital Signal - I

Lecture 8 - Transmission of Digital Signal - II

Lecture 9 - Transmission of Analog Signal - I

Lecture 10 - Transmission of Analog Signal - II

Lecture 11 - Multiplexing

Lecture 12 - Multiplexing

Lecture 13 - Multiplexing Applications - I

Lecture 14 - Multiplexing Applications - II

Lecture 15 - Interfacing to the Media

Lecture 16 - Error Detection and Correction

Lecture 17 - Flow and Error Control

Lecture 18 - Data Link Control

Lecture 19 - Switching Techniques Circuit Switching

Lecture 20 - Switching Techniques Packet Switching

Lecture 21 - Routing - I

Lecture 22 - Routing - II

Lecture 23 - Congestion Control

Lecture 24 - X.25 and Frame Relay

Lecture 25 - ATM

Lecture 26 - Medium Access Control - I

Lecture 27 - Medium Access Control - II

Lecture 28 - Medium Access Control - III

Lecture 29 - IEEE 802 LANs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - High Speed LANs
- Lecture 31 - Wireless LANs
- Lecture 32 - Cellular Telephone Systems
- Lecture 33 - Satellite Communications
- Lecture 34 - Internet and Internetworking
- Lecture 35 - TCP/IP - I
- Lecture 36 - TCP/IP - II
- Lecture 37 - Multimedia Networks
- Lecture 38 - Audio and Video Compression
- Lecture 39 - Multimedia Services
- Lecture 40 - Secured Communication - I
- Lecture 41 - Secured Communication - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Electronic Design Automation

Subject Co-ordinator - Prof. Indranil Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Verilog  
Lecture 3 - Verilog  
Lecture 4 - Verilog  
Lecture 5 - Verilog  
Lecture 6 - Verilog  
Lecture 7 - Verilog  
Lecture 8 - Synthesis  
Lecture 9 - Synthesis  
Lecture 10 - Synthesis  
Lecture 11 - Synthesis  
Lecture 12 - Synthesis  
Lecture 13 - Synthesis  
Lecture 14 - Synthesis  
Lecture 15 - Backend Design  
Lecture 16 - Backend Design  
Lecture 17 - Backend Design  
Lecture 18 - Backend Design  
Lecture 19 - Backend Design  
Lecture 20 - Backend Design  
Lecture 21 - Backend Design  
Lecture 22 - Backend Design  
Lecture 23 - Backend Design  
Lecture 24 - Backend Design  
Lecture 25 - Backend Design  
Lecture 26 - Backend Design  
Lecture 27 - Backend Design  
Lecture 28 - Backend Design  
Lecture 29 - Backend Design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Testing Part - I  
Lecture 31 - Testing Part - II  
Lecture 32 - Testing Part - III  
Lecture 33 - Testing Part - IV  
Lecture 34 - Testing Part - V  
Lecture 35 - Testing Part - VI

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Internet Technology

Subject Co-ordinator - Prof. Indranil Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction To Internet  
Lecture 2 - Review Of Network Technologies  
Lecture 3 - TCP/IP - Part-I  
Lecture 4 - TCP/IP - Part-II  
Lecture 5 - TCP/IP - Part-III  
Lecture 6 - IP Subnetting and Addressing  
Lecture 7 - Internet Routing Protocol - Part-I  
Lecture 8 - Internet Routing Protocol - Part-II  
Lecture 9 - Client Server Concepts DNS, Telnet, FTP  
Lecture 10 - Electronic Mail  
Lecture 11 - World Wide Web - Part-I  
Lecture 12 - World Wide Web - Part-II  
Lecture 13 - HTML  
Lecture 14 - HTML  
Lecture 15 - HTML  
Lecture 16 - Extensible Markup Language (XML)  
Lecture 17 - HTML Forms  
Lecture 18 - Image Maps  
Lecture 19 - CGI Scripts  
Lecture 20 - Other Technologies  
Lecture 21 - PERL - Part-I  
Lecture 22 - PERL - Part II  
Lecture 23 - PERL - Part III  
Lecture 24 - PERL - Part IV  
Lecture 25 - Javascript  
Lecture 26 - Javascript Examples (Continued)  
Lecture 27 - Using Cookies  
Lecture 28 - Java Applets  
Lecture 29 - Java Applets

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Client-Server Programming In Java
- Lecture 31 - Intranet, Extranet, Firewall
- Lecture 32 - Basic Cryptographic Concepts Part - I
- Lecture 33 - Basic Cryptographic Concepts Part - II
- Lecture 34 - Basic Cryptographic Concepts Part - III
- Lecture 35 - Electronic Commerce
- Lecture 36 - Streaming Multimedia Applications
- Lecture 37 - Internet Telephony
- Lecture 38 - Search Engine And Web Crawlers
- Lecture 39 - Search Engine And Web Crawlers
- Lecture 40 - Course Summary And Conclusion



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Programming and Data Structure

Subject Co-ordinator - Dr. P.P. Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - C Programming - I
- Lecture 3 - C Programming - II
- Lecture 4 - C Programming - III
- Lecture 5 - Data Structuring
- Lecture 6 - Data Structuring
- Lecture 7 - Data Structuring
- Lecture 8 - Problem Decomposition By Recursion - I
- Lecture 9 - Problem Decomposition By Recursion - II
- Lecture 10 - Problem Decomposition By Recursion - III
- Lecture 11 - Merge sort And Quick sort
- Lecture 12 - Characters And Strings
- Lecture 13 - Arrays
- Lecture 14 - Structures - I
- Lecture 15 - Structures - II
- Lecture 16 - Dynamic Allocation Part - I
- Lecture 17 - Linked Lists - I
- Lecture 18 - Complexity (Efficiency) of Algorithms
- Lecture 19 - Asymptotic Growth Functions
- Lecture 20 - Asymptotic Analysis of Algorithms
- Lecture 21 - Data Structuring
- Lecture 22 - Search Trees
- Lecture 23 - Search Trees - II
- Lecture 24 - Search Trees - III
- Lecture 25 - 2-3 Trees
- Lecture 26 - Algorithm Design - I
- Lecture 27 - Algorithm Design - II
- Lecture 28 - Algorithm Design - III
- Lecture 29 - Graphs - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Graphs - II
- Lecture 31 - Graphs - III
- Lecture 32 - Conclusions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Software Testing

Subject Co-ordinator - Prof. Rajib Mall

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Levels of Testing
- Lecture 3 - Basic Concepts in Testing
- Lecture 4 - Basic Concepts in Testing (Continued...)
- Lecture 5 - Unit Testing
- Lecture 6 - Equivalence and BV Testing
- Lecture 7 - Special Value Testing
- Lecture 8 - Combinatorial Testing
- Lecture 9 - Pairwise Testing
- Lecture 10 - White Box Testing
- Lecture 11 - MC/DC Testing
- Lecture 12 - MC/DC Testing (Continued...)
- Lecture 13 - Path Testing
- Lecture 14 - Dataflow and Mutation Testing
- Lecture 15 - Mutation Testing
- Lecture 16 - Integration Testing
- Lecture 17 - System Testing
- Lecture 18 - Regression Testing
- Lecture 19 - Testing Object-Oriented Program - Part 1
- Lecture 20 - Testing Object-Oriented Program - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Programming in C++

Subject Co-ordinator - Prof. Partha Pratim Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1  
Lecture 2 - Module 1  
Lecture 3 - Module 1  
Lecture 4 - Module 2  
Lecture 5 - Module 3  
Lecture 6 - Module 4  
Lecture 7 - Module 5  
Lecture 8 - Module 6  
Lecture 9 - Module 6  
Lecture 10 - Module 7  
Lecture 11 - Module 7  
Lecture 12 - Module 8  
Lecture 13 - Module 8  
Lecture 14 - Module 8  
Lecture 15 - Module 9  
Lecture 16 - Module 9  
Lecture 17 - Module 10  
Lecture 18 - Module 10  
Lecture 19 - Module 11  
Lecture 20 - Module 11  
Lecture 21 - Module 12  
Lecture 22 - Module 12  
Lecture 23 - Module 13  
Lecture 24 - Module 13  
Lecture 25 - Module 13  
Lecture 26 - Module 14  
Lecture 27 - Module 14  
Lecture 28 - Module 14  
Lecture 29 - Module 15

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Module 15  
Lecture 31 - Module 16  
Lecture 32 - Module 17  
Lecture 33 - Module 18  
Lecture 34 - Module 19  
Lecture 35 - Module 20  
Lecture 36 - Module 21  
Lecture 37 - Module 22  
Lecture 38 - Module 23  
Lecture 39 - Module 24  
Lecture 40 - Module 25  
Lecture 41 - Module 26  
Lecture 42 - Module 27  
Lecture 43 - Module 28  
Lecture 44 - Module 29  
Lecture 45 - Module 30  
Lecture 46 - Module 31  
Lecture 47 - Module 32  
Lecture 48 - Module 33  
Lecture 49 - Module 34  
Lecture 50 - Module 35  
Lecture 51 - Module 35  
Lecture 52 - Module 36  
Lecture 53 - Module 37  
Lecture 54 - Module 38  
Lecture 55 - Module 39  
Lecture 56 - Module 40

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Machine Learning

Subject Co-ordinator - Prof. S. Sarkar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Different Types of Learning  
Lecture 3 - Hypothesis Space and Inductive Bias  
Lecture 4 - Evaluation and Cross-Validation  
Lecture 5 - Tutorial - I  
Lecture 6 - Linear Regression  
Lecture 7 - Introduction to Decision Trees  
Lecture 8 - Learning Decision Tree  
Lecture 9 - Overfitting  
Lecture 10 - Python Exercise on Decision Tree and Linear Regression  
Lecture 11 - Tutorial - II  
Lecture 12 - k-Nearest Neighbour  
Lecture 13 - Feature Selection  
Lecture 14 - Feature Extraction  
Lecture 15 - Collaborative Filtering  
Lecture 16 - Python Exercise on kNN and PCA  
Lecture 17 - Tutorial - III  
Lecture 18 - Bayesian Learning  
Lecture 19 - Naive Bayes  
Lecture 20 - Bayesian Network  
Lecture 21 - Python Exercise on Naive Bayes  
Lecture 22 - Tutorial - IV  
Lecture 23 - Logistic Regression  
Lecture 24 - Introduction Support Vector Machine  
Lecture 25 - SVM  
Lecture 26 - SVM  
Lecture 27 - Nonlinear SVM and Kernel Function  
Lecture 28 - SVM  
Lecture 29 - Python Exercise on SVM

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction
- Lecture 31 - Multilayer Neural Network
- Lecture 32 - Neural Network and Backpropagation Algorithm
- Lecture 33 - Deep Neural Network
- Lecture 34 - Python Exercise on Neural Network
- Lecture 35 - Tutorial - VI
- Lecture 36 - Introduction to Computational Learning Theory
- Lecture 37 - Sample Complexity
- Lecture 38 - VC Dimension
- Lecture 39 - Introduction to Ensembles
- Lecture 40 - Bagging and Boosting
- Lecture 41 - Introduction to Clustering
- Lecture 42 - Kmeans Clustering
- Lecture 43 - Agglomerative Hierarchical Clustering
- Lecture 44 - Python Exercise on kmeans clustering

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Object-Oriented Analysis and Design

Subject Co-ordinator - Prof. Partha Pratim Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Challenges in Software Engineering
- Lecture 2 - Complexity of Software
- Lecture 3 - Complexity of Software (Continued...)
- Lecture 4 - Structure and Attributes of a Complex System
- Lecture 5 - Structure and Attributes of a Complex System (Continued...)
- Lecture 6 - Object-Oriented Analysis and Design
- Lecture 7 - Bringing Order to Chaos
- Lecture 8 - Bringing Order to Chaos (Continued...)
- Lecture 9 - Evolution of Object Models - Programming Languages and Paradigms
- Lecture 10 - Foundations of the Object Model - OOA, OOD and OOP
- Lecture 11 - Foundations of the Object Model - OOA, OOD and OOP (Continued...)
- Lecture 12 - Elements of Object Model (Major)
- Lecture 13 - Elements of Object Model (Major)
- Lecture 14 - Elements of the Object Model (Major)
- Lecture 15 - Elements of the Object Model (Major)
- Lecture 16 - Elements of the Object Model (Minor)
- Lecture 17 - Elements of the Object Model (Minor)
- Lecture 18 - Nature of an object
- Lecture 19 - Nature of an object
- Lecture 20 - Relationships among objects
- Lecture 21 - Relationships among objects (Continued...)
- Lecture 22 - Nature of a class
- Lecture 23 - Nature of a class
- Lecture 24 - Relationships among classes
- Lecture 25 - Relationships among classes (Continued...)
- Lecture 26 - How to Build Quality Classes and Objects
- Lecture 27 - Tutorial
- Lecture 28 - How to Identify Classes and Objects ?
- Lecture 29 - Identification of Classes, Objects and Relationship in LMS

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Identification of Classes, Objects and Relationship in LMS (Continued...)
- Lecture 31 - Identification of Classes, Objects and Relationship in LMS (Continued...)
- Lecture 32 - Identification of Classes, Objects and Relationship in LMS (Continued...)
- Lecture 33 - Overview of UML
- Lecture 34 - SDLC Phases and UML Diagrams
- Lecture 35 - Use-Case Diagrams - Part I
- Lecture 36 - Use-Case Diagrams - Part II
- Lecture 37 - Use-Case Diagrams - Part III
- Lecture 38 - Class Diagrams - Part 1 (Class, Property and Operation)
- Lecture 39 - Class Diagrams - Part 2 (Association, Weak and Strong Aggregation)
- Lecture 40 - Class Diagrams - Part 3 (Generalization, Dependency and Constraints)
- Lecture 41 - Sequence Diagrams - Part 1
- Lecture 42 - Sequence Diagrams - Part 2
- Lecture 43 - Communication Diagram
- Lecture 44 - Activity Diagrams - Part II
- Lecture 45 - Activity Diagrams - Part II
- Lecture 46 - Activity Diagrams - Part III
- Lecture 47 - Interaction Overview Diagram
- Lecture 48 - State Machine Diagrams - Part I
- Lecture 49 - State Machine Diagrams - Part II
- Lecture 50 - State Machine Diagrams - Part III
- Lecture 51 - Various UML Diagrams
- Lecture 52 - Closing Comments

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Complex Network : Theory and Application

Subject Co-ordinator - Prof. Animesh Mukherjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Network Analysis - I  
Lecture 3 - Network Analysis - II  
Lecture 4 - Network Analysis - III  
Lecture 5 - Network Analysis - IV  
Lecture 6 - Network Analysis - V  
Lecture 7 - Network Analysis - VI  
Lecture 8 - Social Network Principles - I  
Lecture 9 - Social Network Principles - II  
Lecture 10 - Social Network Principles - III  
Lecture 11 - Social Network Principles - IV  
Lecture 12 - Community Analysis - I  
Lecture 13 - Community Analysis - II  
Lecture 14 - Community Analysis - III  
Lecture 15 - Community Analysis - IV  
Lecture 16 - Community Analysis - V  
Lecture 17 - Community Analysis - VI  
Lecture 18 - Citation Analysis - I  
Lecture 19 - Citation Analysis - II  
Lecture 20 - Citation Analysis - III  
Lecture 21 - Citation Analysis - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Fundamental Algorithms: Design and Analysis

Subject Co-ordinator - Prof.Sourav Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Insertion Sort and Asymptotic Analysis

Lecture 2 - Solving Recurrences

Lecture 3 - Divide and Conquer Paradigm

Lecture 4 - Quick Sort

Lecture 5 - Heap Sort

Lecture 6 - Decision Tree

Lecture 7 - Linear Time Sorting

Lecture 8 - Order Statistics

Lecture 9 - Hashing

Lecture 10 - Universal Hashing, BST Sort

Lecture 11 - Red-Black Tree

Lecture 12 - Augmenting Data Structure

Lecture 13 - Computational Geometry

Lecture 14 - Van Emde Boas Data Structure

Lecture 15 - Dynamic Programming

Lecture 16 - Graph Algorithm

Lecture 17 - BFS and DFS

Lecture 18 - Dijkstra

Lecture 19 - Bellman Ford

Lecture 20 - Floyd Marshall

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Natural Language Processing

Subject Co-ordinator - Prof. Pawan Goyal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course
- Lecture 2 - What Do We Do in NLP
- Lecture 3 - Why is NLP hard
- Lecture 4 - Empirical Laws
- Lecture 5 - Text Processing
- Lecture 6 - Spelling Correction
- Lecture 7 - Weighted Edit Distance, Other Variations
- Lecture 8 - Noisy Channel Model for Spelling Correction
- Lecture 9 - N-Gram Language Models
- Lecture 10 - Evaluation of Language Models, Basic Smoothing
- Lecture 11 - Tutorial I
- Lecture 12 - Language Modeling
- Lecture 13 - Computational Morphology
- Lecture 14 - Finite - State Methods for Morphology
- Lecture 15 - Introduction to POS Tagging
- Lecture 16 - Hidden Markov Models for POS Tagging
- Lecture 17 - Viterbi Decoding for HMM, Parameter Learning
- Lecture 18 - Baum Welch Algorithm
- Lecture 19 - Maximum Entropy Models - I
- Lecture 20 - Maximum Entropy Models - II
- Lecture 21 - Conditional Random Fields
- Lecture 22 - Syntax - Introduction
- Lecture 23 - Syntax - Parsing I
- Lecture 24 - Syntax - CKY, PCFGs
- Lecture 25 - PCFGs - Inside-Outside Probabilities
- Lecture 26 - Inside-Outside Probabilities
- Lecture 27 - Dependency Grammars and Parsing - Introduction
- Lecture 28 - Transition Based Parsing
- Lecture 29 - Transition Based Parsing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - MST-Based Dependency Parsing
- Lecture 31 - MST-Based Dependency Parsing
- Lecture 32 - Distributional Semantics - Introduction
- Lecture 33 - Distributional Models of Semantics
- Lecture 34 - Distributional Semantics
- Lecture 35 - Word Embeddings - Part I
- Lecture 36 - Word Embeddings - Part II
- Lecture 37 - Lexical Semantics
- Lecture 38 - Lexical Semantics - Wordnet
- Lecture 39 - Word Sense Disambiguation - I
- Lecture 40 - Word Sense Disambiguation - II
- Lecture 41 - Novel Word Sense detection
- Lecture 42 - Topic Models
- Lecture 43 - Latent Dirichlet Allocation
- Lecture 44 - Gibbs Sampling for LDA, Applications
- Lecture 45 - LDA Variants and Applications - I
- Lecture 46 - LDA Variants and Applications - II
- Lecture 47 - Entity Linking - I
- Lecture 48 - Entity Linking - II
- Lecture 49 - Information Extraction - Introduction
- Lecture 50 - Relation Extraction
- Lecture 51 - Distant Supervision
- Lecture 52 - Text Summarization - LEXRANK
- Lecture 53 - Optimization based Approaches for Summarization
- Lecture 54 - Summarization Evaluation
- Lecture 55 - Text Classification - I
- Lecture 56 - Text Classification - II
- Lecture 57 - Tutorial II
- Lecture 58 - Tutorial III
- Lecture 59 - Tutorial IV
- Lecture 60 - Tutorial V
- Lecture 61 - Sentiment Analysis - Introduction
- Lecture 62 - Sentiment Analysis - Affective Lexicons
- Lecture 63 - Learning Affective Lexicons
- Lecture 64 - Computing with Affective Lexicons
- Lecture 65 - Aspect - Based Sentiment Analysis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Embedded Systems Design

Subject Co-ordinator - Prof. Anupam Basu

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Processors
- Lecture 3 - General Purpose and ASIPs Processor
- Lecture 4 - Designing a Single Purpose Processor
- Lecture 5 - Optimization Issues
- Lecture 6 - Introduction to FPPFA
- Lecture 7 - FPGA (Continued...)
- Lecture 8 - Behaviour Synthesis on FPGA using VHDL
- Lecture 9 - Tutorial - I
- Lecture 10 - Tutorial - II
- Lecture 11 - Tutorial - III
- Lecture 12 - Tutorial - IV
- Lecture 13 - Sensors and Signals
- Lecture 14 - Discretization of Signals and A/D Converter
- Lecture 15 - Quantization Noise, SNR and D/A Converter
- Lecture 16 - Arduino Uno
- Lecture 17 - Arduino Uno (Continued...), Serial Communication and Timer
- Lecture 18 - Controller Design using Arduino
- Lecture 19 - Tutorial - V
- Lecture 20 - Power Aware Embedded System - I
- Lecture 21 - Power Aware Embedded System - II
- Lecture 22 - SD and DD Algorithm
- Lecture 23 - Parallel Operations and VLIW
- Lecture 24 - Code Efficiency
- Lecture 25 - DSP Application and Address Generation Unit
- Lecture 26 - Real Time O.S - I
- Lecture 27 - Real Time O.S - II
- Lecture 28 - RMS Algorithm
- Lecture 29 - EDF Algorithm and Resource Constraint Issue

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Priority Inversion and Priority Inheritance Protocol
- Lecture 31 - Modeling and Specification - I
- Lecture 32 - Modeling and Specification - II
- Lecture 33 - FSM and Statechart
- Lecture 34 - Statechart and State Machine Semantics
- Lecture 35 - Statecharts (Continued...)
- Lecture 36 - Program State Machines
- Lecture 37 - SDL
- Lecture 38 - Data Flow Model - I
- Lecture 39 - Data Flow Model - II
- Lecture 40 - Hardware Synthesis - I
- Lecture 41 - Hardware Synthesis - II
- Lecture 42 - Scheduling
- Lecture 43 - Digital Camera Design
- Lecture 44 - Digital Camera - Iterative Design
- Lecture 45 - HW-SW Partitioning
- Lecture 46 - Optimization - I
- Lecture 47 - Optimization - II
- Lecture 48 - Simulation
- Lecture 49 - Formal Verification

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Wireless Ad Hoc and Sensor Networks

Subject Co-ordinator - Prof. Sudip Misra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction  
Lecture 3 - Self-organizing Behaviour of Wireless Ad Hoc Networks  
Lecture 4 - Cooperation in Mobile Ad Hoc Networks - Part-I  
Lecture 5 - Cooperation in Mobile Ad Hoc Networks - Part-II  
Lecture 6 - MAC Protocols in MANETs - Part-I  
Lecture 7 - MAC Protocols in MANETs - Part-II  
Lecture 8 - Routing in MANETs - Part-I  
Lecture 9 - Routing in MANETs - Part-II  
Lecture 10 - Routing in MANETs - Part-III  
Lecture 11 - Multicasting in MANETs  
Lecture 12 - Mobility Models for MANETs  
Lecture 13 - Transport Protocols for MANETs - Part-I  
Lecture 14 - Transport Protocols for MANETs - Part-II  
Lecture 15 - Opportunistic Mobile Networks - Part-I  
Lecture 16 - Opportunistic Mobile Networks - Part-II  
Lecture 17 - Opportunistic Mobile Networks - Part-III  
Lecture 18 - UAV Networks - Part-I  
Lecture 19 - UAV Networks - Part-II  
Lecture 20 - UAV Networks - Part-III  
Lecture 21 - Introduction  
Lecture 22 - Introduction  
Lecture 23 - WSN Coverage and Placement - Part-I  
Lecture 24 - Topology Mangement in Wireless Sensor Network  
Lecture 25 - Mobile Wireless Sensor Networks  
Lecture 26 - Mobile Wireless Sensor Networks  
Lecture 27 - Medium Access Control in Wireless Networks - Part-I  
Lecture 28 - Medium Access Control in Wireless Networks - Part-II  
Lecture 29 - Routing in Wireless Sensor Networks - Part-I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Routing in Wireless Sensor Networks - Part-II
- Lecture 31 - Congestion and Flow Control - Part-I
- Lecture 32 - Congestion and Flow Control - Part-II
- Lecture 33 - Underwater Sensor Networks - Part-I
- Lecture 34 - Underwater Sensor Networks - Part-II
- Lecture 35 - Underwater Sensor Networks - Part-III
- Lecture 36 - Underwater Sensor Networks - Part-IV
- Lecture 37 - Security of Wireless Sensor Networks - Part-I
- Lecture 38 - Security of Wireless Sensor Networks - Part-II
- Lecture 39 - Hardware Design of Sensor Node
- Lecture 40 - Real Life Deployment of WSN

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:VLSI Physical Design

Subject Co-ordinator - Prof. Indranil Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Design Representation  
Lecture 3 - VLSI Design Styles - Part 1  
Lecture 4 - VLSI Design Styles - Part 2  
Lecture 5 - VLSI Physical Design Automation - Part 1  
Lecture 6 - VLSI Physical Design Automation - Part 2  
Lecture 7 - Partitioning  
Lecture 8 - Floor planning  
Lecture 9 - Floor planning Algorithms  
Lecture 10 - Pin Assignment  
Lecture 11 - Placement - Part 1  
Lecture 12 - Placement - Part 2  
Lecture 13 - Placement - Part 3  
Lecture 14 - Placement - Part 4  
Lecture 15 - Grid Routing - Part 1  
Lecture 16 - Grid Routing - Part 2  
Lecture 17 - Grid Routing - Part 3  
Lecture 18 - Global Routing - Part 1  
Lecture 19 - Global Routing - Part 2  
Lecture 20 - Detailed Routing - Part 1  
Lecture 21 - Detailed Routing - Part 2  
Lecture 22 - Detailed Routing - Part 3  
Lecture 23 - Detailed Routing - Part 4  
Lecture 24 - Clock Design - Part 1  
Lecture 25 - Clock Design - Part 2  
Lecture 26 - Clock Design - Part 3  
Lecture 27 - Clock Network Synthesis - Part 1  
Lecture 28 - Clock Network Synthesis - Part 2  
Lecture 29 - Clock Network Synthesis - Part 3

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Clock Network Synthesis - Part 4
- Lecture 31 - Power and Ground Routing
- Lecture 32 - Time Closure - Part 1
- Lecture 33 - Time Closure - Part 2
- Lecture 34 - Time Closure - Part 3
- Lecture 35 - Time Closure - Part 4
- Lecture 36 - Time Closure - Part 5
- Lecture 37 - Timing Driven Placement
- Lecture 38 - Timing Driven Routing
- Lecture 39 - Physical Synthesis - Part 1
- Lecture 40 - Physical Synthesis - Part 2
- Lecture 41 - Performance-Driven Design Flow
- Lecture 42 - Miscellaneous Approaches to Timing Optimization
- Lecture 43 - Interconnect Modeling - Part 1
- Lecture 44 - Interconnect Modeling - Part 2
- Lecture 45 - Design Rule Check
- Lecture 46 - Layout Compaction - Part 1
- Lecture 47 - Layout Compaction - Part 2
- Lecture 48
- Lecture 49
- Lecture 50
- Lecture 51
- Lecture 52
- Lecture 53 - Test Pattern Generation
- Lecture 54 - Design for Testability
- Lecture 55 - Boundary Scan Standard
- Lecture 56 - Built-in Self-Test - Part 1
- Lecture 57 - Built-in Self-Test - Part 2
- Lecture 58 - Low Power VLSI Design
- Lecture 59 - Techniques to Reduce Power
- Lecture 60 - Gate Level Design for Low Power - Part 1
- Lecture 61 - Gate Level Design for Low Power - Part 2
- Lecture 62 - Other Low Power Design Techniques
- Lecture 63 - Algorithmic Level Techniques for Low Power Design
- Lecture 64 - Summarization of the Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Cryptography And Network Security

Subject Co-ordinator - Prof. Sourav Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Cryptography
- Lecture 2 - Classical Cryptosystem
- Lecture 3 - Cryptanalysis on Substitution Cipher (Frequency Analysis)
- Lecture 4 - Play Fair Cipher
- Lecture 5 - Block Cipher
- Lecture 6 - Data Encryption Standard (DES)
- Lecture 7 - DES (Continued...)
- Lecture 8 - Triple DES and Modes of Operation
- Lecture 9 - Stream Cipher
- Lecture 10 - Pseudorandom Sequence
- Lecture 11 - LFSR Based StreamCipher
- Lecture 12 - Mathematical Background
- Lecture 13 - Abstract Algebra (Continued...)
- Lecture 14 - Number Theory
- Lecture 15 - Number Theory (Continued...)
- Lecture 16 - Modular Inverse
- Lecture 17 - Extended Euclidean Algorithm
- Lecture 18 - Fermat's Little Theorem, Euler Phi-Function
- Lecture 19 - Euler's theorem, Quadratic Residue
- Lecture 20 - Polynomial Arithmetic
- Lecture 21 - Advanced Encryption Standard (AES)
- Lecture 22 - Advanced Encryption Standard (AES) (Continued...)
- Lecture 23 - Introduction to Public Key Cryptosystem, Diffie-Hellman Key Exchange
- Lecture 24 - Knapsack Cryptosystem
- Lecture 25 - RSA Cryptosystem
- Lecture 26 - More on RSA
- Lecture 27 - Primarily Testing
- Lecture 28 - ElGamal Cryptosystem
- Lecture 29 - Elliptic Curve over the Reals

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- Lecture 30 - Elliptic curve Modulo a Prime
- Lecture 31 - Generalised ElGamal Public Key Cryptosystem
- Lecture 32 - Chinese Remainder Theorem
- Lecture 33 - Rabin Cryptosystem
- Lecture 34 - Legendre and Jacobi Symbol
- Lecture 35 - Jacobi Symbol (Continued...)
- Lecture 36 - Message Authentication
- Lecture 37 - Digital Signature
- Lecture 38 - Key Management
- Lecture 39 - Key Exchange
- Lecture 40 - Hash Function
- Lecture 41 - Universal Hashing
- Lecture 42 - Cryptographic Hash Function
- Lecture 43 - Secure Hash Algorithm (SHA)
- Lecture 44 - Digital Signature Standard (DSS)
- Lecture 45 - More on Key Exchange Protocol
- Lecture 46 - Cryptoanalysis
- Lecture 47 - Memory Trade off Attack
- Lecture 48 - Differential Cryptoanalysis
- Lecture 49 - More on Differential Cryptoanalysis
- Lecture 50 - Linear Cryptoanalysis
- Lecture 51 - Cryptoanalysis and Stream Cipher
- Lecture 52 - Modern Stream Cipher
- Lecture 53 - Shamir Secret Sharing
- Lecture 54 - Identity Based Encryption (IBE)
- Lecture 55 - Attribute Based Encryption
- Lecture 56 - Functional Encryption (Introduction)
- Lecture 57 - Discrete Logarithm Problem (DLP)
- Lecture 58 - Implementation Attacks
- Lecture 59 - The Secure Sockets layer (SSL)
- Lecture 60 - Pretty Good Privacy (PGP)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computer Architecture and Organization

Subject Co-ordinator - Prof. Indranil Sengupta, Prof. Kamalika Datta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Evolution of Computer Systems
- Lecture 2 - Basic Operation of a Computer
- Lecture 3 - Memory Addressing and Languages
- Lecture 4 - Software and Architecture Types
- Lecture 5 - Instruction Set Architecture
- Lecture 6 - Number Representation
- Lecture 7 - Instruction Format and Addressing Modes
- Lecture 8 - CISC and RISC Architecture
- Lecture 9 - MIPS32 Instruction Set
- Lecture 10 - MIPS Programming Examples
- Lecture 11 - Spim - A Mips32 Simulator
- Lecture 12 - Measuring Cpu Performance
- Lecture 13 - Choice Of Benchmarks
- Lecture 14 - Summarizing Performance Results
- Lecture 15 - Amadahl's Law - Part 1
- Lecture 16 - Amadahl's Law - Part 2
- Lecture 17 - Design Of Control Unit - Part 1
- Lecture 18 - Design Of Control Unit - Part 2
- Lecture 19 - Design Of Control Unit - Part 3
- Lecture 20 - Design Of Control Unit - Part 4
- Lecture 21 - Mips Implementation - Part 1
- Lecture 22 - Mips Implementation - Part 2
- Lecture 23 - Processor Memory Interaction
- Lecture 24 - Static And Dynamic Ram
- Lecture 25 - Asynchronous Dram
- Lecture 26 - Synchronous Dram
- Lecture 27 - Memory Interfacing And Addressing
- Lecture 28 - Memory Hierarchy Design - Part 1
- Lecture 29 - Memory Hierarchy Design - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cache Memory - Part 1
- Lecture 31 - Cache Memory - Part 2
- Lecture 32 - Improving Cache Performance
- Lecture 33 - Design Of Adders - Part 1
- Lecture 34 - Design Of Adders - Part 2
- Lecture 35 - Design Of Multipliers - Part 1
- Lecture 36 - Design Of Multipliers - Part 2
- Lecture 37 - Design Of Dividers
- Lecture 38 - Floating-Point Numbers
- Lecture 39 - Floating-Point Arithmetic
- Lecture 40 - Basic Pipelining Concepts
- Lecture 41 - Pipeline Scheduling
- Lecture 42 - Arithmetic Pipeline
- Lecture 43 - Secondary Storage Devices
- Lecture 44 - Input-Output Organization
- Lecture 45 - Data Transfer Techniques
- Lecture 46 - Interrupt Handling - Part 1
- Lecture 47 - Interrupt Handling - Part 2
- Lecture 48 - Direct Memory Access
- Lecture 49 - Some Example Device Interfacing
- Lecture 50 - Exercises On I/O Transfer
- Lecture 51 - Bus Standards
- Lecture 52 - Bus Standards
- Lecture 53 - Pipelining The Mips32 Data Path
- Lecture 54 - Mips Pipeline (Continued...)
- Lecture 55 - Pipeline Hazards - Part 1
- Lecture 56 - Pipeline Hazards - Part 2
- Lecture 57 - Pipeline Hazards - Part 3
- Lecture 58 - Pipeline Hazards - Part 4
- Lecture 59 - Multicycle Operations In Mips32
- Lecture 60 - Exploiting Instruction Level Parallelism
- Lecture 61 - Vector Processors
- Lecture 62 - Multi-Core Processors
- Lecture 63 - Some Case Studies
- Lecture 64 - Summarization Of The Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Algorithms and Analysis

Subject Co-ordinator - Prof. Sourav Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Insertion sort  
Lecture 2 - Analysis of Insertion Sort  
Lecture 3 - Asymptotic Analysis  
Lecture 4 - Recurrence of Merge Sort  
Lecture 5 - Substitution Method  
Lecture 6 - The Master Method  
Lecture 7 - Divide-and-Conquer  
Lecture 8 - Divide-and-Conquer (Continued...)  
Lecture 9 - Straseen's Algorithms  
Lecture 10 - QuickSort  
Lecture 11 - Analysis of Quicksort  
Lecture 12 - Randomized Quicksort  
Lecture 13 - Heap  
Lecture 14 - Heap Sort  
Lecture 15 - Decision Tree  
Lecture 16 - Linear time Sorting  
Lecture 17 - Radix Sort and Bucket Sort  
Lecture 18 - Order Statistics  
Lecture 19 - Randomised Order Statistics  
Lecture 20 - Worst case linear time order statistics  
Lecture 21 - Hash Function  
Lecture 22 - Open Addressing  
Lecture 23 - Universal Hashing  
Lecture 24 - Perfect Hashing  
Lecture 25 - Binary Search Tree (BST) Sort  
Lecture 26 - Randomly build BST  
Lecture 27 - Red Black Tree  
Lecture 28 - Red Black Tree (Continued...)  
Lecture 29 - Augmentation of data structure

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interval trees
- Lecture 31 - Fixed universe successor
- Lecture 32 - Van Emde Boas data structure
- Lecture 33 - Amortized analysis
- Lecture 34 - Computational Geometry
- Lecture 35 - Computational Geometry (Continued...)
- Lecture 36 - Dynamic Programming
- Lecture 37 - Longest common subsequence
- Lecture 38 - Graphs
- Lecture 39 - Prim's Algorithms
- Lecture 40 - Graph Search
- Lecture 41
- Lecture 42
- Lecture 43
- Lecture 44
- Lecture 45
- Lecture 46
- Lecture 47
- Lecture 48
- Lecture 49
- Lecture 50
- Lecture 51
- Lecture 52 - Union-Find
- Lecture 53 - Augmented disjoint set data structure
- Lecture 54 - Network flow
- Lecture 55 - Network Flow (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Hardware Modeling using Verilog

Subject Co-ordinator - Prof. Indranil Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6 - Verilog Language Features - Part 1  
Lecture 7 - Verilog Language Features - Part 2  
Lecture 8 - Verilog Language Features - Part 3  
Lecture 9 - Verilog Operators  
Lecture 10 - Verilog Modeling Examples  
Lecture 11 - Verilog Modeling Examples (Continued...)  
Lecture 12 - Verilog Description Styles  
Lecture 13 - Procedural Assignment  
Lecture 14 - Procedural Assignment (Continued...)  
Lecture 15 - Procedural Assignment (Examples)  
Lecture 16 - Blocking / Non-Blocking Assignments - Part 1  
Lecture 17 - Blocking / Non-Blocking Assignments - Part 2  
Lecture 18 - Blocking / Non-Blocking Assignments - Part 3  
Lecture 19 - Blocking / Non-Blocking Assignments - Part 4  
Lecture 20 - User Defined Primitives  
Lecture 21 - Verilog Test Bench  
Lecture 22 - Writing Verilog Test Benches  
Lecture 23 - Modeling Finite State Machines  
Lecture 24 - Modeling Finite State Machines (Continued...)  
Lecture 25 - Datapath And Controller Design - Part 1  
Lecture 26 - Datapath And Controller Design - Part 2  
Lecture 27 - Datapath And Controller Design - Part 3  
Lecture 28 - Synthesizable Verilog  
Lecture 29 - Some Recommended Practices

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Modeling Memory
- Lecture 31 - Modeling Register Banks
- Lecture 32 - Basic Pipelining Concepts
- Lecture 33 - Pipeline Modeling - Part 1
- Lecture 34 - Pipeline Modeling - Part 2
- Lecture 35 - Switch Level Modeling - Part 1
- Lecture 36 - Switch Level Modeling - Part 2
- Lecture 37 - Pipeline Implementation Of A Processor - Part 1
- Lecture 38 - Pipeline Implementation Of A Processor - Part 2
- Lecture 39 - Pipeline Implementation Of A Processor - Part 3
- Lecture 40 - Verilog Modeling Of The Processor - Part 1
- Lecture 41 - Verilog Modeling Of The Processor - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Internet of Things

Subject Co-ordinator - Prof. Sudip Misra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to IoT- Part I

Lecture 2 - Introduction to IoT- Part II

Lecture 3 - Sensing

Lecture 4 - Actuation

Lecture 5 - Basics of IoT Networking - Part I

Lecture 6 - Basics of IoT Networking - Part II

Lecture 7 - Basics of IoT Networking - Part III

Lecture 8 - Basics of IoT Networking - Part IV

Lecture 9 - Connectivity Technologies - Part I

Lecture 10 - Connectivity Technologies - Part II

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

Lecture 21

Lecture 22

Lecture 23

Lecture 24

Lecture 25

Lecture 26 - Introduction to Python Programming - I

Lecture 27 - Introduction to Python Programming - II

Lecture 28 - Introduction to Raspberry Pi - I

Lecture 29 - Introduction to Raspberry Pi - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Implementation of IoT with Raspberry Pi - I
- Lecture 31
- Lecture 32
- Lecture 33
- Lecture 34
- Lecture 35
- Lecture 36 - Software Defined IoT Networking - II
- Lecture 37 - Cloud Computing-Fundamental
- Lecture 38 - Cloud Computing-Service Model
- Lecture 39 - Cloud Computing-Service Management and Security
- Lecture 40 - Cloud Computing - Case Studies
- Lecture 41 - Cloud Computing - Practical
- Lecture 42 - Sensor-Cloud - I
- Lecture 43 - Sensor-Cloud - II
- Lecture 44 - Fog Computing - I
- Lecture 45 - Fog Computing - II
- Lecture 46 - Smart Cities and Smart Homes - I
- Lecture 47 - Smart Cities and Smart Homes - II
- Lecture 48 - Smart Cities and Smart Homes - III
- Lecture 49 - Connected Vehicles - I
- Lecture 50 - Connected Vehicles - II
- Lecture 51 - Smart Grid - I
- Lecture 52 - Smart Grid - II
- Lecture 53 - Industrial Internet of Things - I
- Lecture 54 - Industrial Internet of Things - II
- Lecture 55 - Data Handling and Analytics - I
- Lecture 56 - Data Handling and Analytics - II
- Lecture 57 - Case Study
- Lecture 58 - Case Study
- Lecture 59 - Case Study
- Lecture 60 - Case Study

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Cloud Computing

Subject Co-ordinator - Prof. Soumya Kanti Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Cloud Computing Overview
- Lecture 2 - Cloud Computing Overview (Continued...)
- Lecture 3 - Cloud Computing - Introduction
- Lecture 4 - Cloud Computing Architecture
- Lecture 5 - Cloud Computing Architecture (Continued...)
- Lecture 6 - Cloud Computing Architecture - Deployment Models
- Lecture 7 - Cloud Computing Virtualization
- Lecture 8 - Cloud Computing XML Basics
- Lecture 9 - Cloud Computing XML Basics - II
- Lecture 10 - Cloud Computing Web Services, Service Oriented Architecture
- Lecture 11 - Service Level Agreement
- Lecture 12 - Cloud Economics
- Lecture 13 - Managing Data
- Lecture 14 - Introduction to MapReduce
- Lecture 15 - Open Stack
- Lecture 16 - Cloud Computing - Opensource Cloud - Openstack Demo
- Lecture 17 - Cloud Computing Case Study with a commercial Cloud - Microsoft Azure
- Lecture 18 - Cloud Computing Demo - Microsoft Azure
- Lecture 19 - Cloud Computing Case Study - Google Cloud Platform (GCP)
- Lecture 20 - Cloud Computing Demo - Google Cloud Platform (GCP)
- Lecture 21 - SLA-Tutorial
- Lecture 22 - Cloudeconomics-Tutorial
- Lecture 23 - MapReduce-Tutorial
- Lecture 24 - Resource Management - I
- Lecture 25 - Resource Management - II
- Lecture 26 - Cloud Computing: Security - I
- Lecture 27 - Cloud Computing: Security - II
- Lecture 28 - Cloud Computing: Security - III
- Lecture 29 - Cloud Computing: Security Issues in Collaborative SaaS Cloud

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cloud Computing: Broker for Cloud Marketplace
- Lecture 31 - Mobile Cloud Computing - I
- Lecture 32 - Mobile Cloud Computing - II
- Lecture 33 - Fog Computing - I
- Lecture 34 - Fog Computing - II
- Lecture 35 - Use Case-Geo-spatial Cloud
- Lecture 36 - Introduction to DOCKER Container
- Lecture 37 - Green Cloud
- Lecture 38 - Sensor Cloud Computing
- Lecture 39 - IoT Cloud
- Lecture 40 - Course Summary and Research Areas
- Lecture 41 - Cloud-Fog Computing - Overview
- Lecture 42 - Resource Management - I
- Lecture 43 - Resource Management - II
- Lecture 44 - Cloud Federation
- Lecture 45 - VM Migration - Basics Migration strategies
- Lecture 46 - VM Migration - Basics Migration strategies
- Lecture 47 - Containers Container based Virtualization Kubernetes Docker Container
- Lecture 48 - Docker Container - Overview Docker - Components Docker - Architecture
- Lecture 49 - Docker Container - Demo
- Lecture 50 - Docker Container - Demo
- Lecture 51 - Dew Computing
- Lecture 52 - Serverless Computing - I
- Lecture 53 - Serverless Computing - II
- Lecture 54 - Sustainable Cloud Computing - I
- Lecture 55 - Sustainable Cloud Computing - II
- Lecture 56 - Cloud Computing in 5G Era
- Lecture 57 - CPS and Cloud Computing
- Lecture 58 - Case Study I (Spatial Cloud Computing)
- Lecture 59 - Case Study II (Internet of Health Things) - Part A
- Lecture 60 - Case Study II (Internet of Health Things) - Part B

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Problem Solving through Programming in C

Subject Co-ordinator - Prof.Arnab sarkar, Prof.Jatindra Kumar Deka, Dr. Santosh Biswas

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Idea of Algorithms
- Lecture 3 - Flow Chart and Pseudocode
- Lecture 4 - Introduction to Programming Language Concepts
- Lecture 5 - Variables and Memory
- Lecture 6 - Types of Software and Compilers
- Lecture 7 - Introduction to C Programming Language
- Lecture 8 - Variables and Variable Types in C
- Lecture 9 - Introducing Functions
- Lecture 10 - Address and Content of Variables and Types
- Lecture 11 - Assignment Statement and Operators in C
- Lecture 12 - Arithmetic Expressions and Relational Expressions
- Lecture 13 - Logical Operators and Change in Control Flow
- Lecture 14 - Use of Logical Operatoers in Branching
- Lecture 15 - Branching
- Lecture 16 - IF-ELSE Statement (Continued...)
- Lecture 17 - Switch statement
- Lecture 18 - Switch Statement (Continued...) and Introduction to Loops
- Lecture 19 - Implementing Repetitions (Loops)
- Lecture 20 - Implementation of Loops with for Statement (Continued...)
- Lecture 21 - For Statement (Continued...)
- Lecture 22 - Example of If-Else
- Lecture 23 - Example of Loops
- Lecture 24 - Example of Loops (Continued...)
- Lecture 25 - Example of Loops (Continued...), Use of FOR Loops
- Lecture 26 - Introduction to Arrays
- Lecture 27 - Arrays (Continued...)
- Lecture 28 - Arrays (Continued...)
- Lecture 29 - Program using Arrays

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Array Problem
- Lecture 31 - Linear Search
- Lecture 32 - Character Array and Strings
- Lecture 33 - String Operations
- Lecture 34 - 2-D Array Operation
- Lecture 35 - Introducing Functions
- Lecture 36 - More on Functions
- Lecture 37 - Function (Continued...)
- Lecture 38 - Scanf and Printf Functions; Function Prototype
- Lecture 39 - Parameter Passing in Function Revision
- Lecture 40 - Parameter Passing in Function Revision (Continued...)
- Lecture 41 - Substitution of # include and Macro
- Lecture 42 - search as a function
- Lecture 43 - Binary Search
- Lecture 44 - Binary Search (Continued...)
- Lecture 45 - Sorting Methods
- Lecture 46 - Bubble Sort (Continued...)
- Lecture 47 - Use of Pointer in Function
- Lecture 48 - Arrays at Strings
- Lecture 49 - Data Representation
- Lecture 50 - Bisection Method
- Lecture 51 - Interpolation
- Lecture 52 - Trapezoidal Rule and Runge-Kutta Method
- Lecture 53 - Recursion
- Lecture 54 - Recursion (Continued...)
- Lecture 55 - Structure
- Lecture 56 - Structure (Continued...)
- Lecture 57 - Structure with typedef
- Lecture 58 - Pointer
- Lecture 59 - Pointer (Continued...)
- Lecture 60 - Pointer in Structures
- Lecture 61 - Dynamic Allocation and File

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Real Time Operating System

Subject Co-ordinator - Prof. Rajib Mall

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Basics of Task scheduling
- Lecture 3 - Cyclic executives
- Lecture 4 - Cyclic Scheduler
- Lecture 5 - Cyclic Scheduler
- Lecture 6 - Exercises on Frame size Selection
- Lecture 7 - Event-driven schedulers
- Lecture 8 - Rate Monotonic Algorithm
- Lecture 9 - RMA Task Schedulability
- Lecture 10 - Rate Monotonic Analysis
- Lecture 11 - RMA Generalizations
- Lecture 12 - Further RMA Generalizations
- Lecture 13 - Resource Sharing among Real-Time Tasks
- Lecture 14 - Solution to Priority Inversion Problem
- Lecture 15 - Highest Locker Protocol
- Lecture 16 - Priority Ceiling Protocol
- Lecture 17 - PCP Priority Inversions
- Lecture 18 - Analysis of PCP priority inversions
- Lecture 19 - Some basic issues in Real-Time Operating Systems
- Lecture 20 - Unix as a Real-Time operating System

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Soft Computing

Subject Co-ordinator - Prof. Debasis Samanta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to soft computing
- Lecture 2 - Introduction to Fuzzy Logic
- Lecture 3 - Fuzzy membership functions (Continued...) and Defining Membership functions
- Lecture 4 - Fuzzy operations
- Lecture 5 - Fuzzy relations
- Lecture 6 - Fuzzy Relations (Continued...) and Fuzzy propositions
- Lecture 7 - Fuzzy implications
- Lecture 8 - Fuzzy Inferences
- Lecture 9 - Defuzzification techniques (Part-I)
- Lecture 10 - Defuzzification Techniques (Part-I) (Continued...)
- Lecture 11 - Fuzzy logic controller
- Lecture 12 - Fuzzy Logic Controller (Continued...)
- Lecture 13 - Fuzzy logic controller (Continued...)
- Lecture 14 - Concept of Genetic Algorithm
- Lecture 15 - Concept of Genetic Algorithm (Continued...) and GA Strategies
- Lecture 16 - GA Operator
- Lecture 17 - GA operator
- Lecture 18 - GA Operator
- Lecture 19 - GA Operator
- Lecture 20 - GA Operator
- Lecture 21 - GA Operator
- Lecture 22 - GA Operator
- Lecture 23 - GA Operator
- Lecture 24 - Multi-objective optimization problem solving
- Lecture 25 - Multi-objective optimization problem solving (Continued...)
- Lecture 26 - Concept of domination
- Lecture 27 - Non-Pareto based approaches to solve MOOPs
- Lecture 28 - Non-Pareto based approaches to solve MOOPs (Continued...)
- Lecture 29 - Pareto-Based approaches to solve MOOPs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pareto-based approaches to solve MOOPs (Continued....)
- Lecture 31 - Pareto-based approach to solve MOOPs
- Lecture 32 - Pareto-based approach to solve MOOPs (Continued...)
- Lecture 33 - Pareto-based approach to solve MOOPs (Continued...)
- Lecture 34 - Introduction to Artificial Neural Network
- Lecture 35 - ANN Architectures
- Lecture 36 - Training ANNs
- Lecture 37 - Training ANNs (Continued....)
- Lecture 38 - Training ANNs (Continued....)
- Lecture 39 - Training ANNs (Continued....)
- Lecture 40 - Soft computing tools

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Data Mining

Subject Co-ordinator - Prof. Pabitra Mitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction, Knowledge Discovery Process

Lecture 2 - Data Preprocessing - I

Lecture 3 - Data Preprocessing - II

Lecture 4 - Association Rules

Lecture 5 - Apriori algorithm

Lecture 6 - Rule generation

Lecture 7 - Classification

Lecture 8 - Decision Tree - I

Lecture 9 - Decision Tree - II

Lecture 10 - Decision Tree - III

Lecture 11 - Decision Tree - IV

Lecture 12 - Bayes Classifier - I

Lecture 13 - Bayes Classifier - II

Lecture 14 - Bayes Classifier - III

Lecture 15 - Bayes Classifier - IV

Lecture 16 - Bayes Classifier - V

Lecture 17 - K Nearest Neighbor - I

Lecture 18 - K Nearest Neighbor - II

Lecture 19

Lecture 20

Lecture 21

Lecture 22 - Support Vector Machine - I

Lecture 23 - Support Vector Machine - II

Lecture 24 - Support Vector Machine - III

Lecture 25 - Support Vector Machine - IV

Lecture 26 - Support Vector Machine - V

Lecture 27 - Kernel Machines

Lecture 28 - Artificial Neural Networks - I

Lecture 29 - Artificial Neural Networks - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Artificial Neural Networks - III
- Lecture 31 - Artificial Neural Networks - IV
- Lecture 32 - Clustering - I
- Lecture 33 - Clustering - II
- Lecture 34 - Clustering - III
- Lecture 35 - Clustering - IV
- Lecture 36 - Clustering - V
- Lecture 37 - Regression - I
- Lecture 38 - Regression - II
- Lecture 39 - Regression - III
- Lecture 40 - Regression - IV
- Lecture 41 - Dimensionality Reduction - I
- Lecture 42 - Dimensionality Reduction - II
- Lecture 43 - Tutorial
- Lecture 44 - Live Session

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Data Base Management System

Subject Co-ordinator - Prof. Partha Pratim Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview  
Lecture 2 - Introduction to DBMS/1  
Lecture 3 - Introduction to DBMS/2  
Lecture 4 - Introduction to Relational Model/1  
Lecture 5 - Introduction to Relational Model/2  
Lecture 6 - Introduction to SQL/1  
Lecture 7 - Introduction to SQL/2  
Lecture 8 - Introduction to SQL/3  
Lecture 9 - Intermediate SQL/1  
Lecture 10 - Intermediate SQL/2  
Lecture 11 - Advanced SQL  
Lecture 12 - Formal Relational Query Languages  
Lecture 13 - Entity-Relationship Model/1  
Lecture 14 - Entity-Relationship Model/2  
Lecture 15 - Entity-Relationship Model/3  
Lecture 16 - Relational Database Design  
Lecture 17 - Relational Database Design (Continued...)  
Lecture 18 - Relational Database Design/3  
Lecture 19 - Relational Database Design (Continued...)  
Lecture 20 - Relational Database Design/5  
Lecture 21 - Application Design and Development/1  
Lecture 22 - Application Design and Development/2  
Lecture 23 - Application Design and Development/3  
Lecture 24 - Storage and File Structure/1  
Lecture 25 - Storage and File Structure/2  
Lecture 26 - Indexing and Hashing/1  
Lecture 27 - Indexing and Hashing/2  
Lecture 28 - Indexing and Hashing/3  
Lecture 29 - Indexing and Hashing/4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Indexing and Hashing/5
- Lecture 31 - Transactions/1
- Lecture 32 - Transactions/2
- Lecture 33 - Transactions/3
- Lecture 34 - Concurrency Control/1
- Lecture 35 - Concurrency Control/2
- Lecture 36 - Recovery/1
- Lecture 37 - Recovery/2
- Lecture 38 - Query Processing and Optimization/1
- Lecture 39 - Query Processing and Optimization/2
- Lecture 40 - Course Summarization
- Lecture 41 - Live Session
- Lecture 42 - Live Session - 2



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Software Engineering

Subject Co-ordinator - Prof. Rajib Mall

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - I  
Lecture 2 - Introduction - II  
Lecture 3 - Introduction - III  
Lecture 4 - Introduction - IV  
Lecture 5 - Introduction - V  
Lecture 6 - Life Cycle Model  
Lecture 7 - Life Cycle Model  
Lecture 8 - Waterfall Model  
Lecture 9 - Waterfall Derivatives  
Lecture 10 - Incremental Model  
Lecture 11 - Evolutionary Model  
Lecture 12 - Agile Model  
Lecture 13 - Extreme Programming and Scrum  
Lecture 14 - Scrum  
Lecture 15 - Introduction to requirement specification  
Lecture 16 - Requirement gathering and analysis  
Lecture 17 - Functional requirements  
Lecture 18 - Representation of complex programming logic  
Lecture 19 - Design Fundamentals  
Lecture 20 - Modular Design  
Lecture 21 - Classification of Cohesion  
Lecture 22 - Classification of Coupling  
Lecture 23 - Introduction to structured analysis and structured design  
Lecture 24 - Basics of Data Flow Diagrams (DFD)  
Lecture 25 - Developing DFD Model  
Lecture 26 - Examples of DFD Model development  
Lecture 27 - DFD Model - More Examples  
Lecture 28 - Essentials of Structure Chart  
Lecture 29 - Transform Analysis, Transaction Analysis

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- Lecture 30 - Structured Design Examples
- Lecture 31 - Use Case Modelling
- Lecture 32 - Factoring Use Cases
- Lecture 33 - Overview of Class diagram
- Lecture 34 - Inheritance relationship
- Lecture 35 - Association relationship
- Lecture 36 - Aggregation/ Composition and dependency relations
- Lecture 37 - Interation Modelling
- Lecture 38 - Development of Sequence diagrams
- Lecture 39 - State-Machram diagram
- Lecture 40 - An Object-Oriented design process
- Lecture 41 - Domain Analysis
- Lecture 42 - Examples of object-oriented design
- Lecture 43 - Basic concepts in Testing - I
- Lecture 44 - Basic concepts in Testing - II
- Lecture 45 - Basic concepts in Testing - III
- Lecture 46 - Unit testing strategies - I
- Lecture 47 - Unit testing strategies - II
- Lecture 48 - Equivalence Class Testing - I
- Lecture 49 - Equivalence Class Testing - II
- Lecture 50 - Special Value Testing
- Lecture 51 - Combinatorial Testing
- Lecture 52 - Decision Table Testing
- Lecture 53 - Cause effect graphing
- Lecture 54 - Pairwise Testing
- Lecture 55 - White box Testing
- Lecture 56 - Condition Testing
- Lecture 57 - MC/DC Coverage
- Lecture 58 - MC/DC Testing
- Lecture 59 - Path Testing
- Lecture 60 - Dataflow and Mutation Testing

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computer Networks and Internet Protocol

Subject Co-ordinator - Prof. Sandip Chakraborty, Prof. Soumya Kanti Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Computer Networks - A brief history
- Lecture 2 - Data Networks - from Circuit Switching Network to Packet Switching Network
- Lecture 3 - Network Protocol Stack
- Lecture 4 - Services at the Different Layers of the Protocol Stack
- Lecture 5 - Application Layer I - Different Protocols at the Application Layer
- Lecture 6 - Application Layer II - Domain Name Systems
- Lecture 7 - Application Layer III - The Web
- Lecture 8 - Application Layer III - Hypertext Transfer Protocol
- Lecture 9 - Application Layer III - Internet Mail Transfer
- Lecture 10 - Application Layer IV - File Transfer (FTP)
- Lecture 11 - Transport Layer I - Services
- Lecture 12 - Transport Layer II - Connection
- Lecture 13 - Transport Layer II - Connection (Continued...)
- Lecture 14 - Transport Layer IV - Reliability
- Lecture 15 - Transport Layer V - Sliding Window Protocols
- Lecture 16 - Transport Layer Performance
- Lecture 17 - Buffer Management and Congestion Control
- Lecture 18 - Transport Layer Primitives
- Lecture 19 - Transmission Control Protocol I - Basics
- Lecture 20 - Transmission Control Protocol II - Connections
- Lecture 21 - Transmission Control Protocol III - Flow Control
- Lecture 22 - Transmission Control Protocol IV - Congestion Control
- Lecture 23 - User Datagram Protocol
- Lecture 24 - Socket Programming - I
- Lecture 25 - Socket Programming - II
- Lecture 26 - Network Layer I - Introduction
- Lecture 27 - IP Addressing (IPv4) I - Classful addressing
- Lecture 28 - IP Addressing (IPv4) II - CIDR
- Lecture 29 - IP Addressing (IPv4) III - Network Address Translation (NAT)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - IPv6 Addressing
- Lecture 31 - Internet QoS - I (What is QoS)
- Lecture 32 - Internet QoS - II (Basic QoS Architecture)
- Lecture 33 - Internet QoS - III (Traffic Policing and Traffic Shaping)
- Lecture 34 - Internet QoS - IV (Traffic Scheduling)
- Lecture 35 - Internet QoS - V (Integrated and Differentiated Service Architecture)
- Lecture 36 - IP Routing Table
- Lecture 37 - Routing in the Internet I - Intra-domain routing
- Lecture 38 - Routing in the Internet II - Routing protocols
- Lecture 39 - Routing in the Internet III - Inter-domain Routing
- Lecture 40 - Routing in the Internet IV - Border Gateway Protocol
- Lecture 41 - IP Routers
- Lecture 42 - IP Routers Demo
- Lecture 43 - Software Defined Networking - I (Basics)
- Lecture 44 - Software Defined Networking - II (Open Flow)
- Lecture 45 - Software Defined Networking - III (Demo)
- Lecture 46 - Data Link Layer - Overview
- Lecture 47 - Data Link Layer - Basic Concepts
- Lecture 48 - Data Link Layer - Ethernet
- Lecture 49 - Data Link Layer - Ethernet (Continued...)
- Lecture 50 - Data Link Layer - Flow and Error Control
- Lecture 51 - ARP-RAPP-BOOTP-DHCP
- Lecture 52 - ARP-RAPP-BOOTP-DHCP (Continued...)
- Lecture 53
- Lecture 54 - Wireless LANs
- Lecture 55 - Layer 1
- Lecture 56 - Layer 1
- Lecture 57 - Layer 1
- Lecture 58 - Network Security - Overview
- Lecture 59 - Network Security - II
- Lecture 60 - Network Security - III [TCP/IP Security]

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Blockchain Architecture Design and Use Cases

Subject Co-ordinator - Praveen Jayachandran, Prof. Sandip Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Blockchain - I (Basics)
- Lecture 2 - Introduction to Blockchain - II (History)
- Lecture 3 - Introduction to Blockchain - III (Architecture)
- Lecture 4 - Introduction to Blockchain - IV (Conceptualization)
- Lecture 5 - Basic Crypto Primitives - I
- Lecture 6 - Basic Crypto Primitives - II
- Lecture 7 - Bitcoin Basics - I
- Lecture 8 - Bitcoin Basics - II
- Lecture 9 - Bitcoin Basics - III
- Lecture 10 - Distributed Consensus
- Lecture 11 - Consensus in Bitcoin - I (The Basics)
- Lecture 12 - Consensus in Bitcoin - II (PoW and Beyond)
- Lecture 13 - Consensus in Bitcoin - III (The Miners)
- Lecture 14 - Permissioned Blockchain - I (Basics)
- Lecture 15 - Permissioned Blockchain - II (Consensus)
- Lecture 16 - Permissioned Blockchain - III (RAFT Consensus)
- Lecture 17 - Permissioned Blockchain - IV (Byzantine General Problem)
- Lecture 18 - Permissioned Blockchain - V (Practical Byzantine Fault Tolerance)
- Lecture 19 - Blockchain for Enterprise - Overview
- Lecture 20 - Blockchain Components and Concepts
- Lecture 21 - Hyperledger Fabric - Transaction Flow
- Lecture 22 - Hyperledger Fabric Details
- Lecture 23 - Fabric - Membership and Identity Management
- Lecture 24 - Hyperledger Fabric Network Setup
- Lecture 25 - Fabric Demo on IBM Blockchain Cloud - I
- Lecture 26 - Fabric Demo on IBM Blockchain Cloud - II
- Lecture 27 - Fabric Demo, deploy from scratch - III
- Lecture 28 - Hyperledger Composer - Application Development
- Lecture 29 - Hyperledger Composer - Network Administration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Blockchain Use Cases
- Lecture 31 - Blockchain in Financial Service - I (Payments and Secure Trading)
- Lecture 32 - Blockchain in Financial Service - II (Compliance and Mortgage)
- Lecture 33 - Blockchain in Financial Service - III (Financial Trade)
- Lecture 34 - Revolutionizing Global Trade
- Lecture 35 - Blockchain in Supply Chain - I
- Lecture 36 - Blockchain in Supply Chain - II
- Lecture 37 - Blockchain in Other Industries
- Lecture 38 - Blockchain in Government - I (Advantages)
- Lecture 39 - Blockchain in Government - II (Use Cases)
- Lecture 40 - Blockchain in Government - III (Digital Identity)
- Lecture 41 - Blockchain in Government - IV (Hyperledger Indy)
- Lecture 42 - Blockchain in Government - V (Tax Payments and Land Registry Records)
- Lecture 43 - Blockchain Security - I (Overview)
- Lecture 44 - Blockchain Security - II (Membership and Access control in Fabric)
- Lecture 45 - Blockchain Security - III (Privacy in Fabric)
- Lecture 46 - Blockchain Security - III (Fabric SideDB)
- Lecture 47 - Research Aspects - I (Consensus Scalability)
- Lecture 48 - Research Aspects - II (Bitcoin-NG)
- Lecture 49 - Research Aspects - III (Collective Signing)
- Lecture 50 - Research Aspects - IV (Byzcoin)
- Lecture 51 - Research Aspects - V (Algorand)
- Lecture 52 - Research Aspects - VI (Cross Fault Tolerance)
- Lecture 53 - Research Aspects - VII (Secured Multi-Party Computation)
- Lecture 54 - Blockchain for Science - I (Blockchain for Big Data)
- Lecture 55 - Blockchain for Science - II (Blockchain and AI)
- Lecture 56 - Comparing Ecosystems - Ethereum
- Lecture 57 - Comparing Ecosystems - Ethereum development tools and Quorum
- Lecture 58 - Comparing Ecosystems - Corda Part 1
- Lecture 59 - Comparing Ecosystems - Corda Part 2
- Lecture 60 - Concluding the course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Switching Circuits and Logic Design

Subject Co-ordinator - Prof. Indranil Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Octal and Hexadecimal Number Systems
- Lecture 3 - Signed and Unsigned Binary Number Representation
- Lecture 4 - Binary Addition and Subtraction
- Lecture 5 - BCD and Gray Code Representations
- Lecture 6 - Error Detection and Correction
- Lecture 7 - Logic Gates
- Lecture 8 - Logic Families to Implement Gates
- Lecture 9 - Emerging Technologies - Part I
- Lecture 10 - Emerging Technologies - Part II
- Lecture 11 - Switching Algebra
- Lecture 12 - Algebraic Manipulation
- Lecture 13 - Properties of Switching Functions
- Lecture 14 - Obtaining Canonical Representations of Functions
- Lecture 15 - Functional Completeness
- Lecture 16 - Minimization Using Karnaugh Maps - Part I
- Lecture 17 - Minimization Using Karnaugh Maps - Part II
- Lecture 18 - Minimization Using Karnaugh Maps - Part III
- Lecture 19 - Minimization using Tabular Method - Part I
- Lecture 20 - Minimization using Tabular Method - Part II
- Lecture 21 - Design of Adders - Part I
- Lecture 22 - Design of Adders - Part II
- Lecture 23 - Design of Adders - Part III
- Lecture 24 - Logic Design - Part I
- Lecture 25 - Logic Design - Part II
- Lecture 26 - Logic Design - Part III
- Lecture 27 - Binary Decision Diagrams - Part I
- Lecture 28 - Binary Decision Diagrams - Part II
- Lecture 29 - Logic Design using AND-EXOR Network

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Threshold Logic and Threshold Gates
- Lecture 31 - Latches and Flip-Flops - Part I
- Lecture 32 - Latches and Flip-Flops - Part II
- Lecture 33 - Latches and Flip-Flops - Part III
- Lecture 34 - Clocking and Timing - Part I
- Lecture 35 - Clocking and Timing - Part II
- Lecture 36 - Synthesis of Synchronous Sequential Circuits - Part I
- Lecture 37 - Synthesis of Synchronous Sequential Circuits - Part II
- Lecture 38 - Synthesis of Synchronous Sequential Circuits - Part III
- Lecture 39 - Synthesis of Synchronous Sequential Circuits - Part IV
- Lecture 40 - Minimization of Finite State Machines - Part I
- Lecture 41 - Minimization of Finite State Machines - Part II
- Lecture 42 - Design of Registers - Part I
- Lecture 43 - Design of Registers - Part II
- Lecture 44 - Design of Registers - Part III
- Lecture 45 - Design of Counters - Part I
- Lecture 46 - Design of Counters - Part II
- Lecture 47 - Digital-to-Analog Converter - Part I
- Lecture 48 - Digital-to-Analog Converter - Part II
- Lecture 49 - Analog-to-Digital Converter - Part I
- Lecture 50 - Analog-to-Digital Converter - Part II
- Lecture 51 - Analog-to-Digital Converter - Part III
- Lecture 52 - Asynchronous Sequential Circuits - Part I
- Lecture 53 - Asynchronous Sequential Circuits - Part II
- Lecture 54 - Algorithmic State Machine (ASM Chart
- Lecture 55 - Testing of Digital Circuits
- Lecture 56 - Fault Modeling
- Lecture 57 - Test Pattern Generation
- Lecture 58 - Design for Testability
- Lecture 59 - Built-in Self-Test - Part I
- Lecture 60 - Built-in Self-Test - Part II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Scalable Data Science

Subject Co-ordinator - Prof. Sourangshu Bhattacharya, Prof. Anirban Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Background
- Lecture 2 - Probability
- Lecture 3 - Linear algebra
- Lecture 4 - Optimization
- Lecture 5 - Machine Learning
- Lecture 6 - Memory-efficient data structures
- Lecture 7 - Bloom filters
- Lecture 8 - Sketches for distinct count
- Lecture 9 - Sketches for distinct count (Continued...)
- Lecture 10 - Misra-Gries sketch
- Lecture 11 - Frequent Element
- Lecture 12 - Frequent Element
- Lecture 13 - Near Neighbors
- Lecture 14 - Locality Sensitive Hashing
- Lecture 15 - Building LSH Tables
- Lecture 16 - Approximate near neighbors search
- Lecture 17 - Approximate near neighbors search
- Lecture 18 - Approximate near neighbors search
- Lecture 19 - Randomized Numerical Linear Algebra
- Lecture 20 - Randomized Numerical Linear Algebra
- Lecture 21 - Randomized Numerical Linear Algebra
- Lecture 22 - Randomized Numerical Linear Algebra
- Lecture 23 - Randomized Numerical Linear Algebra
- Lecture 24 - Randomized Numerical Linear Algebra
- Lecture 25 - Randomized Numerical Linear Algebra
- Lecture 26 - Map-reduce and Hadoop
- Lecture 27 - Hadoop System
- Lecture 28 - Hadoop System (Continued...)
- Lecture 29 - Hadoop System (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Spark
- Lecture 31 - Spark (Continued...)
- Lecture 32 - Spark (Continued...)
- Lecture 33 - Distributed Machine Learning and Optimization
- Lecture 34 - SGD+Proof
- Lecture 35 - SGD+Proof (Continued...)
- Lecture 36 - Distributed Machine Learning and Optimization
- Lecture 37 - Distributed Machine Learning and Optimization
- Lecture 38 - Clustering
- Lecture 39 - Clustering (Continued...)
- Lecture 40 - Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Compiler Design

Subject Co-ordinator - Prof. Santanu Chattopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Introduction (Continued...)  
Lecture 4 - Introduction (Continued...)  
Lecture 5 - Introduction (Continued...)  
Lecture 6 - Introduction (Continued...)  
Lecture 7 - Lexical Analysis  
Lecture 8 - Lexical Analysis (Continued...)  
Lecture 9 - Lexical Analysis (Continued...)  
Lecture 10 - Lexical Analysis (Continued...)  
Lecture 11 - Lexical Analysis (Continued...)  
Lecture 12 - Lexical Analysis (Continued...)  
Lecture 13 - Lexical Analysis (Continued...)  
Lecture 14 - Lexical Analysis (Continued...)  
Lecture 15 - Lexical Analysis (Continued...)  
Lecture 16 - Parser  
Lecture 17 - Parser (Continued...)  
Lecture 18 - Parser (Continued...)  
Lecture 19 - Parser (Continued...)  
Lecture 20 - Parser (Continued...)  
Lecture 21 - Parser (Continued...)  
Lecture 22 - Parser (Continued...)  
Lecture 23 - Parser (Continued...)  
Lecture 24 - Parser (Continued...)  
Lecture 25 - Parser (Continued...)  
Lecture 26 - Parser (Continued...)  
Lecture 27 - Parser (Continued...)  
Lecture 28 - Parser (Continued...)  
Lecture 29 - Parser (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Parser (Continued...)
- Lecture 31 - Parser (Continued...)
- Lecture 32 - SR Latch and Introduction to Clocked Flip-Flop
- Lecture 33 - Edge-Triggered Flip-Flop
- Lecture 34 - Representations of Flip-Flops
- Lecture 35 - Analysis of Sequential Logic Circuit
- Lecture 36 - Conversion of Flip-Flops and Flip-Flop Timing Parameters
- Lecture 37 - Register and Shift Register
- Lecture 38 - Shift Register
- Lecture 39 - Application of Shift Register
- Lecture 40 - Linear Feedback Shift Register
- Lecture 41 - Serial Addition, Multiplication and Division
- Lecture 42 - Type Checking (Continued...)
- Lecture 43 - Symbol Table
- Lecture 44 - Symbol Table (Continued...)
- Lecture 45 - Symbol Table (Continued...)
- Lecture 46 - Symbol Table (Continued...) and Runtime Environment
- Lecture 47 - Runtime Environment
- Lecture 48 - Runtime Environment (Continued...)
- Lecture 49 - Runtime Environment (Continued...)
- Lecture 50 - Intermediate Code Generation
- Lecture 51 - Intermediate Code Generation (Continued...)
- Lecture 52 - Intermediate Code Generation (Continued...)
- Lecture 53 - Intermediate Code Generation (Continued...)
- Lecture 54 - Intermediate Code Generation (Continued...)
- Lecture 55 - Intermediate Code Generation (Continued...)
- Lecture 56 - Intermediate Code Generation (Continued...)
- Lecture 57 - Intermediate Code Generation (Continued...)
- Lecture 58 - Intermediate Code Generation (Continued...)
- Lecture 59 - Intermediate Code Generation (Continued...)
- Lecture 60 - Intermediate Code Generation (Continued...)
- Lecture 61 - Intermediate Code Generation (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Programming in Java

Subject Co-ordinator - Prof. Debasis Samanta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Java Programming Steps  
Lecture 3 - Java Tools and Resources  
Lecture 4 - Demonstration - I  
Lecture 5 - Java Applet Programming  
Lecture 6 - Demonstration - II  
Lecture 7 - Encapsulation  
Lecture 8 - Demonstration - III  
Lecture 9 - Java Programming Insights  
Lecture 10 - Demonstration - IV  
Lecture 11 - Java Static Scope Rule  
Lecture 12 - Demonstration - V  
Lecture 13 - Inheritance  
Lecture 14 - Demonstration - VI  
Lecture 15 - Information Hiding  
Lecture 16 - Demonstration - VII  
Lecture 17 - Packages - I  
Lecture 18 - Packages - II  
Lecture 19 - Demonstration - VIII  
Lecture 20 - Interface - I  
Lecture 21 - Interface - II  
Lecture 22 - Demonstration - IX  
Lecture 23 - Exception Handling - I  
Lecture 24 - Exception Handling - II  
Lecture 25 - Exception Handling - III  
Lecture 26 - Demonstration - X  
Lecture 27 - Multithreading - I  
Lecture 28 - Multithreading - II  
Lecture 29 - Demonstration - XI

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - I-O Stream - I
- Lecture 31 - I-O Stream - II
- Lecture 32 - I-O Stream - III
- Lecture 33 - Demonstration - XII
- Lecture 34 - Applet Programming - I
- Lecture 35 - Applet Programming - II
- Lecture 36 - Applet Programming - III
- Lecture 37 - Demonstration - XIII
- Lecture 38 - Demonstration - XIV
- Lecture 39 - AWT Programming - I
- Lecture 40 - AWT Programming - II
- Lecture 41 - Demonstration - XV
- Lecture 42 - AWT Programming - III
- Lecture 43 - Swing - I
- Lecture 44 - Swing - II
- Lecture 45 - Demonstration - XVI
- Lecture 46 - Demonstration - XVII
- Lecture 47 - Demonstration - XVIII
- Lecture 48 - Networking with Java
- Lecture 49 - Demonstration - XIX
- Lecture 50 - JDBC - I
- Lecture 51 - JDBC - II
- Lecture 52 - JDBC - III
- Lecture 53 - Demonstration - XX
- Lecture 54 - Demonstration - XXI
- Lecture 55 - Demonstration - XXII
- Lecture 56 - Case Studies - I
- Lecture 57 - Case Studies - II
- Lecture 58 - Case Studies - III
- Lecture 59 - Case Studies - IV
- Lecture 60 - Case Studies - V

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Discrete Structures

Subject Co-ordinator - Prof. Dipanwita Roychowdhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Propositional Logic  
Lecture 2 - Introduction to Propositional Logic (Continued...)  
Lecture 3 - Introduction to Propositional Logic (Continued...)  
Lecture 4 - Introduction to Propositional Logic (Continued...)  
Lecture 5 - Introduction to Propositional Logic (Continued...)  
Lecture 6 - Introduction to Propositional Logic (Continued...)  
Lecture 7 - Predicate Logic  
Lecture 8 - Predicate Logic (Continued...)  
Lecture 9 - Predicate Logic (Continued...)  
Lecture 10 - Predicate Logic (Continued...)  
Lecture 11 - Proof Techniques  
Lecture 12 - Proof Techniques (Continued...)  
Lecture 13 - Proof Techniques (Continued...)  
Lecture 14 - Proof Techniques (Continued...)  
Lecture 15 - Proof Techniques (Continued...)  
Lecture 16 - Sets and Functions  
Lecture 17 - Sets and Functions (Continued...)  
Lecture 18 - Sets and Functions (Continued...)  
Lecture 19 - Sets and Functions (Continued...)  
Lecture 20 - Sets and Functions (Continued...)  
Lecture 21 - Relations and their Properties  
Lecture 22 - Relations and their Properties (Continued...)  
Lecture 23 - Relations and their Properties (Continued...)  
Lecture 24 - Relations and their Properties (Continued...)  
Lecture 25 - Relations and their Properties (Continued...)  
Lecture 26 - Recursion  
Lecture 27 - Recursion (Continued...)  
Lecture 28 - Recursion (Continued...)  
Lecture 29 - Recursion (Continued...)

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- Lecture 30 - Recursion (Continued...)
- Lecture 31 - Recurrence relations
- Lecture 32 - Recurrence relations (Continued...)
- Lecture 33 - Recurrence relations (Continued...)
- Lecture 34 - Recurrence relations (Continued...)
- Lecture 35 - Recurrence relations (Continued...)
- Lecture 36 - Counting Techniques and Pigeonhole Principle
- Lecture 37 - Counting Techniques and Pigeonhole Principle (Continued...)
- Lecture 38 - Counting Techniques and Pigeonhole Principle (Continued...)
- Lecture 39 - Counting Techniques and Pigeonhole Principle (Continued...)
- Lecture 40 - Counting Techniques and Pigeonhole Principle (Continued...)
- Lecture 41 - Combinatorics
- Lecture 42 - Combinatorics (Continued...)
- Lecture 43 - Combinatorics (Continued...)
- Lecture 44 - Combinatorics (Continued...)
- Lecture 45 - Combinatorics (Continued...)
- Lecture 46 - Algebraic Structures
- Lecture 47 - Algebraic Structures (Continued...)
- Lecture 48 - Algebraic Structures (Continued...)
- Lecture 49 - Algebraic Structures (Continued...)
- Lecture 50 - Algebraic Structures (Continued...)
- Lecture 51 - Ring and Modular Arithmetic
- Lecture 52 - Ring and Modular Arithmetic (Continued...)
- Lecture 53 - Ring and Modular Arithmetic (Continued...)
- Lecture 54 - Ring and Modular Arithmetic (Continued...)
- Lecture 55 - Ring and Modular Arithmetic (Continued...)
- Lecture 56 - Finite Field and Applications
- Lecture 57 - Finite Field and Applications (Continued...)
- Lecture 58 - Finite Field and Applications (Continued...)
- Lecture 59 - Finite Field and Applications (Continued...)
- Lecture 60 - Finite Field and Applications (Continued...)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Embedded System Design with ARM

Subject Co-ordinator - Prof. Indranil Sengupta, Prof. Kamalika Datta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction To Embedded Systems  
Lecture 2 - Design Considerations of Embedded Systems  
Lecture 3 - Microprocessors and Microcontrollers  
Lecture 4 - Architecture of ARM Microcontroller - Part 1  
Lecture 5 - Architecture of ARM Microcontroller - Part 2  
Lecture 6 - Architecture of ARM Microcontroller - Part 3  
Lecture 7 - ARM Instruction Set - Part 1  
Lecture 8 - ARM Instruction Set - Part 2  
Lecture 9 - ARM Instruction Set - Part 3  
Lecture 10 - About the STM32F401 Nucleo Board  
Lecture 11 - PWM and Interrupt on STM32F401  
Lecture 12 - Digital to Analog Conversion  
Lecture 13 - Analog to Digital Conversion - Part 1  
Lecture 14 - Analog to Digital Conversion - Part 2  
Lecture 15 - Output Devices, Sensors and Actuators - Part 1  
Lecture 16 - Output Devices, Sensors and Actuators - Part 2  
Lecture 17 - Output Devices, Sensors and Actuators - Part 3  
Lecture 18 - Microcontroller Development Boards  
Lecture 19 - Mbed C Programming Environment  
Lecture 20 - Interfacing With STM32F401 Board  
Lecture 21 - Interfacing With Arduino Uno  
Lecture 22 - Interfacing 7-Segment Led And LCD Displays - Part 1  
Lecture 23 - Interfacing 7-segment LED and LCD Displays - Part 2  
Lecture 24 - Serial Port Terminal Application (Coolterm)  
Lecture 25 - Experiment With Temperature Sensor  
Lecture 26 - Experiment With Ldr Light Sensor - Part 1  
Lecture 27 - Experiment With Ldr Light Sensor - Part 2  
Lecture 28 - Experiment With Speaker  
Lecture 29 - Experiment With Microphone

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design Of Control System
- Lecture 31 - Experiments With Relay
- Lecture 32 - Experiments On Speed Control Of Dc Motor
- Lecture 33 - Experiment With Multiple Sensors And Relay
- Lecture 34 - Introduction To Internet Of Things
- Lecture 35 - Gsm And Bluetooth
- Lecture 36 - Design Of A Home Automation System
- Lecture 37 - Design Of A Simple Alarm System Using Touch Sensor
- Lecture 38 - Accelerometer
- Lecture 39 - Experiment Using Accelerometer
- Lecture 40 - Experiment Using Bluetooth
- Lecture 41 - Experiment With Gas Sensor
- Lecture 42 - Summarization Of The Course

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Hardware Security

Subject Co-ordinator - Dr. Debdeep Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Hardware Security - Part 1
- Lecture 2 - Introduction to Hardware Security - Part 2
- Lecture 3 - Algorithm to Hardware
- Lecture 4 - Finite Field Architectures - 1
- Lecture 5 - Finite Field Architectures - 1 (Continued...)
- Lecture 6 - Hardware Design for Finite Field Inverse
- Lecture 7 - Hardware Architecture for Finite Field Inverse
- Lecture 8 - Background on Cryptography, Cryptanalysis and Advanced Encryption Standard (AES)
- Lecture 9 - Advanced Encryption Standard (AES) and Side Channel Analysis
- Lecture 10 - Field Isomorphisms
- Lecture 11 - Field Isomorphisms (Continued...)
- Lecture 12 - Hardware Implementation of Advanced Encryption
- Lecture 13 - Hardware Implementation of Advanced Encryption
- Lecture 14 - Hardware Implementation of Advanced Encryption (Continued...)
- Lecture 15 - Compact AES-Box
- Lecture 16 - Compact AES S-Box - Part II
- Lecture 17 - Compact AES S-Box in Normal Basis - Part I
- Lecture 18 - Compact AES S-Box in Normal Basis - Part II
- Lecture 19 - Hardware for Elliptic Curve Cryptography - Part I
- Lecture 20 - Hardware for Elliptic Curve Cryptography - Part II
- Lecture 21 - Hardware for Elliptic Curve Cryptography - Part III
- Lecture 22 - Hardware for Elliptic Curve Cryptography - Part IV
- Lecture 23 - Hardware for Elliptic Curve Cryptography - Part V
- Lecture 24 - Introduction to Side Channel Analysis
- Lecture 25 - Power Analysis - Part I
- Lecture 26
- Lecture 27
- Lecture 28
- Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30
- Lecture 31 - Power Analysis - Part VII
- Lecture 32 - Power Analysis - Part VIII
- Lecture 33 - Power Analysis - Part IX
- Lecture 34 - Power Analysis - Part X
- Lecture 35 - Power Analysis - Part XI
- Lecture 36
- Lecture 37
- Lecture 38
- Lecture 39
- Lecture 40
- Lecture 41 - Power Analysis - Part XVII
- Lecture 42 - Power Analysis - Part XVIII
- Lecture 43 - Power Analysis Countermeasures
- Lecture 44 - Power Analysis Countermeasures (Continued...)
- Lecture 45 - Power Analysis Countermeasures (Continued...)
- Lecture 46 - Fault Analysis of Cryptosystems
- Lecture 47 - Improved DFA of AES
- Lecture 48 - Multi-Byte and key Scheduling Based Fault Analysis of AES
- Lecture 49 - Multi-Byte and key Scheduling Based Fault Analysis of AES (Continued...)
- Lecture 50 - Redundancy Based Fault Intensity
- Lecture 51 - Redundancy Base Fault Countermeasures and Differential Fault Intensity Attacks (Continued...)
- Lecture 52 - Infective Countermeasures for DFA
- Lecture 53 - Infective Countermeasures for DFA (Continued...)
- Lecture 54 - Infective Countermeasures for DFA (Continued...)
- Lecture 55 - Microarchitectural attacks
- Lecture 56 - Microarchitectural attacks
- Lecture 57 - Microarchitectural attacks
- Lecture 58 - Microarchitectural attacks
- Lecture 59 - Microarchitectural attacks
- Lecture 60 - Microarchitectural attacks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Industry 4.0 and Industrial Inter

Subject Co-ordinator - Prof. Sudip Misra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Introduction

Lecture 3 - Introduction

Lecture 4 - Introduction

Lecture 5 - Introduction

Lecture 6 - Industry 4.0

Lecture 7 - Industry 4.0

Lecture 8 - Industry 4.0

Lecture 9 - Industry 4.0

Lecture 10 - Industry 4.0

Lecture 11 - Industry 4.0

Lecture 12 - Industry 4.0

Lecture 13 - Industry 4.0

Lecture 14 - Industry 4.0

Lecture 15 - Industry 4.0

Lecture 16 - Industry 4.0

Lecture 17 - Basics of Industrial IoT

Lecture 18 - Basics of Industrial IoT

Lecture 19 - Basics of IIoT

Lecture 20 - Basics of Industrial IoT

Lecture 21 - Basics of Industrial IoT

Lecture 22 - Business Models and Reference Architecture for IIoT

Lecture 23 - Business Models and Reference Architecture for IIoT

Lecture 24 - Business Models and Reference Architecture for IIoT

Lecture 25 - Business Models and Reference Architecture for IIoT

Lecture 26 - Key Enablers of Industrial IoT

Lecture 27 - Key Enablers of Industrial IoT

Lecture 28 - Key Enablers of Industrial IoT

Lecture 29 - Key Enablers of Industrial IoT

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Key Enablers of Industrial IoT
- Lecture 31 - Key Enablers of Industrial IoT
- Lecture 32 - Key Enablers of Industrial IoT
- Lecture 33 - Key Enablers of Industrial IoT
- Lecture 34 - Key Enablers of Industrial IoT
- Lecture 35 - Key Enablers of Industrial IoT
- Lecture 36 - IIoT Analytics and Data Management
- Lecture 37 - IIoT Analytics and Data Management
- Lecture 38 - IIoT Analytics and Data Management
- Lecture 39 - IIoT Analytics and Data Management
- Lecture 40 - IIoT Analytics and Data Management
- Lecture 41 - Analytics and Data Management
- Lecture 42 - IIoT Analytics and Data Management
- Lecture 43 - IIoT Analytics and Data Management
- Lecture 44 - IIoT Analytics and Data Management
- Lecture 45 - Advanced Technologies
- Lecture 46 - Advanced Technologies
- Lecture 47 - Advanced Technologies
- Lecture 48 - Advanced Technologies
- Lecture 49 - IIoT Applications
- Lecture 50 - IIoT Applications
- Lecture 51 - IIoT Applications
- Lecture 52 - IIoT Applications
- Lecture 53 - IIoT Applications
- Lecture 54 - IIoT Applications
- Lecture 55 - IIoT Applications
- Lecture 56 - IIoT Applications
- Lecture 57 - IIoT Applications
- Lecture 58 - Case Studies for Industry 4.0 and IIoT
- Lecture 59 - Milk Processing and Packaging Industries
- Lecture 60 - Manufacturing Industries - Part I
- Lecture 61 - Manufacturing Industries - Part II
- Lecture 62 - Student Projects - Part I
- Lecture 63 - Student Projects - Part II
- Lecture 64 - Virtual Reality Lab
- Lecture 65 - Steel Technology Lab

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Automata, Languages and Computati

Subject Co-ordinator - Prof. Sourav Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Deterministic Finite Automata (DFA)
- Lecture 2 - Input alphabet
- Lecture 3 - Extended transition function
- Lecture 4 - Language of DFA
- Lecture 5 - Building DFA
- Lecture 6 - Building DFA (Continued...)
- Lecture 7 - NFA (Nondeterministic Finite Automata)
- Lecture 8 - Language of a NFA
- Lecture 9 - Equivalence of DFAs and NFAs
- Lecture 10 - Subset Construction
- Lecture 11 -  $\epsilon$ -NFA
- Lecture 12 - Extended transition function of NFA
- Lecture 13 - Language of NFA
- Lecture 14 - NFA to DFA
- Lecture 15 - NFA to DFA
- Lecture 16 - Regular expression
- Lecture 17 - Regular expression (Continued...)
- Lecture 18 - More on regular expression
- Lecture 19 - Equivalence of NFA and regular expression
- Lecture 20 - Equivalence of NFA and regular expression (Continued...)
- Lecture 21 - DFA to Regular expression
- Lecture 22 - DFA to Regular expression (Continued...)
- Lecture 23 - Construction of regular expression from a DFA (example)
- Lecture 24 - Closure properties of Regular Set
- Lecture 25 - Closure properties of Regular Set (Continued...)
- Lecture 26 - Substitution
- Lecture 27 - Pumping Lemma
- Lecture 28 - Application of the pumping lemma
- Lecture 29 - More on Pumping lemma

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ardens Theorem
- Lecture 31 - Minimization of FA
- Lecture 32 - Minimization of FA (Continued...)
- Lecture 33 - Two way FA
- Lecture 34 - Finite automata with output
- Lecture 35 - Equivalence of Moore and Mealy machine
- Lecture 36 - Context free grammars (CFG)
- Lecture 37 - Context free language (CFL)
- Lecture 38 - More example on CFL
- Lecture 39 - More on CFG
- Lecture 40 - Derivation Tree/Parse Tree
- Lecture 41 - Leftmost and Rightmost derivations
- Lecture 42 - Ambiguity in CFG
- Lecture 43 - Simplification of CFG
- Lecture 44 - Algorithms to construct reduced grammar
- Lecture 45 - Elimination of Null and Unit productions
- Lecture 46 - Chomsky Normal Form (CNF)
- Lecture 47 - Greibach Normal Form (GNF)
- Lecture 48 - Pushdown Automata (PDA)
- Lecture 49 - Language accepted by PDA
- Lecture 50 - Example of a language accepted by PDA
- Lecture 51 - Deterministic PDA
- Lecture 52 - Equivalence of language accepted
- Lecture 53 - Equivalence PDA
- Lecture 54 - Equivalence PDA and CFL
- Lecture 55 - Equivalence PDA and CFL (Continued...)
- Lecture 56 - Relationship between regular language and CFL
- Lecture 57 - Pumping lemma for CFLs
- Lecture 58 - Closer properties of CFLs
- Lecture 59 - Turning Machine
- Lecture 60 - Language accepted by a Turning machine



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Operating System Fundamentals

Subject Co-ordinator - Prof. Santanu Chattopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Introduction (Continued...)  
Lecture 4 - Introduction (Continued...)  
Lecture 5 - Introduction (Continued...)  
Lecture 6 - Introduction (Continued...)  
Lecture 7 - Operating System Structures  
Lecture 8 - Operating System Structures (Continued...)  
Lecture 9 - Operating System Structures (Continued...)  
Lecture 10 - Operating System Structures (Continued...)  
Lecture 11 - Operating System Structures (Continued...)  
Lecture 12 - Processes  
Lecture 13 - Processes (Continued...)  
Lecture 14 - Processes (Continued...)  
Lecture 15 - Processes (Continued...)  
Lecture 16 - Processes (Continued...)  
Lecture 17 - Processes (Continued...)  
Lecture 18 - Processes (Continued...)  
Lecture 19 - Threads  
Lecture 20 - Threads (Continued...)  
Lecture 21 - Threads (Continued...)  
Lecture 22 - Threads (Continued...)  
Lecture 23 - Threads, Scheduling  
Lecture 24 - Scheduling  
Lecture 25 - Scheduling (Continued...)  
Lecture 26 - Scheduling (Continued...)  
Lecture 27 - Scheduling (Continued...)  
Lecture 28 - Scheduling (Continued...)  
Lecture 29 - Process Synchronization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Process Synchronization (Continued...)
- Lecture 31 - Process Synchronization (Continued...)
- Lecture 32 - Process Synchronization (Continued...)
- Lecture 33 - Process Synchronization (Continued...)
- Lecture 34 - Process Synchronization (Continued...)
- Lecture 35 - Synchronization Examples
- Lecture 36 - Synchronization Examples, Deadlock
- Lecture 37 - Deadlock
- Lecture 38 - Deadlock (Continued...)
- Lecture 39 - Deadlock (Continued...)
- Lecture 40 - Deadlock (Continued...)
- Lecture 41 - Memory Management
- Lecture 42 - Memory Management (Continued...)
- Lecture 43 - Memory Management (Continued...)
- Lecture 44 - Memory Management (Continued...)
- Lecture 45 - Memory Management (Continued...)
- Lecture 46 - Memory Management (Continued...)
- Lecture 47 - Memory Management (Continued...)
- Lecture 48 - Memory Management (Continued...)
- Lecture 49 - Virtual Memory
- Lecture 50 - Virtual Memory (Continued...)
- Lecture 51 - Virtual Memory (Continued...)
- Lecture 52 - Virtual Memory (Continued...)
- Lecture 53 - Virtual Memory (Continued...)
- Lecture 54 - Virtual Memory (Continued...)
- Lecture 55 - Virtual Memory (Continued...)
- Lecture 56 - Virtual Memory (Continued...)
- Lecture 57 - File System and Secondary Storage
- Lecture 58 - File System and Secondary Storage (Continued...)
- Lecture 59 - File System and Secondary Storage (Continued...)
- Lecture 60 - File System and Secondary Storage (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Deep Learning (Prof. P.K. Biswas)

Subject Co-ordinator - Prof. P.K. Biswas

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Feature Descriptor - I  
Lecture 3 - Feature Descriptor - II  
Lecture 4 - Bayesian Learning - I  
Lecture 5 - Bayesian Learning - II  
Lecture 6 - Discriminant Function - I  
Lecture 7 - Discriminant Function - II  
Lecture 8 - Discriminant Function - III  
Lecture 9 - Linear Classifier - I  
Lecture 10 - Linear Classifier - II  
Lecture 11 - Support Vector Machine - I  
Lecture 12 - Support Vector Machine - II  
Lecture 13 - Linear Machine  
Lecture 14 - Multiclass Support Vector Machine - I  
Lecture 15 - Multiclass Support Vector Machine - II  
Lecture 16 - Optimization  
Lecture 17 - Optimization Techniques in Machine Learning  
Lecture 18 - Nonlinear Functions  
Lecture 19 - Introduction to Neural Network  
Lecture 20 - Neural Network - II  
Lecture 21 - Multilayer Perceptron - I  
Lecture 22 - Multilayer Perceptron - II  
Lecture 23 - Backpropagation Learning  
Lecture 24 - Loss Function  
Lecture 25 - Backpropagation Learning- Example - I  
Lecture 26 - Backpropagation Learning- Example - II  
Lecture 27 - Backpropagation Learning- Example - III  
Lecture 28 - Autoencoder  
Lecture 29 - Autoencoder Vs PCA - I

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- Lecture 30 - Autoencoder Vs PCA - II
- Lecture 31 - Autoencoder Training
- Lecture 32 - Autoencoder Variants - I
- Lecture 33 - Autoencoder Variants - II
- Lecture 34 - Convolution
- Lecture 35 - Cross Correlation
- Lecture 36 - CNN Architecture
- Lecture 37 - MLP versus CNN, Popular CNN Architecture
- Lecture 38 - Popular CNN Architecture
- Lecture 39 - Popular CNN Architecture
- Lecture 40 - Vanishing and Exploding Gradient
- Lecture 41 - GoogleNet
- Lecture 42 - ResNet, Optimisers
- Lecture 43 - Optimisers
- Lecture 44 - Optimisers
- Lecture 45 - Optimisers
- Lecture 46 - Normalization
- Lecture 47 - Batch Normalization - I
- Lecture 48 - Batch Normalization - II
- Lecture 49 - Layer, Instance, Group Normalization
- Lecture 50 - Training Trick, Regularization, Early Stopping
- Lecture 51 - Face Recognition
- Lecture 52 - Deconvolution Layer
- Lecture 53 - Semantic Segmentation - I
- Lecture 54 - Semantic Segmentation - II
- Lecture 55 - Semantic Segmentation - III
- Lecture 56 - Image Denoising
- Lecture 57 - Variational Autoencoder - I
- Lecture 58 - Variational Autoencoder - II
- Lecture 59 - Variational Autoencoder - III
- Lecture 60 - Generative Adversarial Network

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computer Vision

Subject Co-ordinator - Prof. Jayanta Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Image Processing - Part I
- Lecture 2 - Fundamentals of Image Processing - Part II
- Lecture 3 - Image Transform - Part I
- Lecture 4 - Image Transform - Part II
- Lecture 5 - Projective Geometry - Part I
- Lecture 6 - Projective Geometry - Part II
- Lecture 7 - Projective Transformation
- Lecture 8 - Homography
- Lecture 9 - Homography
- Lecture 10 - Homography
- Lecture 11 - Camera Geometry - Part I
- Lecture 12 - Camera Geometry - Part II
- Lecture 13 - Camera Geometry - Part III
- Lecture 14 - Camera Geometry - Part IV
- Lecture 15 - Camera Geometry - Part V
- Lecture 16 - Stereo Geometry - Part I
- Lecture 17 - Stereo Geometry - Part II
- Lecture 18 - Stereo Geometry - Part III
- Lecture 19 - Stereo Geometry - Part IV
- Lecture 20 - Stereo Geometry - Part V
- Lecture 21 - Stereo Geometry - Part VI
- Lecture 22 - Stereo Geometry - Part VII
- Lecture 23 - Stereo Geometry - Part VIII
- Lecture 24 - Feature Detection And Description - Part I
- Lecture 25 - Feature Detection And Description - Part II
- Lecture 26 - Feature Detection And Description - Part III
- Lecture 27 - Feature Detection And Description - Part IV
- Lecture 28 - Feature Detection And Description - Part V
- Lecture 29 - Feature Matching And Model Fitting- Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Feature Matching And Model Fitting- Part II
- Lecture 31 - Feature Matching And Model Fitting- Part III
- Lecture 32 - Feature Matching And Model Fitting- Part IV
- Lecture 33 - Feature Matching And Model Fitting- Part V
- Lecture 34 - Color Fundamentals And Processing-Part I
- Lecture 35 - Color Fundamentals And Processing-Part II
- Lecture 36 - Color Fundamentals And Processing-Part III
- Lecture 37 - Color Fundamentals And Processing-Part IV
- Lecture 38 - Color Fundamentals And Processing-Part V
- Lecture 39 - Color Fundamentals And Processing-Part VI
- Lecture 40 - Color Fundamentals And Processing-Part VII
- Lecture 41 - Range Image Processing - Part I
- Lecture 42 - Range Image Processing - Part II
- Lecture 43 - Range Image Processing - Part III
- Lecture 44 - Range Image Processing - Part IV
- Lecture 45 - Range Image Processing - Part V
- Lecture 46 - Clustering and Classification - Part I
- Lecture 47 - Clustering and Classification - Part II
- Lecture 48 - Clustering and Classification - Part III
- Lecture 49 - Clustering and Classification - Part IV
- Lecture 50 - Clustering and Classification - Part V
- Lecture 51 - Dimensional Reduction And Sparse Representation - Part I
- Lecture 52 - Dimensional Reduction And Sparse Representation - Part II
- Lecture 53 - Dimensional Reduction And Sparse Representation - Part III
- Lecture 54 - Dimensional Reduction And Sparse Representation - Part IV
- Lecture 55 - Deep Neural Architecture And Applications - Part I
- Lecture 56 - Deep Neural Architecture And Applications - Part II
- Lecture 57 - Deep Neural Architecture And Applications - Part III
- Lecture 58 - Deep Neural Architecture And Applications - Part IV
- Lecture 59 - Deep Neural Architecture And Applications - Part V
- Lecture 60 - Deep Neural Architecture And Applications - Part VI

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Ethical Hacking

Subject Co-ordinator - Prof. Indranil Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Ethical Hacking
- Lecture 2 - Basic Concepts of Networking - Part I
- Lecture 3 - Basic Concepts of Networking - Part II
- Lecture 4 - TCP/IP Protocol Stack - Part I
- Lecture 5 - TCP/IP Protocol Stack - Part II
- Lecture 6 - IP addressing and routing - Part I
- Lecture 7 - IP addressing and routing - Part II
- Lecture 8 - TCP and UDP - Part I
- Lecture 9 - TCP and UDP - Part II
- Lecture 10 - IP subnetting
- Lecture 11 - Routing protocols - Part I
- Lecture 12 - Routing protocols - Part II
- Lecture 13 - Routing protocols - Part III
- Lecture 14 - IP version 6
- Lecture 15 - Routing examples
- Lecture 16 - Demonstration - Part I
- Lecture 17 - Demonstration - Part II
- Lecture 18 - Demonstration - Part III
- Lecture 19 - Nessus Installation
- Lecture 20 - How to use nessus
- Lecture 21 - Metasploit Exploiting System Software - I
- Lecture 22 - Metasploit Exploiting System Software - II
- Lecture 23 - Metasploit Exploiting System Software and Privilege
- Lecture 24 - Metasploit Social Eng Attack
- Lecture 25 - MITM (Man in The middle) Attack
- Lecture 26 - Basic concepts of cryptography
- Lecture 27 - Private-key cryptography - Part I
- Lecture 28 - Private-key cryptography - Part II
- Lecture 29 - Public-key cryptography - Part I

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- Lecture 30 - Public-key cryptography - Part II
- Lecture 31 - Cryptographic hash functions - Part I
- Lecture 32 - Cryptographic hash functions - Part II
- Lecture 33 - Digital signature and certificate
- Lecture 34 - Applications - Part I
- Lecture 35 - Applications - Part II
- Lecture 36 - Steganography
- Lecture 37 - Biometrics
- Lecture 38 - Network Based Attacks - Part I
- Lecture 39 - Network Based Attacks - Part II
- Lecture 40 - DNS and Email Security
- Lecture 41 - Password cracking
- Lecture 42 - Phishing attack
- Lecture 43 - Maloeware
- Lecture 44 - Wifi hacking
- Lecture 45 - Dos and DDos attack
- Lecture 46 - Elements of Hardware Security
- Lecture 47 - Side Channel Attacks - Part I
- Lecture 48 - Side Channel Attacks - Part II
- Lecture 49 - Physical Unclonable Function
- Lecture 50 - Hardware Trojan
- Lecture 51 - Web Application Vulnerability Scanning
- Lecture 52 - SQL Injection Authentication Bypass - Part 1
- Lecture 53 - SQL Injection Error Based - Part 2
- Lecture 54 - SQL Injection Error Based from Web Application - Part 3
- Lecture 55 - SQLMAP
- Lecture 56 - Cross Site Scripting
- Lecture 57 - File Upload Vulnerability
- Lecture 58 - The NMAP Tool
- Lecture 59 - The NMAP Tool
- Lecture 60 - The NMAP Tool
- Lecture 61 - Network Analysis using Wireshark
- Lecture 62 - Summarization of the Course



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Software Project Management

Subject Co-ordinator - Prof. Durga Prasad Mohapatra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - I  
Lecture 2 - Introduction - II  
Lecture 3 - Introduction - III  
Lecture 4 - Project Management Standards  
Lecture 5 - Life Cycle Models - I  
Lecture 6 - Life Cycle Models - II  
Lecture 7 - Life Cycle Models - III  
Lecture 8 - Life Cycle Models - IV  
Lecture 9 - Life Cycle Models - V  
Lecture 10 - Life Cycle Models - VI  
Lecture 11 - Project Evaluation and Programme Management  
Lecture 12 - Project Evaluation and Programme Management (Continued...)  
Lecture 13 - Project Evaluation and Programme Management (Continued...)  
Lecture 14 - Project Evaluation and Programme Management (Continued...)  
Lecture 15 - Project Evaluation and Programme Management (Continued...)  
Lecture 16 - Project Estimation Techniques  
Lecture 17 - Project Estimation Techniques (Continued...)  
Lecture 18 - Project Estimation Techniques (Continued...)  
Lecture 19 - Project Estimation Techniques (Continued...)  
Lecture 20 - Project Estimation Techniques (Continued...)  
Lecture 21 - Project Estimation Techniques (Continued...)  
Lecture 22 - Project Estimation Techniques (Continued...)  
Lecture 23 - Project Estimation Techniques (Continued...)  
Lecture 24 - Project Estimation Techniques (Continued...)  
Lecture 25 - Project Estimation Techniques (Continued...)  
Lecture 26 - Project Scheduling  
Lecture 27 - Project Scheduling Using PERT/CPM  
Lecture 28 - Project Scheduling Using PERT/CPM (Continued...)  
Lecture 29 - Computation of Project Characteristics Using PERT/CPM

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- Lecture 30 - Computation of Project Characteristics Using PERT/CPM
- Lecture 31 - PERT, Project Crashing
- Lecture 32 - Team Management
- Lecture 33 - Organization and Team Structure
- Lecture 34 - Team Structure (Continued...) and Risk Management
- Lecture 35 - Risk Management (Continued...) and Introduction to Software Quality
- Lecture 36 - Resource Allocation
- Lecture 37 - Resource Allocation (Continued...)
- Lecture 38 - Resource Allocation (Continued...)
- Lecture 39 - Project Monitoring and Control
- Lecture 40 - Project Monitoring and Control (Continued...)
- Lecture 41 - Project Monitoring and Control (Continued...)
- Lecture 42 - Project Monitoring and Control (Continued...)
- Lecture 43 - Project Monitoring and Control (Continued...)
- Lecture 44 - Project Monitoring and Control (Continued...)
- Lecture 45 - Project Monitoring and Control (Continued...)
- Lecture 46 - Project Monitoring and Control (Continued...)
- Lecture 47 - Project Monitoring and Control (Continued...)
- Lecture 48 - Contract Management
- Lecture 49 - Contract Management (Continued...)
- Lecture 50 - Project Close Out
- Lecture 51 - Software Quality Management
- Lecture 52 - ISO 9000
- Lecture 53 - ISO 9001, SEI CMM
- Lecture 54 - SEI CMM (Continued...)
- Lecture 55 - SEI CMM (Continued...)
- Lecture 56 - Personal Software Process (PSP)
- Lecture 57 - Software Reliability - I
- Lecture 58 - Software Reliability - II
- Lecture 59 - Software Reliability - III
- Lecture 60 - Software Testing

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Spatial Informatics

Subject Co-ordinator - Prof. Soumya Kanti Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Spatial Data Models - 1  
Lecture 3 - Spatial Data Models - 2  
Lecture 4 - Spatial Data Models - 3  
Lecture 5 - Spatial Data Models - 4  
Lecture 6 - Spatial Web Services - 1  
Lecture 7 - Spatial Web Services - 2  
Lecture 8 - Spatial Web Services - 3  
Lecture 9 - Spatial Web Services - 4  
Lecture 10 - Spatial Web Services - Demo  
Lecture 11 - Spatial Database  
Lecture 12 - Spatial Query Processing / SQL - 1  
Lecture 13 - Spatial Query Processing / SQL - 2  
Lecture 14 - Spatial Query Processing / SQL - 3  
Lecture 15 - Spatial Query Processing / SQL - 4  
Lecture 16 - Spatial Query Demo Tutorial  
Lecture 17 - Spatial Indexing - I  
Lecture 18 - Spatial Indexing - II  
Lecture 19 - Spatial Indexing - III  
Lecture 20 - Spatial Indexing - IV  
Lecture 21 - Spatial Networks - I  
Lecture 22 - Spatial Networks - II  
Lecture 23 - Spatial Networks - III  
Lecture 24 - Spatial Networks - IV  
Lecture 25 - Spatial Networks - V  
Lecture 26 - Spatial Analysis - I  
Lecture 27 - Spatial Analysis - II  
Lecture 28 - Spatial Analysis - III  
Lecture 29 - Spatial Analysis - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Spatial Analysis - V
- Lecture 31 - Remote Sensing and GIS - I
- Lecture 32 - Remote Sensing and GIS - II
- Lecture 33 - Remote Sensing and GIS - III
- Lecture 34 - Remote Sensing and GIS - IIV
- Lecture 35 - Remote Sensing and GIS - V
- Lecture 36 - SDS / Spatial Cloud / GeoViz - I
- Lecture 37 - SDS / Spatial Cloud / GeoViz - II
- Lecture 38 - SDS / Spatial Cloud / GeoViz - III
- Lecture 39 - SDS / Spatial Cloud / GeoViz - IV
- Lecture 40 - SDS / Spatial Cloud / GeoViz - V

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:GPU Architectures and Programming

Subject Co-ordinator - Prof. Soumyajit Dey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of basic COA w.r.t. performance
- Lecture 2 - Review of basic COA w.r.t. performance
- Lecture 3 - Review of basic COA w.r.t. performance
- Lecture 4 - Review of basic COA w.r.t. performance
- Lecture 5 - Intro to GPU architectures
- Lecture 6 - Intro to GPU architectures
- Lecture 7 - Intro to GPU architectures
- Lecture 8 - Intro to GPU architectures
- Lecture 9 - Intro to CUDA programming
- Lecture 10 - Intro to CUDA programming (Continued...)
- Lecture 11 - Intro to CUDA programming (Continued...)
- Lecture 12 - Intro to CUDA programming (Continued...)
- Lecture 13 - Multi-dimensional mapping of dataspace; Synchronization
- Lecture 14 - Multi-dimensional mapping of dataspace; Synchronization (Continued...)
- Lecture 15 - Multi-dimensional mapping of dataspace; Synchronization (Continued...)
- Lecture 16 - Warp Scheduling and Divergence
- Lecture 17 - Warp Scheduling and Divergence (Continued...)
- Lecture 18 - Warp Scheduling and Divergence (Continued...)
- Lecture 19 - Memory Access Coalescing
- Lecture 20 - Memory Access Coalescing (Continued...)
- Lecture 21 - Memory Access Coalescing (Continued...)
- Lecture 22 - Memory Access Coalescing (Continued...)
- Lecture 23 - Memory Access Coalescing (Continued...)
- Lecture 24 - Memory Access Coalescing (Continued...)
- Lecture 25 - Memory Access Coalescing (Continued...)
- Lecture 26 - Memory Access Coalescing (Continued...)
- Lecture 27 - Memory Access Coalescing (Continued...)
- Lecture 28 - Optimizing Reduction Kernels
- Lecture 29 - Optimizing Reduction Kernels (Continued...)

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- Lecture 30 - Optimizing Reduction Kernels (Continued...)
- Lecture 31 - Optimizing Reduction Kernels (Continued...)
- Lecture 32 - Optimizing Reduction Kernels (Continued...)
- Lecture 33 - Optimizing Reduction Kernels (Continued...)
- Lecture 34 - Optimizing Reduction Kernels (Continued...)
- Lecture 35 - Kernel Fusion, Thread and Block Coarsening
- Lecture 36 - Kernel Fusion, Thread and Block Coarsening (Continued...)
- Lecture 37 - Kernel Fusion, Thread and Block Coarsening (Continued...)
- Lecture 38 - Kernel Fusion, Thread and Block Coarsening (Continued...)
- Lecture 39 - Kernel Fusion, Thread and Block Coarsening (Continued...)
- Lecture 40 - Kernel Fusion, Thread and Block Coarsening (Continued...)
- Lecture 41 - OpenCL - Runtime System
- Lecture 42 - OpenCL - Runtime System (Continued...)
- Lecture 43 - OpenCL - Runtime System (Continued...)
- Lecture 44 - OpenCL - Runtime System (Continued...)
- Lecture 45 - OpenCL - Runtime System (Continued...)
- Lecture 46 - OpenCL - Runtime System (Continued...)
- Lecture 47 - OpenCL - Runtime System (Continued...)
- Lecture 48 - OpenCL - Heterogeneous Computing
- Lecture 49 - OpenCL - Heterogeneous Computing (Continued...)
- Lecture 50 - OpenCL - Heterogeneous Computing (Continued...)
- Lecture 51 - OpenCL - Heterogeneous Computing (Continued...)
- Lecture 52 - OpenCL - Heterogeneous Computing (Continued...)
- Lecture 53 - OpenCL - Heterogeneous Computing (Continued...)
- Lecture 54 - Efficient Neural Network Training/Inferencing
- Lecture 55 - Efficient Neural Network Training/Inferencing (Continued...)
- Lecture 56 - Efficient Neural Network Training/Inferencing (Continued...)
- Lecture 57 - Efficient Neural Network Training/Inferencing (Continued...)
- Lecture 58 - Efficient Neural Network Training/Inferencing (Continued...)
- Lecture 59 - Efficient Neural Network Training/Inferencing (Continued...)
- Lecture 60 - Efficient Neural Network Training/Inferencing (Continued...)
- Lecture 61 - Efficient Neural Network Training/Inferencing (Continued...)
- Lecture 62 - Efficient Neural Network Training/Inferencing (Continued...)
- Lecture 63 - Efficient Neural Network Training/Inferencing (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Google Cloud Computing Foundation Course

Subject Co-ordinator - Prof. Soumya Kanti Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Cloud  
Lecture 2 - Cloud Computing  
Lecture 3 - Cloud vs Traditional Architecture  
Lecture 4 - IaaS, PaaS and SaaS  
Lecture 5 - Google Cloud Architecture  
Lecture 6 - Cloud Computing Recap Quiz  
Lecture 7 - Summary - Cloud Computing  
Lecture 8 - Introduction - Start with a Solid Platform  
Lecture 9 - The GCP Console  
Lecture 10 - Understanding Projects  
Lecture 11 - Billing in GCP  
Lecture 12 - Install and Configure Cloud SDK  
Lecture 13 - Use Cloud Shell  
Lecture 14 - GCP APIs  
Lecture 15 - Cloud Console Mobile App  
Lecture 16 - Recap Quiz - Start with a Solid Foundation  
Lecture 17 - Introduction  
Lecture 18 - Compute Options in the Cloud  
Lecture 19 - Exploring IaaS with Compute Engine  
Lecture 20 - Configuring Elastic Apps with Autoscaling  
Lecture 21 - Exploring PaaS with App Engine  
Lecture 22 - Event Driven Programs with Cloud Functions  
Lecture 23 - Containerizing and Orchestrating Apps with GKE  
Lecture 24 - Summary  
Lecture 25 - Introduction  
Lecture 26 - Storage Options in the Cloud  
Lecture 27 - Structured and Unstructured Storage in the Cloud  
Lecture 28 - Unstructured Storage using Cloud Storage  
Lecture 29 - SQL Managed Services

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- Lecture 30 - Exploring Cloud SQL
- Lecture 31 - Cloud Spanner as a Managed Service
- Lecture 32 - NoSQL Managed Services Options
- Lecture 33 - Cloud Datastore a NoSQL Document Store
- Lecture 34 - Cloud Bigtable as a NoSQL Option
- Lecture 35 - Summary
- Lecture 36 - Introduction to API
- Lecture 37 - The Purpose of APIs
- Lecture 38 - Cloud Endpoints
- Lecture 39 - Using Apigee
- Lecture 40 - Managed Message Services
- Lecture 41 - Cloud Pub/Sub
- Lecture 42 - Recap Quiz - There's an API for that!
- Lecture 43 - Introduction - Cloud Security
- Lecture 44 - Introduction to security in the cloud
- Lecture 45 - Understanding the shared security model
- Lecture 46 - Explore encryption options
- Lecture 47 - Understand authentication and authorization
- Lecture 48 - Identify best practices for authorization
- Lecture 49 - Recap Quiz - Security
- Lecture 50 - Summary - Security
- Lecture 51 - Introduction
- Lecture 52 - Intro to Networking in the Cloud
- Lecture 53 - Defining a Virtual Private Cloud
- Lecture 54 - Public and Private IP Address Basics
- Lecture 55 - Googles Network Architecture
- Lecture 56 - Routes and Firewall Rules in the Cloud
- Lecture 57 - Multiple VPC Networks
- Lecture 58 - Building Hybrid Clouds
- Lecture 59 - Different Options for Load Balancing
- Lecture 60 - Recap Quiz
- Lecture 61 - Summary
- Lecture 62 - Introduction - Let Google keep an eye on things
- Lecture 63 - Introduction to IaC
- Lecture 64 - Cloud Deployment Manager
- Lecture 65 - Monitoring and Managing Your Services, Apps, and Infra
- Lecture 66 - Stackdriver
- Lecture 67 - Recap Quiz - Let Google keep an eye on things
- Lecture 68 - Summary - Let Google keep an eye on things

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Introduction - You have the data, but what are you doing with it?
- Lecture 70 - Intro to Big Data Managed Services in the Cloud
- Lecture 71 - Leverage Big Data Operations with Cloud Dataproc
- Lecture 72 - Build ETL Pipelines using Cloud Dataflow
- Lecture 73 - BigQuery Googles Enterprise Data Warehouse
- Lecture 74 - Recap Quiz - You have the data, but what are you doing with it?
- Lecture 75 - Summary - You have the data, but what are you doing with it?
- Lecture 76 - Introduction
- Lecture 77 - Introduction to ML
- Lecture 78 - ML and GCP
- Lecture 79 - Building Bespoke ML models
- Lecture 80 - Cloud AutoML
- Lecture 81 - Googles Pre-trained ML APIs
- Lecture 82 - Recap Quiz
- Lecture 83 - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Object Oriented System Development using UML, Java

Subject Co-ordinator - Prof. Rajib Mall

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Basic Concepts in UML
- Lecture 3 - Introduction to Use case Modelling
- Lecture 4 - Factoring Use Cases
- Lecture 5 - Use Case Examples
- Lecture 6 - Use Case Guidelines
- Lecture 7 - Class Diagram
- Lecture 8 - Class Relations
- Lecture 9 - Binary and Unary Associations
- Lecture 10 - Implementation of Association Relation in Java
- Lecture 11 - Implementation of Association in General Case
- Lecture 12 - Association Class and Ternary Association
- Lecture 13 - Qualified Association
- Lecture 14 - Aggregation and Composition
- Lecture 15 - Dependency Relation
- Lecture 16 - Class Diagram Exercises
- Lecture 17 - Interfaces, Packages and Abstract Classes
- Lecture 18 - Polymorphism
- Lecture 19 - State Machine Diagrams
- Lecture 20 - State Charts Overview
- Lecture 21 - Features of State Machine Model
- Lecture 22 - Example of State Machine Modelling
- Lecture 23 - Encoding a State Machine - I
- Lecture 24 - Encoding a State Machine - II
- Lecture 25 - Interaction Diagrams
- Lecture 26 - Sequence Diagram - I
- Lecture 27 - Sequence Diagram - II
- Lecture 28 - Activity Diagram
- Lecture 29 - Introduction to OOAD

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - OOAD - I
- Lecture 31 - OOAD - II
- Lecture 32 - Example Application of OOAD
- Lecture 33 - CRD Cards
- Lecture 34 - Open/Closed Principle
- Lecture 35 - LSP, ISP Principles
- Lecture 36 - DIP Principle
- Lecture 37 - Introduction to Design Pattern
- Lecture 38 - GRASP Pattern
- Lecture 39 - Expert and Creator Pattern
- Lecture 40 - Pure Fabrication, Law of Demeter
- Lecture 41 - Introduction to GOF Patterns
- Lecture 42 - Facade Pattern
- Lecture 43 - Observer Pattern - I
- Lecture 44 - Observer Pattern - II
- Lecture 45 - Singleton Pattern - I
- Lecture 46 - Singleton Pattern - II
- Lecture 47 - State Pattern - I
- Lecture 48 - State Pattern - II
- Lecture 49 - Composite Pattern - I
- Lecture 50 - Composite Pattern - II
- Lecture 51 - Adapter Pattern - I
- Lecture 52 - Adapter Pattern - II
- Lecture 53 - Bridge Pattern - I
- Lecture 54 - Bridge Pattern - II
- Lecture 55 - Proxy Pattern - I
- Lecture 56 - Proxy Pattern - II
- Lecture 57 - Decorator Pattern - I
- Lecture 58 - Decorator Pattern - II
- Lecture 59 - Decorator Pattern - III
- Lecture 60 - Iterator Pattern

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Data Structure and Algorithms using Java

Subject Co-ordinator - Prof. Debasis Samanta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Course Plan
- Lecture 2 - Generic Methods
- Lecture 3 - Basics of Generic Class
- Lecture 4 - Parameterized Generic Class
- Lecture 5 - Bounded Argument Generic Class
- Lecture 6 - Basics of the Framework
- Lecture 7 - Collection in JCF
- Lecture 8 - Set of JCF
- Lecture 9 - Map Framework
- Lecture 10 - Java Legacy Classes
- Lecture 11 - Array Data Structures
- Lecture 12 - Programming for Arrays
- Lecture 13 - Class ArrayList for Arrays
- Lecture 14 - Arrays for Arrays
- Lecture 15 - Vector Class for Arrays
- Lecture 16 - Linked List Data Structure - Part I
- Lecture 17 - Linked List Data Structure - Part II
- Lecture 18 - Programming for Linked Lists - Part I
- Lecture 19 - Programming for Linked Lists - Part II
- Lecture 20 - Linked Lists Using JCF
- Lecture 21 - Stack Data Structures
- Lecture 22 - Programming for Stack
- Lecture 23 - Stack Using JCF
- Lecture 24 - Queue Data Structure
- Lecture 25 - Programming for Queue
- Lecture 26 - Queue Using JCF
- Lecture 27 - Understanding Tree Data Structures
- Lecture 28 - Operations on Binary Tree Data Structures
- Lecture 29 - Binary Search Tree

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Programming for Binary Search Tree
- Lecture 31 - Height Balanced Binary Search Tree
- Lecture 32 - Heap Tree
- Lecture 33 - Programming for Heap Tree
- Lecture 34 - Huffman Tree
- Lecture 35 - Graph Structures
- Lecture 36 - Graph Algorithms
- Lecture 37 - Map Framework in Java
- Lecture 38 - Applications of Map - Part I
- Lecture 39 - Applications of Map - Part II
- Lecture 40 - Collection Set
- Lecture 41 - Operations on Set Collection
- Lecture 42 - Introduction to java.io
- Lecture 43 - IO with Byte Streams
- Lecture 44 - IO with Character Streams
- Lecture 45 - File Input-Output
- Lecture 46 - Random Access File
- Lecture 47 - Linear Searching Algorithms
- Lecture 48 - Non-linear Searching Algorithms
- Lecture 49 - Programs for Searching
- Lecture 50 - Sorting Algorithms - Part I
- Lecture 51 - Improved Sorting Algorithms
- Lecture 52 - Advanced Sorting Algorithms
- Lecture 53 - Programs for Sorting - Part I
- Lecture 54 - Programs for Sorting - Part II
- Lecture 55 - Sorting Using JCF
- Lecture 56 - String Class
- Lecture 57 - Applications of String
- Lecture 58 - StringBuffer Class
- Lecture 59 - Miscellaneous Utilities
- Lecture 60 - Java Cursors

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Real-Time Systems

Subject Co-ordinator - Prof. Rajib Mall

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction
- Lecture 3 - Characteristics of a real-time embedded system
- Lecture 4 - Characteristics of a real-time embedded system
- Lecture 5 - Types of real-time tasks
- Lecture 6 - Events in a Real-Time System
- Lecture 7 - Types of time constraints
- Lecture 8 - Basics of Real-Time Task scheduling
- Lecture 9 - Clock-driven schedulers
- Lecture 10 - Basics of Cyclic schedulers
- Lecture 11 - Cyclic Scheduler
- Lecture 12 - Frame size constraints
- Lecture 13 - Frame size selection: Examples
- Lecture 14 - Event-driven scheduling
- Lecture 15 - EDF scheduler
- Lecture 16 - Variants of EDF and Rate Monotonic Scheduling
- Lecture 17 - Rate Monotonic Schedulability Analysis
- Lecture 18 - Rate Monotonic Schedulability Analysis
- Lecture 19 - Rate Monotonic Scheduling: Miscellaneous issues
- Lecture 20 - RMS Generalizations
- Lecture 21 - RMS Generalizations
- Lecture 22 - Handling aperiodic and sporadic tasks in rate monotonic scheduling
- Lecture 23 - Handling aperiodic and sporadic tasks in rate monotonic scheduling
- Lecture 24 - Coping up with Insufficient number of priorities
- Lecture 25 - Handling task jitter and precedence ordering
- Lecture 26 - Resource Sharing Among Real-Time Tasks
- Lecture 27 - Basic priority inheritance protocol (PIP)
- Lecture 28 - Highest Locker Protocol (HLP)
- Lecture 29 - Priority Ceiling Protocol (PCP)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Working of Priority Ceiling Protocol
- Lecture 31 - Analysis of Priority Ceiling Protocol
- Lecture 32 - Introduction to Multiprocessor and Distributed Systems
- Lecture 33 - Static Allocation of Tasks
- Lecture 34 - Dynamic Allocation of Tasks
- Lecture 35 - Centralized Clock Synchronization in Distributed RT Systems
- Lecture 36 - Distributed Clock Synchronization in R-T Systems
- Lecture 37 - A Few Basics in Real-Time Operating Systems
- Lecture 38 - Time Services
- Lecture 39 - Unix as a Real-Time Operating System
- Lecture 40 - Unix as a Real-Time Operating System (Continued...)
- Lecture 41 - Windows as RTOS
- Lecture 42 - POSIX
- Lecture 43 - Unix-Based Real-Time Operating Systems
- Lecture 44 - A survey of some contemporary Real-Time Operating Systems
- Lecture 45 - A survey of some contemporary Real-Time Operating Systems (Continued...)
- Lecture 46 - Benchmarking Real-Time Systems
- Lecture 47 - Introduction to Real-Time Communication
- Lecture 48 - Basics of Real-Time Communication
- Lecture 49 - Basics of Networking
- Lecture 50 - Basics of Internet
- Lecture 51 - Real-Time Communication in a LAN
- Lecture 52 - Bounded Access Protocols for LANs
- Lecture 53 - Performance Comparison and QoS Framework
- Lecture 54 - Routing and Resource Reservation
- Lecture 55 - Rate Control
- Lecture 56 - QoS Models and Soft Real-Time Communication in a LAN
- Lecture 57 - Review of Basic Database Concepts
- Lecture 58 - Applications and Issues of Real-Time Database
- Lecture 59 - Characteristics of Temporal Data
- Lecture 60 - Locking-Based Concurrency Control In Real-Time Databases
- Lecture 61 - Concurrency Control In Real-Time Databases and Commercial RT Databases

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Algorithms for Protein Modelling and Engineering

Subject Co-ordinator - Prof. Pralay Mitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction on Proteins
- Lecture 2 - Introduction on Proteins (Continued...) and Sequence Database
- Lecture 3 - Protein Data Bank
- Lecture 4 - PDB Parsing
- Lecture 5 - Molecular Visualization Tools
- Lecture 6 - Representation and Data Structure
- Lecture 7 - Digitization of a Molecule
- Lecture 8 - Application to Protein Docking, FFT
- Lecture 9 - Implementation Details
- Lecture 10 - Hashing
- Lecture 11 - Geometric Hashing
- Lecture 12 - Geometric Hashing (Continued...)
- Lecture 13 - Geometric Hashing (Continued...)
- Lecture 14 - Molecular Surface
- Lecture 15 - Genetic Algorithm (GA) for Surface Comparison
- Lecture 16 - Monte Carlo (MC) Method
- Lecture 17 - Monte Carlo Method (Continued...) and Random Number
- Lecture 18 - Monte Carlo (MC) Method (Continued...)
- Lecture 19 - Protein Folding
- Lecture 20 - Protein Folding (Continued...) and Protein Design
- Lecture 21 - Protein Energy Landscape
- Lecture 22 - Protein Energy Landscape (Continued...), Limitation of MC
- Lecture 23 - Replica Exchange Monte Carlo (REMC)
- Lecture 24 - Ab Initio Protein Folding
- Lecture 25 - Structure Alignment Measures
- Lecture 26 - Dynamic Programming
- Lecture 27 - Dynamic Programming (Continued...), Sequence Alignment
- Lecture 28 - Dynamic Programming (Continued...), Position Specific Scoring Matrix (PSSM)
- Lecture 29 - Structure Alignment

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Structure Alignment (Continued...)
- Lecture 31 - Structural Classification of Proteins (SCOP)
- Lecture 32 - SCOP (Continued...), Symmetry in Proteins
- Lecture 33 - Symmetry in Proteins
- Lecture 34 - Discriminating Biological Protein Interfaces from Crystal Artifacts
- Lecture 35 - Discriminating Biological Protein Interfaces from Crystal Artifacts (Continued...)
- Lecture 36 - Discriminating Biological Protein Interfaces from Crystal Artifacts (Continued...)
- Lecture 37 - Discriminating Biological Protein Interfaces from Crystal Artifacts (Continued...)
- Lecture 38 - Symmetry-Based Protein Complex Modeling
- Lecture 39 - Some Protein Docking Methods
- Lecture 40 - Some Protein Docking Methods (Continued...)
- Lecture 41 - Computational Protein Design (CPD)
- Lecture 42 - Computational Protein Design (CPD) (Continued...)
- Lecture 43 - Protein Design Energy Function
- Lecture 44 - Protein Design Analysis
- Lecture 45 - Application of Protein Design on Drug Design
- Lecture 46 - RECM in Protein Design
- Lecture 47 - Application of Protein Design on Drug Design
- Lecture 48 - Application of Protein Design on Drug Design (Continued...), Protein Modification
- Lecture 49 - Protein Modification (Continued...)
- Lecture 50 - Protein Modification (Continued...)
- Lecture 51 - Assigning Secondary Structure to Protein Sequence
- Lecture 52 - Assigning Secondary Structure to Protein Sequence (Continued...)
- Lecture 53 - Machine Learning to Predict the Secondary Structure from Amino Acid Sequences
- Lecture 54 - Machine Learning to Predict the Secondary Structure from Amino Acid Sequences (Continued...)
- Lecture 55 - Post Translational Modification
- Lecture 56 - Predicting Protein Phosphorylation Sites
- Lecture 57 - Predicting Protein Phosphorylation Sites (Continued...)
- Lecture 58 - Summarizing Protein Folding and Protein Docking
- Lecture 59 - Summarizing Protein Folding and Protein Docking (Continued...)
- Lecture 60 - Summarizing Protein Engineering

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Programming in Modern C++

Subject Co-ordinator - Prof. Partha Pratim Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Outline  
Lecture 2 - Quick Recap 01: Recap of C/1  
Lecture 3 - Quick Recap 02: Recap of C/2  
Lecture 4 - Course Overview  
Lecture 5 - IO and Loop  
Lecture 6 - Arrays and Strings  
Lecture 7 - Sorting and Searching  
Lecture 8 - Stack and Common Data Structures/Containers  
Lecture 9 - Tutorial 1: How to build a C/C++ program?: Part 1: C Preprocessor (CPP)  
Lecture 10 - Constants and Inline Functions  
Lecture 11 - Reference and Pointer  
Lecture 12 - Default Parameters and Function Overloading  
Lecture 13 - Operator Overloading  
Lecture 14 - Dynamic Memory Management  
Lecture 15 - Tutorial 2: How to build a C/C++ program?: Part 2: Build Pipeline  
Lecture 16 - Static Members  
Lecture 17 - Classes and Objects  
Lecture 18 - Access Specifiers  
Lecture 19 - Constructors, Destructors and Object Lifetime  
Lecture 20 - Copy Constructor and Copy Assignment Operator  
Lecture 21 - Const-ness  
Lecture 22 - Tutorial 3: How to build a C/C++ program?: Part 3: make Utility  
Lecture 23 - Static Members  
Lecture 24 - Friend Function and Friend Class  
Lecture 25 - Overloading Operator for User-Defined Types: Part 1  
Lecture 26 - Overloading Operator for User-Defined Types: Part 2  
Lecture 27 - Namespace  
Lecture 28 - Tutorial 4: How to build a C/C++ program?: Part 4: Static and Dynamic Library  
Lecture 29 - Inheritance: Part 2 (Data Member and Member Function - Override and Overload)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Inheritance: Part 3 (Constructor and Destructor - Object Lifetime)
- Lecture 31 - Inheritance: Part 4: Phone Hierarchy
- Lecture 32 - Inheritance: Part 5: private and protected Inheritance
- Lecture 33 - Tutorial 5: Mixing C and C++ Code: Part 1: Issues and Resolutions
- Lecture 34 - Polymorphism: Part 1: Type Casting
- Lecture 35 - Polymorphism: Part 2: Static and Dynamic Binding
- Lecture 36 - Polymorphism: Part 3: Abstract Base Class
- Lecture 37 - Polymorphism: Part 4: Staff Salary Processing using C
- Lecture 38 - Polymorphism: Part 5: Staff Salary Processing using C++
- Lecture 39 - Tutorial 6: Mixing C and C++ Code: Part 2: Project Example
- Lecture 40 - Virtual Function Table
- Lecture 41 - Type Casting and Cast Operators: Part 1
- Lecture 42 - Type Casting and Cast Operators: Part 2
- Lecture 43 - Type Casting and Cast Operators: Part 3
- Lecture 44 - Multiple Inheritance
- Lecture 45 - Tutorial 7: How to design a UDT like built-in types?: Part 1: Fraction UDT
- Lecture 46 - Exceptions (Error handling in C): Part 1
- Lecture 47 - Exceptions (Error handling in C++): Part 2
- Lecture 48 - Template (Function Template): Part 1
- Lecture 49 - Template (Class Template): Part 2
- Lecture 50 - Functors: Function Objects
- Lecture 51 - Tutorial 8: How to design a UDT like built-in types?: Part 2: Int and Poly UDT
- Lecture 52 - Input-Output: File Handling in C
- Lecture 53 - Input-Output: Streams in C++
- Lecture 54 - C++ Standard Library: Part 1 (Generic Programming)
- Lecture 55 - C++ Standard Library: Part 2 (STL)
- Lecture 56 - C++ Standard Library: Part 3 (STL)
- Lecture 57 - Tutorial 9: How to design a UDT like built-in types?: Part 3: Updates and Mixes of UDTs
- Lecture 58 - C++11 and beyond: General Features: Part 1
- Lecture 59 - C++11 and beyond: General Features: Part 2
- Lecture 60 - C++11 and beyond: General Features: Part 3
- Lecture 61 - C++11 and beyond: General Features: Part 4: Rvalue and Move/1
- Lecture 62 - C++11 and beyond: General Features: Part 5: Rvalue and Move/2
- Lecture 63 - Tutorial 10: How to optimize C++11 programs using Rvalue and Move Semantics?
- Lecture 64 - C++11 and beyond: General Features: Part 6: Rvalue and Perfect Forwarding
- Lecture 65 - C++11 and beyond: General Features: Part 7: Lambda in C++/1
- Lecture 66 - C++11 and beyond: General Features: Part 8: Lambda in C++/2
- Lecture 67 - C++11 and beyond: Class Features
- Lecture 68 - C++11 and beyond: Non-class Types and Template Features

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Tutorial 11: Compatibility of C and C++: Part 1: Significant Features
- Lecture 70 - C++11 and beyond: Resource Management by Smart Pointers: Part 1
- Lecture 71 - C++11 and beyond: Resource Management by Smart Pointers: Part 2
- Lecture 72 - C++11 and beyond: Concurrency: Part 1
- Lecture 73 - C++11 and beyond: Concurrency: Part 2
- Lecture 74 - Closing Comments
- Lecture 75 - Tutorial 12: Compatibility of C and C++: Part 2: Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Blockchain and its Applications

Subject Co-ordinator - Prof. Sandip Chakraborty, Prof. Shamik Sural

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The Model of Decentralization
- Lecture 2 - What is Blockchain
- Lecture 3 - Basic Cryptographic Primitives - I
- Lecture 4 - Basic Cryptographic Primitives - II
- Lecture 5 - Basic Cryptographic Primitives - III
- Lecture 6 - Basic Cryptographic Primitives - IV
- Lecture 7 - Basic Cryptographic Primitives - V
- Lecture 8 - Distributed Systems for Decentralization - The Beginning
- Lecture 9 - The Evolution of Cryptocurrencies
- Lecture 10 - Open Consensus and Bitcoin
- Lecture 11 - Bitcoin Mining and Beyond
- Lecture 12 - Smart Contracts and the Permissioned Models of Blockchain
- Lecture 13 - Blockchain Elements - I
- Lecture 14 - Blockchain Elements - II
- Lecture 15 - Blockchain Elements - III
- Lecture 16 - Blockchain Elements - IV
- Lecture 17 - Blockchain Elements - V
- Lecture 18 - Permissionless Model and Open Consensus
- Lecture 19 - Nakamoto Consensus (Proof of Work)
- Lecture 20 - Limitations of PoW: Forking and Security
- Lecture 21 - Beyond PoW
- Lecture 22 - Ethereum 1
- Lecture 23 - Ethereum 2
- Lecture 24 - Ethereum 3
- Lecture 25 - Ethereum 4
- Lecture 26 - Consensus for Permissioned Models
- Lecture 27 - State Machine Replication as Distributed Consensus
- Lecture 28 - Paxos
- Lecture 29 - Paxos - Safety and Liveness

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Byzantine Faults
- Lecture 31 - Byzantine Agreement Protocols
- Lecture 32 - Safety and Liveness of PBFT
- Lecture 33 - Enterprise Blockchains
- Lecture 34 - Hyperledger Fabric 1
- Lecture 35 - Hyperledger Fabric 2
- Lecture 36 - Hyperledger Fabric 3
- Lecture 37 - Hyperledger Fabric 4
- Lecture 38 - Consensus Scalability
- Lecture 39 - Bitcoin-NG
- Lecture 40 - Collective Signing (CoSi)
- Lecture 41 - ByzCoin
- Lecture 42 - Algorand
- Lecture 43 - Identity Management - I
- Lecture 44 - Identity Management - II
- Lecture 45 - Identity Management - III
- Lecture 46 - Blockchain Interoperability - I
- Lecture 47 - Blockchain Interoperability - II
- Lecture 48 - Blockchain Interoperability - III
- Lecture 49 - Hyperledger Indy - I
- Lecture 50 - Hyperledger Indy - II
- Lecture 51 - Hyperledger Aries
- Lecture 52 - Blockchain Security - I
- Lecture 53 - Blockchain Security - II
- Lecture 54 - Blockchain Security - III
- Lecture 55 - Use Cases
- Lecture 56 - A Potential Use Case From a Critics Perspective
- Lecture 57 - Blockchain in Financial Services
- Lecture 58 - Public Sector Use Cases
- Lecture 59 - Blockchain for Decentralized Marketplace - Part 1
- Lecture 60 - Blockchain for Decentralized Marketplace - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Algorithmic Game Theory

Subject Co-ordinator - Prof. Palash Dey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Assumptions of Game Theory
- Lecture 3 - Examples of Games
- Lecture 4 - Equilibrium Concepts
- Lecture 5 - Nash Equilibrium
- Lecture 6 - Indifference Principle
- Lecture 7 - Security of Players
- Lecture 8 - Minmax Theorem
- Lecture 9 - Implications of Minmax Theorem
- Lecture 10 - MSNEs of Matrix Games
- Lecture 11 - Iterative Eliminations of Dominated Strategies
- Lecture 12 - Iterative Eliminations of Dominated Strategies (Continued...)
- Lecture 13 - Braess's paradox
- Lecture 14 - Yao's Lemma and its applications
- Lecture 15 - Support Enumeration Algorithm
- Lecture 16 - Succinct game
- Lecture 17 - Potential Games
- Lecture 18 - Best Response Dynamics
- Lecture 19 - Fast Convergence of Best Response Dynamics
- Lecture 20 - Computing  $\epsilon$ -PSNE for Network Congestion Games
- Lecture 21 - PSNE for Congestion Games
- Lecture 22 - PSNE for Symmetric Congestion Games
- Lecture 23 - Functional NP
- Lecture 24 - PPAD Class
- Lecture 25 - Sperner's Lemma
- Lecture 26 - Approximate MSNE Computation
- Lecture 27 - Correlated Equilibrium
- Lecture 28 - Coarse Correlated Equilibrium
- Lecture 29 - External Regret Framework

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- Lecture 30 - Multiplicative Weight Algorithm
- Lecture 31 - Multiplicative Weight Algorithm (Continued....)
- Lecture 32 - Swap Regret and Correlated Equilibrium
- Lecture 33 - Swap Regret to External Regret Reduction
- Lecture 34 - Braess's paradox and Pigou's Network
- Lecture 35 - PoA of Selfish Routing Game
- Lecture 36 - PoA of Selfish Load Balancing Game
- Lecture 37 - Bayesian Game
- Lecture 38 - BNE of First Price Auction
- Lecture 39 - Extensive Form Game
- Lecture 40 - Mechanism Design Introduction
- Lecture 41 - Implementation of Social Choice Functions
- Lecture 42 - Revelation Principle
- Lecture 43 - Properties of Social Choice Function
- Lecture 44 - Gibbard-Satterthwaite Theorem
- Lecture 45 - Quasilinear Environment
- Lecture 46 - Ex-Post Efficiency
- Lecture 47 - VCG Mechanism
- Lecture 48 - Example of VCG Mechanism
- Lecture 49 - Weighted VCG
- Lecture 50 - Affine Maximizer
- Lecture 51 - Recap of Topics Discussed so Far
- Lecture 52 - Single Parameter Domain
- Lecture 53 - DSIC in Single Parameter Domain
- Lecture 54 - Myerson's Lemma
- Lecture 55 - Sponsored Search Auction
- Lecture 56 - Intermediate Domain
- Lecture 57 - Algorithmic Mechanism Design
- Lecture 58 - Stable Matching
- Lecture 59 - Gale-Shapley Algorithm
- Lecture 60 - Properties of Stable Matching



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Machine Learning for Earth System Sciences

Subject Co-ordinator - Prof. Adway Mitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Basics of Spatio-Temporal Modeling
- Lecture 3 - Geostatistical Equation for Spatio-Temporal Process
- Lecture 4 - Gaussian Process Regression and Inverse Problems
- Lecture 5 - Anomaly Event Detection
- Lecture 6 - Extreme Events
- Lecture 7 - Extreme Value Theory
- Lecture 8 - Causality
- Lecture 9 - Networks
- Lecture 10 - Data Assimilation
- Lecture 11 - Challenges and Opportunities for ML in ESS
- Lecture 12 - Types of Machine Learning Problems in ESS
- Lecture 13 - Convolutional Networks for Spatial Problems
- Lecture 14 - Sequential Models for Temporal Problems
- Lecture 15 - Probabilistic Models for Earth System Science
- Lecture 16 - Identification of Indian Monsoon Predictors
- Lecture 17 - Statistical Downscaling of Rainfall with Machine Learning
- Lecture 18 - Detection of Anomaly and Extreme Events
- Lecture 19 - Identifying Causal Relations from Time-Series - 1
- Lecture 20 - Identifying Causal Relations from Time-Series - 2
- Lecture 21 - Spatio-Temporal Modelling of Extremes
- Lecture 22 - Hierarchical Bayesian Models for Spatio-Temporal Processes
- Lecture 23 - Geostatistical modelling for mapping based on in-situ measurements
- Lecture 24 - Nowcasting of Extreme Weather Events
- Lecture 25 - Discovering Clustered Weather Patterns
- Lecture 26 - Interpretable Machine Learning for Earth System Science
- Lecture 27 - Object Detection in Satellite Imagery - 1
- Lecture 28 - Object Detection in Satellite Imagery - 2
- Lecture 29 - Image Fusion from Multiple Sources for Remote Sensing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Image Segmentation for Remote Sensing
- Lecture 31 - Satellite Imagery as a Proxy for Geophysical Measurements
- Lecture 32 - Precipitation Nowcasting from Remote Sensing
- Lecture 33 - Deep Domain Adaptation for Remote Sensing
- Lecture 34 - Introduction to Earth System Modelling
- Lecture 35 - Stochastic Weather Generator
- Lecture 36 - Physics-Inspired Machine Learning for Process Models - 1
- Lecture 37 - Physics-Inspired Machine Learning for Process Models - 2
- Lecture 38 - Parameterizations for Sub-Grid Processes Using ML
- Lecture 39 - Data Assimilation for Earth System Model Correction
- Lecture 40 - ML for Climate Change Projection and Course Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Statistical Learning for Reliability Analysis

Subject Co-ordinator - Prof. Monalisa Sarma

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Reliability Engineering
- Lecture 2 - Introduction to Statistical Methods in Reliability
- Lecture 3 - Concept of Probability and Probability Theory
- Lecture 4 - Tutorial on Introduction to RE, SL and Probability Theory - Part I
- Lecture 5 - Conditional, Total and Reverse Probability
- Lecture 6 - Tutorial on Conditional Probability and Total Probability
- Lecture 7 - Introduction to Probability Distributions
- Lecture 8 - Introduction to Probability Distributions (Continued...)
- Lecture 9 - Discrete Probability Distribution - Part 1
- Lecture 10 - Discrete Probability Distribution - Part 2
- Lecture 11 - Tutorial on Discrete Probability Distributions
- Lecture 12 - Continuous Probability Distributions - Part 1
- Lecture 13 - Continuous Probability Distributions - Part 2
- Lecture 14 - Tutorial on Continuous Probability Distribution Functions - Part 1
- Lecture 15 - Tutorial on Continuous Probability Distribution Functions - Part 2
- Lecture 16 - Sampling Distributions - Part 1
- Lecture 17 - Sampling Distributions - Part 2
- Lecture 18 - Sampling Distributions - Part 3
- Lecture 19 - Sampling Distributions - Part 4
- Lecture 20 - Sampling Distributions - Part 5
- Lecture 21 - Tutorial on Sampling Distributions
- Lecture 22 - Statistical Inference - Part 1
- Lecture 23 - Statistical Inference - Part 2
- Lecture 24 - Statistical Inference - Part 3
- Lecture 25 - Tutorial on Statistical Inference
- Lecture 26 - Statistical Inference - Part 4
- Lecture 27 - Statistical Inference - Part 5
- Lecture 28 - Tutorial on Confidence Interval
- Lecture 29 - Statistical Inference - Part 6

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Statistical Inference - Part 7
- Lecture 31 - Statistical Inference - Part 8
- Lecture 32 - ANOVA - I
- Lecture 33 - ANOVA - II
- Lecture 34 - ANOVA - III
- Lecture 35 - ANOVA - IV
- Lecture 36 - ANOVA - V
- Lecture 37 - ANOVA - VI
- Lecture 38 - Correlation Analysis - Part I
- Lecture 39 - Correlation Analysis - Part II
- Lecture 40 - Regression Analysis - Part I
- Lecture 41 - Regression Analysis - Part II
- Lecture 42 - Regression Analysis - Part III
- Lecture 43 - Tutorial on Relation Analysis
- Lecture 44 - Auto-Regression Analysis
- Lecture 45 - Logistic Regression - Part I
- Lecture 46 - Logistic Regression - Part II
- Lecture 47 - Logistic Regression - Part III
- Lecture 48 - Tutorial on Logistic Regression
- Lecture 49 - Introduction
- Lecture 50 - Bayesian Classification - Part I
- Lecture 51 - Bayesian Classification - Part II
- Lecture 52 - k-Nearest Neighbor Classification
- Lecture 53 - Tutorial on Classification Techniques
- Lecture 54 - Support Vector Machine - Part I
- Lecture 55 - Support Vector Machine - Part II
- Lecture 56 - Support Vector Machine - Part III
- Lecture 57 - Support Vector Machine - Part IV
- Lecture 58 - Support Vector Machine - Part V
- Lecture 59 - Support Vector Machine - Part VI
- Lecture 60 - Tutorial on SVM

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Foundations of Cyber Physical Systems

Subject Co-ordinator - Prof. Soumyajit Dey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - CPS: Motivational examples and compute platforms
- Lecture 2 - CPS: Motivational examples and compute platforms (Continued...)
- Lecture 3 - CPS: Motivational examples and compute platforms (Continued...)
- Lecture 4 - CPS: Motivational examples and compute platforms (Continued...)
- Lecture 5 - CPS: Motivational examples and compute platforms (Continued...)
- Lecture 6 - Real time sensing and communication for CPS
- Lecture 7 - Real time sensing and communication for CPS (Continued...)
- Lecture 8 - Real time sensing and communication for CPS (Continued...)
- Lecture 9 - Real time sensing and communication for CPS (Continued...)
- Lecture 10 - Real time task scheduling for CPS
- Lecture 11 - Real time task scheduling for CPS (Continued...)
- Lecture 12 - Real time task scheduling for CPS (Continued...)
- Lecture 13 - Real time task scheduling for CPS (Continued...)
- Lecture 14 - Real time task scheduling for CPS (Continued...)
- Lecture 15 - Real time task scheduling for CPS (Continued...)
- Lecture 16 - Real time task scheduling for CPS (Continued...)
- Lecture 17 - Real time task scheduling for CPS (Continued...)
- Lecture 18 - Dynamical system modeling, stability, controller design
- Lecture 19 - Dynamical system modeling, stability, controller design (Continued...)
- Lecture 20 - Dynamical system modeling, stability, controller design (Continued...)
- Lecture 21 - Dynamical system modeling, stability, controller design (Continued...)
- Lecture 22 - Dynamical system modeling, stability, controller design (Continued...)
- Lecture 23 - Dynamical system modeling, stability, controller design (Continued...)
- Lecture 24 - Delay-aware Design; Platform effect on Stability/Performance
- Lecture 25 - Delay-aware Design; Platform effect on Stability/Performance (Continued...)
- Lecture 26 - Delay-aware Design; Platform effect on Stability/Performance (Continued...)
- Lecture 27 - Delay-aware Design; Platform effect on Stability/Performance (Continued...) Corrigendum
- Lecture 28 - Hybrid Automata based modelling of CPS
- Lecture 29 - Hybrid Automata based modelling of CPS (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hybrid Automata based modelling of CPS (Continued...)
- Lecture 31 - Hybrid Automata based modelling of CPS (Continued...)
- Lecture 32 - Hybrid Automata based modelling of CPS (Continued...)
- Lecture 33 - Reachability analysis
- Lecture 34 - Reachability analysis (Continued...)
- Lecture 35 - Reachability analysis (Continued...)
- Lecture 36 - Reachability analysis (Continued...)
- Lecture 37 - Lyapunov Stability, Barrier Functions
- Lecture 38 - Lyapunov Stability, Barrier Functions (Continued...)
- Lecture 39 - Lyapunov Stability, Barrier Functions (Continued...)
- Lecture 40 - Lyapunov Stability, Barrier Functions (Continued...)
- Lecture 41 - Lyapunov Stability, Barrier Functions (Continued...)
- Lecture 42 - Lyapunov Stability, Barrier Functions (Continued...)
- Lecture 43 - Quadratic Program based safe Controller Design
- Lecture 44 - Quadratic Program based safe Controller Design (Continued...)
- Lecture 45 - Quadratic Program based safe Controller Design (Continued...)
- Lecture 46 - Quadratic Program based safe Controller Design (Continued...)
- Lecture 47 - Neural Network (NN) Based controllers in CPS
- Lecture 48 - Neural Network (NN) Based controllers in CPS (Continued...)
- Lecture 49 - Neural Network (NN) Based controllers in CPS (Continued...)
- Lecture 50 - State Estimation using Kalman Filters (KF)
- Lecture 51 - State Estimation using Kalman Filters (KF) (Continued...)
- Lecture 52 - Attack Detection and Mitigation in CPS
- Lecture 53 - Attack Detection and Mitigation in CPS (Continued...)
- Lecture 54 - Attack Detection and Mitigation in CPS (Continued...)
- Lecture 55 - Attack Detection and Mitigation in CPS (Continued...)
- Lecture 56 - Attack Detection and Mitigation in CPS (Continued...)
- Lecture 57 - Attack Detection and Mitigation in CPS (Continued...)
- Lecture 58 - Attack Detection and Mitigation in CPS (Continued...)
- Lecture 59 - Attack Detection and Mitigation in CPS (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Selected Topics in Algorithms

Subject Co-ordinator - Prof. Palash Dey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Maximum Flow
- Lecture 2 - Ford - Fulkerson Method
- Lecture 3 - Edmond - Karp Algorithm
- Lecture 4 - Edmond - Karp Algorithm (Continued...)
- Lecture 5 - Flow Decomposition
- Lecture 6 - Maximum Bipartite Matching, Fattest Augmenting Path
- Lecture 7 - Karger's Algorithm
- Lecture 8 - Augmenting Path
- Lecture 9 - Edmonds Blossom Algorithm
- Lecture 10 - Edmond - Karp Algorithm (Continued...)
- Lecture 11 - Introduction to Randomized Algorithm
- Lecture 12 - Polynomial Identity Testing
- Lecture 13 - Perfect Bipartite Matching, Randomized Quicksort
- Lecture 14 - Concentration Inequalities: Markov, Chebyshev, Chernoff
- Lecture 15 - Proof of Chernoff Bound
- Lecture 16 - Coupon Collector Problem
- Lecture 17 - Balls and Bins
- Lecture 18 - Balls and Bins (Continued...)
- Lecture 19 - Two Point Sampling
- Lecture 20 - Randomized Algorithm for 2 SAT
- Lecture 21 - Markov Chain, Periodicity, Stationary Distribution
- Lecture 22 - Mixing Time, Reversible Markov Chain
- Lecture 23 - Metropolis Algorithm, Markov Chain on Independent Sets
- Lecture 24 - Random Walk on Cycles
- Lecture 25 - Shuffling Cards
- Lecture 26 - Monte Carlo Method, Hitting Time, Cover Time
- Lecture 27 - DNF Counting
- Lecture 28 - DNF Counting (Continued...)
- Lecture 29 - Counting Independent Sets of a Graph

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- Lecture 30 - Counting Independent Sets of a Graph (Continued...)
- Lecture 31 - Introduction of NP, co-NP, and P
- Lecture 32 - Turing Reduction, Karp Reduction
- Lecture 33 - NP - Completeness of 3SAT
- Lecture 34 - NP - Completeness of Independent Set
- Lecture 35 - NP - Completeness of vertex cover and clique
- Lecture 36 - NP - Completeness of 3-coloring
- Lecture 37 - NP - Completeness of Subset sum and Knapsack
- Lecture 38 - NP - Completeness of set cover, Weak and Strong NP - completeness
- Lecture 39 - Self Reduction
- Lecture 40 - Randomized Approximation Algorithm
- Lecture 41 - Derandomization
- Lecture 42 - Travelling Salesman Problem
- Lecture 43 - 2-Factor Approximation Algorithm for Metric TSP
- Lecture 44 - 1.5-Factor Approximation Algorithm for Metric TSP
- Lecture 45 - Approximation Algorithm for Set Cover
- Lecture 46 - FPTAS for Knapsack
- Lecture 47 - Introduction to Linear Program
- Lecture 48 - Introduction to Linear Program (Continued...)
- Lecture 49 - Dual Fitting
- Lecture 50 - Dual Fitting (Continued...)
- Lecture 51 - Dual Fitting
- Lecture 52 - Set Cover using LP rounding
- Lecture 53 - Vertex Cover using reduction to set cover
- Lecture 54 - Vertex Cover LP
- Lecture 55 - Randomized Rounding
- Lecture 56 - Primal Dual Scheme
- Lecture 57 - Introduction to Parameterized Algorithm
- Lecture 58 - Faster FPT Algorithm for Vertex Cover
- Lecture 59 - Introduction to Kernelization
- Lecture 60 - Linear Programming Based Kernels



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Foundations and Applications of Machine Learning

Subject Co-ordinator - Prof. Adway Mitra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - AI/ML
- Lecture 2 - AI/ML
- Lecture 3 - Supervised and Unsupervised Learning
- Lecture 4 - ML Model Algorithm/04
- Lecture 5 - AI/ML problem
- Lecture 6 - K-nearest-neighbor classification/regression/K-
- Lecture 7 - Accuracy, Precision, Recall, Confusion
- Lecture 8 - Discriminative Feature Selection
- Lecture 9 - Decision Tree Algorithm/
- Lecture 10 - Classifier - Random Forests
- Lecture 11 - Probability Theory
- Lecture 12 - Bayesian Naïve Bayes Classifier
- Lecture 13 - Linear Algebra
- Lecture 14 - Linear Classifiers - Perceptron Algorithm
- Lecture 15 - Multi-class Linear Classifier - Logistic Regression
- Lecture 16 - Optimization
- Lecture 17 - Linear (Regularized) Regression
- Lecture 18 - Max-margin Linear Classification/
- Lecture 19 - Basic Neural Networks
- Lecture 20 - Neural Network - Backpropagation
- Lecture 21 - Overfitting and Underfitting
- Lecture 22 - Boosting-
- Lecture 23 - Data (dimensionality)
- Lecture 24 - Supervised Learning
- Lecture 25 - Hierarchical Clustering/
- Lecture 26 - K-means Clustering/ K-
- Lecture 27 - Evaluation of Clustering/
- Lecture 28 - Mean-shift - DB-Scan
- Lecture 29 -

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Graph-based Clustering
- Lecture 31 - Time-series
- Lecture 32 - Recommendation Systems
- Lecture 33 - Image Classification
- Lecture 34 - Neural Features for Images
- Lecture 35 - Data Mining
- Lecture 36 - Sequential Neural Models and Natural Language Processing
- Lecture 37 - Generative Models, Reinforcement Learning
- Lecture 38 - Transfer Learning and Domain Adaptation
- Lecture 39 - Deep Learning
- Lecture 40 - Machine Learning for Climate Sciences

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Pattern Recognition

Subject Co-ordinator - Prof. Sukhendu Das, Prof. C.A. Murthy

Co-ordinating Institute - IIT - Madras | Indian Statistical Institute

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Principles of Pattern Recognition I (Introduction and Uses)
- Lecture 2 - Principles of Pattern Recognition II (Mathematics)
- Lecture 3 - Principles of Pattern Recognition III (Classification and Bayes Decision Rule)
- Lecture 4 - Clustering vs. Classification
- Lecture 5 - Relevant Basics of Linear Algebra, Vector Spaces
- Lecture 6 - Eigen Value and Eigen Vectors
- Lecture 7 - Vector Spaces
- Lecture 8 - Rank of Matrix and SVD
- Lecture 9 - Types of Errors
- Lecture 10 - Examples of Bayes Decision Rule
- Lecture 11 - Normal Distribution and Parameter Estimation
- Lecture 12 - Training Set, Test Set
- Lecture 13 - Standardization, Normalization, Clustering and Metric Space
- Lecture 14 - Normal Distribution and Decision Boundaries I
- Lecture 15 - Normal Distribution and Decision Boundaries II
- Lecture 16 - Bayes Theorem
- Lecture 17 - Linear Discriminant Function and Perceptron
- Lecture 18 - Perceptron Learning and Decision Boundaries
- Lecture 19 - Linear and Non-Linear Decision Boundaries
- Lecture 20 - K-NN Classifier
- Lecture 21 - Principal Component Analysis (PCA)
- Lecture 22 - Fisher's LDA
- Lecture 23 - Gaussian Mixture Model (GMM)
- Lecture 24 - Assignments
- Lecture 25 - Basics of Clustering, Similarity/Dissimilarity Measures, Clustering Criteria.
- Lecture 26 - K-Means Algorithm and Hierarchical Clustering
- Lecture 27 - K-Medoids and DBSCAN
- Lecture 28 - Feature Selection
- Lecture 29 - Feature Selection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Feature Selection
- Lecture 31 - Cauchy Schwartz Inequality
- Lecture 32 - Feature Selection Criteria Function
- Lecture 33 - Feature Selection Criteria Function
- Lecture 34 - Principal Components
- Lecture 35 - Comparison Between Performance of Classifiers
- Lecture 36 - Basics of Statistics, Covariance, and their Properties
- Lecture 37 - Data Condensation, Feature Clustering, Data Visualization
- Lecture 38 - Probability Density Estimation
- Lecture 39 - Visualization and Aggregation
- Lecture 40 - Support Vector Machine (SVM)
- Lecture 41 - FCM and Soft-Computing Techniques
- Lecture 42 - Examples of Uses or Application of Pattern Recognition; And When to do clustering
- Lecture 43 - Examples of Real-Life Dataset

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Performance Evaluation of Computer Systems

Subject Co-ordinator - Prof. Krishna Moorthy Sivalingham

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to performance evaluation of computer systems
- Lecture 2 - How to avoid common mistakes
- Lecture 3 - Selection of techniques and metrics
- Lecture 4 - Case study
- Lecture 5 - Random Variables and probability distributions
- Lecture 6 - Probability distributions - I
- Lecture 7 - Probability distributions - II
- Lecture 8 - Probability distributions - III
- Lecture 9 - Stochastic process
- Lecture 10 - Markov Chain
- Lecture 11 - Slotted Aloha protocol model and discrete-time birth death process
- Lecture 12 - Continuous time Markov chain and queuing theory - I
- Lecture 13 - Queuing theory - I (Continued)
- Lecture 14 - Queuing theory - II
- Lecture 15 - Queuing theory - III
- Lecture 16 - Queuing theory - IV
- Lecture 17 - Queuing theory - V
- Lecture 18 - Queuing theory - VI
- Lecture 19 - Queuing networks - I
- Lecture 20 - Queuing networks - II
- Lecture 21 - Slotted Aloha Markov model
- Lecture 22 - Simulations - I
- Lecture 23 - Simulations - II
- Lecture 24 - Simulations - III
- Lecture 25 - Operational laws - I
- Lecture 26 - Operational laws - II
- Lecture 27 - Open and closed queuing networks
- Lecture 28 - Approximate MVA
- Lecture 29 - Convolution algorithm - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Convolution algorithm - II
- Lecture 31 - Load-dependent service centers
- Lecture 32 - Hierarchical decomposition
- Lecture 33 - Balanced Job Bounds
- Lecture 34 - Confidence interval for proportions and introduction to experimental design
- Lecture 35 - 2k factorial design
- Lecture 36 - 2k r factorial design and 2k-p fractional factorial design
- Lecture 37 - Programming aspects of discrete-event simulations - I
- Lecture 38 - Programming aspects of discrete-event simulations - II
- Lecture 39 - Discrete-event simulations - III
- Lecture 40 - PetriNets - I
- Lecture 41 - PetriNets - II
- Lecture 42 - PetriNets - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Theory of Automata, Formal Languages and Computation

Subject Co-ordinator - Prof. Kamala Krithivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Grammars and Natural Language Processing
- Lecture 2 - Grammars and Languages Generated
- Lecture 3 - Grammars and Languages Generated (Continued.)
- Lecture 4 - Ambiguity in CFG
- Lecture 5 - Simplification of CFG
- Lecture 6 - Removal of Unit Productions, Chomsky Normal Form for CFG
- Lecture 7 - Greibach Normal Form for CFG
- Lecture 8 - Final State Automata
- Lecture 9 - Non Deterministic FSA
- Lecture 10 - Non Deterministic FSA (Continued.)
- Lecture 11 - Non Deterministic FSA with E(Epsilon)- Moves
- Lecture 12 - Equivalence Between FSA and Type 3 Grammars
- Lecture 13 - Regular Expressions, Regular Expressions to NFSA
- Lecture 14 - DFSA to Regular Expressions
- Lecture 15 - Problems and Solutions - I
- Lecture 16 - Pumping Lemmas for Regular Sets and CFL
- Lecture 17 - MYHILL - Nerode Theorem
- Lecture 18 - Minimization of DFSA
- Lecture 19 - FSA with output Moore and Mealy Machines
- Lecture 20 - Pushdown Automata
- Lecture 21 - Pushdown Automata, Equivalence Between Acceptance by Empty Store and Acceptance by Final State
- Lecture 22 - Pushdown Automata CFG to PDA
- Lecture 23 - Pushdown Automata PDA to CFG
- Lecture 24 - Problems and Solutions - II
- Lecture 25 - Problems and Solutions - III
- Lecture 26 - Turing Machines
- Lecture 27 - Turing Machines (Continued.)
- Lecture 28 - Turing Machine as Acceptor, Techniques for TM Construction
- Lecture 29 - Generalized Versions of Turing Machines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Turing Machine as a Generating Device
- Lecture 31 - Recursive Sets, Recursively Innumerable Sets, Encoding of TM, Halting Problem
- Lecture 32 - Problems and Instances, Universal TM, Decidability
- Lecture 33 - RICE'S Theorem, Linear Bounded Automata, Properties of TM
- Lecture 34 - POST'S Correspondence Problems
- Lecture 35 - POST'S Correspondence Problems (Continued.), Time and Tape Complexity of TM
- Lecture 36 - NP - Complete Problems, Cook's Theorem
- Lecture 37 - NP - Complete Problems (Continued.)
- Lecture 38 - Regulated Rewriting
- Lecture 39 - L-Systems
- Lecture 40 - Grammar Systems
- Lecture 41 - DNA Computing
- Lecture 42 - Membrane Computing



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Computer Graphics

Subject Co-ordinator - Prof. Sukhendu Das

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - CRT Display Devices
- Lecture 3 - CRT Display Devices (Continued...)
- Lecture 4 - CRT Display Devices (Continued...)
- Lecture 5 - CRT Display Devices (Continued...)
- Lecture 6 - Transformations in 2D
- Lecture 7 - Transformations in 2D (Continued...)
- Lecture 8 - Three Dimensional Graphics
- Lecture 9 - Three Dimensional Graphics (Continued...)
- Lecture 10 - Three Dimensional Graphics (Continued...)
- Lecture 11 - Projection Transformations And Viewing Pipeline
- Lecture 12 - 3D Viewing - Projection Transformations And Viewing Pipeline
- Lecture 13 - Scan Converting Lines, Circles And Ellipses
- Lecture 14 - Scan Converting Lines, Circles And Ellipses (Continued...)
- Lecture 15 - Scan Converting Lines, Circles And Ellipses (Continued...)
- Lecture 16 - Scan Converting Lines, Circles And Ellipses (Continued...)
- Lecture 17 - Scan Converting Lines, Circles And Ellipses (Continued...)
- Lecture 18 - Polyfill- Scan Conversion Of A Polygon
- Lecture 19 - Scan Conversion Of A Polygon (Continued...)
- Lecture 20 - Clipping - Lines And Polygons
- Lecture 21 - Clipping Lines And Polygons
- Lecture 22 - Clipping Lines
- Lecture 23 - Solid Modelling
- Lecture 24 - Solid Modelling
- Lecture 25 - Solid Modelling (Continued...)
- Lecture 26 - Visible Surface Detection
- Lecture 27 - Visible Surface Detection (Continued...)
- Lecture 28 - Visible Surface Detection (Continued...)
- Lecture 29 - Visible Surface Detection (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Visible Surface Detection (Continued...)
- Lecture 31 - Visible Surface Detection (Continued...)
- Lecture 32 - Visible Surface Detection (Continued...)
- Lecture 33 - Illumination And Shading
- Lecture 34 - Illumination And Shading (Continued...)
- Lecture 35 - Illumination And Shading (Continued...)
- Lecture 36 - Curve Representation
- Lecture 37 - Curve Representation (Continued...)
- Lecture 38 - Curves And Surface Representation
- Lecture 39 - Graphics Programming Using Open GL
- Lecture 40 - Graphics Programming Using Open GL (Continued...)
- Lecture 41 - Advanced Topics
- Lecture 42 - Digital Image Processing Image Compression-Jpeg-Enhancements
- Lecture 43 - Digital Image Processing (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Computer Organization

Subject Co-ordinator - Prof. S. Raman

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction To Computing  
Lecture 2 - Introduction To System  
Lecture 3 - Introduction To System  
Lecture 4 - Processor Activities  
Lecture 5 - Processor As a State Machine  
Lecture 6 - Data Path Architecture  
Lecture 7 - Data Path Controller  
Lecture 8 - State Machine Design  
Lecture 9 - Controller Design  
Lecture 10 - Controller Design (Contd)  
Lecture 11 - Typical Micro Instructions  
Lecture 12 - Addressing Modes  
Lecture 13 - Problem Exercise  
Lecture 14 - Problem Exercise  
Lecture 15 - Introduction to memory system  
Lecture 16 - CPU - Memory Interaction  
Lecture 17 - Cache Organization  
Lecture 18 - Cache Organization  
Lecture 19 - Virtual Memory  
Lecture 20 - Virtual Memory  
Lecture 21 - Performance Calculation  
Lecture 22 - Segmentation  
Lecture 23 - Address Translation and Protection  
Lecture 24 - Programmed I/O  
Lecture 25 - Interrupt Driven I/O  
Lecture 26 - DMA  
Lecture 27 - Device Service Routines  
Lecture 28 - Evolution Of I/O  
Lecture 29 - I/O Devices

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - I/O Devices - Contd
- Lecture 31 - Buses
- Lecture 32 - Buses Contd
- Lecture 33 - Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Database Design

Subject Co-ordinator - Dr. S. Srikanth, Prof. D. Janaki Ram

Co-ordinating Institute - IIT - Madras | IIIT - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Database Management System  
Lecture 2 - Conceptual Designs  
Lecture 3 - Conceptual Designs  
Lecture 4 - Relational Model  
Lecture 5 - Relational Model  
Lecture 6 - Structured Query Language - I  
Lecture 7 - Structured Query Language - II  
Lecture 8 - ER Model to Relational Mapping  
Lecture 9 - Functional Dependencies and Normal Form  
Lecture 10 - ER Model to Relational Model Mapping  
Lecture 11 - Storage Structures  
Lecture 12 - Indexing Techniques Single Level  
Lecture 13 - Indexing Techniques Multi Level  
Lecture 14 - Constraints and Triggers  
Lecture 15 - Query Processing and Optimization  
Lecture 16 - Query Processing and Optimization - II  
Lecture 17 - Query Processing and Optimization - III  
Lecture 18 - Transaction Processing Concepts  
Lecture 19 - Transaction Processing and Database Manager  
Lecture 20 - Foundation for Concurrency Control  
Lecture 21 - Concurrency Control Part - 1  
Lecture 22 - Concurrency Control Part - 2  
Lecture 23 - Concurrency Control Part - 3  
Lecture 24 - Concurrency Control Part - 4  
Lecture 25 - Distributed Transaction Models  
Lecture 26 - Basic 2-Phase and 3-phase commit protocol  
Lecture 27 - Concurrency Control for Distributed Transaction  
Lecture 28 - Introduction to Transaction Recovery  
Lecture 29 - Recovery Mechanisms - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Recovery Mechanisms - III
- Lecture 31 - Introduction to Data Warehousing and OLAP
- Lecture 32 - Introduction to Data Warehousing and OLAP
- Lecture 33 - Case Study
- Lecture 34 - Case Study ORACLE and Microsoft Access
- Lecture 35 - Data Mining and Knowledge Discovery
- Lecture 36 - Data Mining and Knowledge Discovery Part - II
- Lecture 37 - Object Oriented Databases
- Lecture 38 - Object Oriented Databases - II
- Lecture 39 - XML - Introductory Concepts
- Lecture 40 - XML - Advanced Concepts
- Lecture 41 - XML - Databases
- Lecture 42 - Case Study - Part One - Database Design
- Lecture 43 - Case Study - Part Two - Database Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Discrete Mathematical Structures

Subject Co-ordinator - Prof. Kamala Krithivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Propositional Logic
- Lecture 2 - Propositional Logic (Continued)
- Lecture 3 - Predicates & Quantifiers
- Lecture 4 - Predicates & Quantifiers (Continued)
- Lecture 5 - Logical Inference
- Lecture 6 - Resolution Principles & Application to PROLOG
- Lecture 7 - Methods of Proof
- Lecture 8 - Normal Forms
- Lecture 9 - Proving Programs Correct (Continued)
- Lecture 10 - Sets
- Lecture 11 - Induction
- Lecture 12 - Set Operations On Strings
- Lecture 13 - Relations
- Lecture 14 - Graphs
- Lecture 15 - Graphs (Continued)
- Lecture 16 - Trees
- Lecture 17 - Trees And Graphs
- Lecture 18 - Special Properties Of Relations
- Lecture 19 - Closure Of Relations
- Lecture 20 - Closure Properties Of Relations
- Lecture 21 - Order Relations
- Lecture 22 - Order Relations And Equivalence Relations
- Lecture 23 - Equivalence Relations And Partitions
- Lecture 24 - Functions
- Lecture 25 - Functions (Continued)
- Lecture 26 - Functions (Continued)
- Lecture 27 - Pigeonhole Principle
- Lecture 28 - Permutations And Combinations
- Lecture 29 - Permutations And Combinations (Continued)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Generating Functions
- Lecture 31 - Generating Functions (Continued)
- Lecture 32 - Recurrence Relations
- Lecture 33 - Recurrence Relations (Continued)
- Lecture 34 - Recurrence Relations (Continued)
- Lecture 35 - Algebras
- Lecture 36 - Algebras (Continued)
- Lecture 37 - Algebras (Continued)
- Lecture 38 - Finite State Automaton
- Lecture 39 - Finite State Automaton (Continued)
- Lecture 40 - Lattices



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Artificial Intelligence (Prof. Deepak Khemani)

Subject Co-ordinator - Prof. Deepak Khemani

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Artificial Intelligence  
Lecture 2 - Introduction to AI  
Lecture 3 - AI Introduction  
Lecture 4 - AI Introduction  
Lecture 5 - Introduction  
Lecture 6 - State Space Search - Introduction  
Lecture 7 - Search - DFS and BFS  
Lecture 8 - Search DFID  
Lecture 9 - Heuristic Search  
Lecture 10 - Hill Climbing  
Lecture 11 - Solution Space Search, Beam Search  
Lecture 12 - TSP Greedy Methods  
Lecture 13 - Tabu Search  
Lecture 14 - Optimization - I (Simulated Annealing)  
Lecture 15 - Optimization - II (Genetic Algorithms)  
Lecture 16 - Population based methods for Optimization  
Lecture 17 - Population Based Methods II  
Lecture 18 - Branch and Bound, Dijkstra's Algorithm  
Lecture 19 - A\* Algorithm  
Lecture 20 - Admissibility of A\*  
Lecture 21 - A\* Monotone Property, Iterative Deeping A\*  
Lecture 22 - Recursive Best First Search, Sequence Allignment  
Lecture 23 - Pruning the Open and Closed lists  
Lecture 24 - Problem Decomposition with Goal Trees  
Lecture 25 - AO\* Algorithm  
Lecture 26 - Game Playing  
Lecture 27 - Game Playing - Minimax Search  
Lecture 28 - Game Playing - AlphaBeta  
Lecture 29 - Game Playing - SSS \*

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Rule Based Systems
- Lecture 31 - Inference Engines
- Lecture 32 - Rete Algorithm
- Lecture 33 - Planning
- Lecture 34 - Planning FSSP, BSSP
- Lecture 35 - Goal Stack Planning. Sussman's Anomaly
- Lecture 36 - Non-linear planning
- Lecture 37 - Plan Space Planning
- Lecture 38 - GraphPlan
- Lecture 39 - Constraint Satisfaction Problems
- Lecture 40 - CSP continued
- Lecture 41 - Knowledge-based systems
- Lecture 42 - Knowledge-based Systems, PL
- Lecture 43 - Propositional Logic
- Lecture 44 - Resolution Refutation for PL
- Lecture 45 - First-order Logic (FOL)
- Lecture 46 - Reasoning in FOL
- Lecture 47 - Backward chaining
- Lecture 48 - Resolution for FOL

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Programming, Data Structures and Algorithms

Subject Co-ordinator - Prof. Hema A Murthy, Prof. Shankar Balachandran, Dr. N.S. Narayanaswamy

Co-ordinating Institute - IIT - Madras

- Lecture 1 - Introduction to Computers and Programming
- Lecture 2 - Writing your first program
- Lecture 3 - Variables, Operators and Expressions
- Lecture 4 - Variable declarations, more operators and precedence
- Lecture 5 - Input and Output Statements
- Lecture 6 - Conditionals
- Lecture 7 - Loops
- Lecture 8 - Video Solution to Digital Root Programming Assignment
- Lecture 9 - Introduction to arrays
- Lecture 10 - Working with 1D arrays
- Lecture 11 - Find prime numbers
- Lecture 12 - Debugging demo
- Lecture 13 - Multi-dimensional arrays
- Lecture 14 - Pointers
- Lecture 15 - More on pointers
- Lecture 16 - Arrays and pointer arithmetic
- Lecture 17 - Introduction to Strings
- Lecture 18 - More on Strings
- Lecture 19 - Video Solution to Print Elements of a Matrix in Spiral Order Programming Assignment
- Lecture 20 - Introduction to functions
- Lecture 21 - More details on functions
- Lecture 22 - Arguments, variables and parameters
- Lecture 23 - Pass parameters by reference
- Lecture 24 - Recursive functions
- Lecture 25 - Running time of a program
- Lecture 26 - Computing time complexity
- Lecture 27 - Video Solution to Palindrome Checker Programming Assignment
- Lecture 28 - Algorithms and Powering
- Lecture 29 - Polynomial evaluation and multiplication
- Lecture 30 - Linear and Binary Search Analysis
- Lecture 31 - Analysis of minimum and maximum in an array
- Lecture 32 - Sorting I
- Lecture 33 - Sorting II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 34 - Finding i-th smallest number
- Lecture 35 - Video Solution to Sorting words Programming Assignment
- Lecture 36 - Structures
- Lecture 37 - More on structures
- Lecture 38 - Using structures and pointers to structures
- Lecture 39 - Dynamic memory allocation
- Lecture 40 - Linked Lists
- Lecture 41 - Brief introduction to C++
- Lecture 42 - Data Structures
- Lecture 43 - Lists
- Lecture 44 - Supplementary Lesson
- Lecture 45 - Video Solution to Implementing a Hash Table ADT Programming Assignment
- Lecture 46 - Stacks
- Lecture 47 - Queues
- Lecture 48 - Trees
- Lecture 49 - Tree traversal
- Lecture 50 - Binary Search Trees
- Lecture 51 - Heaps
- Lecture 52 - Graphs and Representation
- Lecture 53 - Supplementary Lesson
- Lecture 54 - Video Solution to the Queue in a Hospital Programming Assignment
- Lecture 55 - Greedy Algorithms
- Lecture 56 - Dynamic Programming
- Lecture 57 - Matrix Chain Multiplication
- Lecture 58 - Dijkstra's Algorithm
- Lecture 59 - Boyer-Moore String Matching Algorithm
- Lecture 60 - File I/O
- Lecture 61 - Modular Programming

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Information Security I

Subject Co-ordinator - Prof. V. Kamakoti

Co-ordinating Institute - IIT - Madras

Lecture 1 - Module 1 - Part 0 - Introduction to the Course  
Lecture 2 - Module 1 - Part 1 - Definition of Information Security  
Lecture 3 - Module 1 - Part 2 - Information Security Terminologies  
Lecture 4 - Module 1 - Part 3 - Goals of Information Security  
Lecture 5 - Module 1 - Part 4 - Implementation Issues of the Goals of Information Security - I  
Lecture 6 - Module 1 - Part 5 - Implementation Issues of the Goals of Information Security - II  
Lecture 7 - Module 1 - Part 6 - Control Mechanisms for Information Security - I  
Lecture 8 - Module 1 - Part 7 - Access Control - Administrative and Technical  
Lecture 9 - Module 1 - Part 8 - Passwords - Are they secure? - I  
Lecture 10 - Module 1 - Part 9 - Access Control - Administrative and Technical  
Lecture 11 - Module 1 - Part 10 - Passwords - Are they secure? - III  
Lecture 12 - Module 1 - Part 11 - Multifactor Authentication - Challenges  
Lecture 13 - Module 1 - Part 12 - Application Level Control and Information Security Planning  
Lecture 14 - Module 1 - Part 13 - Information Security - Policy, Standard and Practice  
Lecture 15 - Module 1 - Part 14 - Policies governing Issues, Roles and Responsibilities  
Lecture 16 - Module 1 - Part 15 - Managing changes in Information Security Policies  
Lecture 17 - Module 1 - Part 16 - Spheres of Information Security  
Lecture 18 - Module 2 - Part 1 - Protecting your Personal Computer - I  
Lecture 19 - Module 2 - part 2 - Protecting your Personal Computer - II  
Lecture 20 - Module 2 - Part 3 - Protecting your Personal Computer - III  
Lecture 21 - Module 2 - Part 4 - Cloud Computing (Basic Definitions) - I  
Lecture 22 - Module 2 - Part 5 - Cloud Computing (Deployment) - II  
Lecture 23 - Module 2 - Part 6 - Cloud Computing (Security Issues) - III  
Lecture 24 - Module 2 - Part 7 - Cloud Computing (Trust and Risk) - IV  
Lecture 25 - Module 2 - Part 8 - Cloud Computing (Security and Privacy Issues) - V  
Lecture 26 - Module 2 - Part 9 - Cloud Computing (Security and Privacy Issues) - VI  
Lecture 27 - Module 2 - Part 10 - Cloud Computing (Application and Data level security) - VII  
Lecture 28 - Module 2 - Part 11 - Cloud Computing (Summary) - VIII  
Lecture 29 - Module 2 - Part 12 - Standard I  
Lecture 30 - Module 2 - Part 13 - Standard II  
Lecture 31 - Module 2 - Part 14 - Standard III  
Lecture 32 - Module 3 - Part 1  
Lecture 33 - Module 3 - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 34 - Module 3 - Part 3  
Lecture 35 - Module 3 - Part 4  
Lecture 36 - Module 3 - Part 5  
Lecture 37 - Module 3 - Part 6  
Lecture 38 - Module 3 - Part 7  
Lecture 39 - Module 3 - Part 8  
Lecture 40 - Module 3 - Part 9  
Lecture 41 - Module 4 - Part 1  
Lecture 42 - module 4 - Part 2  
Lecture 43 - Module 4 - Part 3  
Lecture 44 - Module 4 - Part 4  
Lecture 45 - Module 4 - Part 5  
Lecture 46 - Module 4 - Part 6  
Lecture 47 - Module 4 - Part 7  
Lecture 48 - Module 4 - Part 8  
Lecture 49 - Module 4 - Part 9  
Lecture 50 - Module 4 - Part 10  
Lecture 51 - Module 5 - Part 1  
Lecture 52 - Module 5 - Part 2  
Lecture 53 - Module 5 - Part 3  
Lecture 54 - Module 5 - Part 4  
Lecture 55 - Module 5 - Part 5  
Lecture 56 - Module 5 - Part 6  
Lecture 57 - Module 5 - Part 7  
Lecture 58 - Module 6 - Part 1  
Lecture 59 - Module 6 - Part 2  
Lecture 60 - Module 6 - Part 3  
Lecture 61 - Module 6 - Part 4  
Lecture 62 - Module 6 - Part 5  
Lecture 63 - Module 6 - Part 6  
Lecture 64 - Module 6 - Part 7  
Lecture 65 - Module 6 - Part 8

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Programming and Data structures (PDS)

Subject Co-ordinator - Dr. N S. Narayanaswamy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - A Simple C Program for Sorting
- Lecture 2 - Review of Structures, Pointers, and Functions
- Lecture 3 - Recursion
- Lecture 4 - Abstract Data Types-Data + Methods
- Lecture 5 - List Data Type
- Lecture 6 - Access and update methods
- Lecture 7 - Doubly Linked List Data Type
- Lecture 8 - Doubly Linked Lists and Arrays
- Lecture 9 - ADT Stacks
- Lecture 10 - Checking of Balanced Parenthesis
- Lecture 11 - Infix and Postfix expressions and Expression evaluation
- Lecture 12 - Queue ADT Definition and Implementation
- Lecture 13 - Merging using Queue ADT and Queue types
- Lecture 14 - Tree ADT and Traversals
- Lecture 15 - Binary Tree ADT and traversals
- Lecture 16 - Tree Applications
- Lecture 17 - Binary Search Trees
- Lecture 18 - Heaps

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Design and Analysis of Algorithms

Subject Co-ordinator - Prof. Madhavan Mukund

Co-ordinating Institute - Chennai Mathematical Institute

- Lecture 1 - Course Outline
- Lecture 2 - Example
- Lecture 3 - Example
- Lecture 4 - Example
- Lecture 5 - Introduction and motivation
- Lecture 6 - Input size, worst case, average case
- Lecture 7 - Quantifying efficiency
- Lecture 8 - Examples
- Lecture 9 - Arrays and lists
- Lecture 10 - Searching in an array
- Lecture 11 - Selection Sort
- Lecture 12 - Insertion sort
- Lecture 13 - Merge sort
- Lecture 14 - Merge sort - analysis
- Lecture 15 - Quicksort
- Lecture 16 - Quicksort - analysis
- Lecture 17 - Sorting - Concluding remarks
- Lecture 18 - Introduction to graphs
- Lecture 19 - Representing graphs
- Lecture 20 - Breadth first search (BFS)
- Lecture 21 - Depth first search (DFS)
- Lecture 22 - Applications of BFS and DFS
- Lecture 23 - Directed acyclic graphs
- Lecture 24 - Directed acyclic graphs
- Lecture 25 - Single source shortest paths
- Lecture 26 - Dijkstras algorithm
- Lecture 27 - Negative edge weights
- Lecture 28 - All pairs shortest paths
- Lecture 29 - Minimum Cost Spanning Trees
- Lecture 30 - Prims Algorithm
- Lecture 31 - Kruskals algorithm
- Lecture 32 - Union-Find using arrays
- Lecture 33 - Union-Find using pointers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 34 - Priority queues
- Lecture 35 - Heaps
- Lecture 36 - Heaps
- Lecture 37 - Counting inversions
- Lecture 38 - Closest pair of points
- Lecture 39 - Binary Search Trees
- Lecture 40 - Balanced search trees
- Lecture 41 - Interval scheduling
- Lecture 42 - Scheduling with deadlines
- Lecture 43 - Huffman codes
- Lecture 44 - Introduction to dynamic programming
- Lecture 45 - Memoization
- Lecture 46 - Grid Paths
- Lecture 47 - Common subwords and subsequences
- Lecture 48 - Edit distance
- Lecture 49 - Matrix multiplication
- Lecture 50 - Linear Programming
- Lecture 51 - LP modelling
- Lecture 52 - LP modelling
- Lecture 53 - Network Flows
- Lecture 54 - Reductions
- Lecture 55 - Checking Algorithms
- Lecture 56 - P and NP

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Programming, Data Structures and Algorithms (Arithmetic)

Subject Co-ordinator - Dr. N S. Narayanaswamy, Prof. Shankar Balachandran, Prof. Hema A Murthy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Computers and Programming
- Lecture 2 - Writing your first program
- Lecture 3 - Variables, Operators and Expressions
- Lecture 4 - Variable declarations, more operators and precedence
- Lecture 5 - Input and Output Statements
- Lecture 6 - Conditionals
- Lecture 7 - Loops
- Lecture 8 - Introduction to arrays
- Lecture 9 - Working with 1D arrays
- Lecture 10 - Find prime numbers
- Lecture 11 - Debugging demo
- Lecture 12 - Multi-dimensional arrays
- Lecture 13 - Pointers
- Lecture 14 - More on pointers
- Lecture 15 - Arrays and pointer arithmetic
- Lecture 16 - Introduction to Strings
- Lecture 17 - More on Strings
- Lecture 18 - Introduction to functions
- Lecture 19 - More details on functions
- Lecture 20 - Arguments, variables and parameters
- Lecture 21 - Pass parameters by reference
- Lecture 22 - Recursive Functions
- Lecture 23 - C control structures, functional specification of programs
- Lecture 24 - Complexity Analysis using Sum and Product Rule
- Lecture 25 - Complexity Analysis of Recursive Functions
- Lecture 26 - Algorithms and Powering
- Lecture 27 - Polynomial evaluation and multiplication
- Lecture 28 - Linear and Binary Search Analysis
- Lecture 29 - Analysis of minimum and maximum in an array

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sorting I: Insertion, Merge
- Lecture 31 - Sorting II: Counting, Radix
- Lecture 32 - Finding i-th smallest number
- Lecture 33 - Structures
- Lecture 34 - More on Structures
- Lecture 35 - Using structures and pointers to structures
- Lecture 36 - Dynamic memory allocation
- Lecture 37 - Linked List
- Lecture 38 - Brief introduction to C++: Classes and objects
- Lecture 39 - Abstract Data Types
- Lecture 40 - More on ADT
- Lecture 41 - Stacks: Last In First Out
- Lecture 42 - Queues: First In First
- Lecture 43 - Trees
- Lecture 44 - Tree Traversal
- Lecture 45 - Binary Search
- Lecture 46 - Heaps
- Lecture 47 - Graphs and Representations
- Lecture 48 - Greedy Algorithms
- Lecture 49 - Dynamic Programming
- Lecture 50 - Matrix Chain Multiplication
- Lecture 51 - Hash Tables
- Lecture 52 - Graph Algorithms: Dijkstras Algorithm and Prims Algorithm
- Lecture 53 - Graph Traversals: BFS,DFS and Articulation Points
- Lecture 54 - File I/O
- Lecture 55 - Modular Programming

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computer Architecture

Subject Co-ordinator - Prof.Madhu Mutyam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Computer Architecture  
Lecture 2 - Quantitative Principles of Computer Design  
Lecture 3 - Instruction Set Principles-Part 1  
Lecture 4 - Instruction Set Principles-Part 2  
Lecture 5 - Instruction Set Principles-Part 3  
Lecture 6 - Cache Memory Hierarchy - Part 1  
Lecture 7 - Cache Memory Hierarchy - Part 2  
Lecture 8 - Cache Memory Hierarchy - Part 3  
Lecture 9 - Cache Memory Hierarchy - Part 4  
Lecture 10 - Main Memory Design - Part 1  
Lecture 11 - Main Memory Design - Part 2  
Lecture 12 - Main Memory Design - Part 3  
Lecture 13 - Fundamentals of Pipelining - Part 1  
Lecture 14 - Fundamentals of Pipelining - Part 2  
Lecture 15 - Fundamentals of Pipelining - Part 3  
Lecture 16 - Fundamentals of Pipelining - Part 4  
Lecture 17 - Fundamentals of Pipelining - Part 5  
Lecture 18 - Scalar to Superscalar pipeline  
Lecture 19 - Instruction Dependencies  
Lecture 20 - Compiler optimizations for Exposing ILP  
Lecture 21 - Advanced Branch Prediction Techniques - Part 1  
Lecture 22 - Advanced Branch Prediction Techniques - Part 2  
Lecture 23 - Superscalar Organization  
Lecture 24 - Register Renaming  
Lecture 25 - Tomasulo Algorithm  
Lecture 26 - Dynamic Execution Core  
Lecture 27 - Multi threading  
Lecture 28 - Multicore Processor Architecture  
Lecture 29 - Cache Coherence

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cache Coherence Protocol Design
- Lecture 31 - Synchronization
- Lecture 32 - Memory Consistency - Part 1
- Lecture 33 - Memory Consistency - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Model Checking

Subject Co-ordinator - Prof. B. Srivathsan

Co-ordinating Institute - Chennai Mathematical Institute

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview  
Lecture 2 - Module 1 - Modeling code behaviour  
Lecture 3 - Module 2 - Modeling hardware circuits  
Lecture 4 - Module 3 - Modeling data-dependent programs  
Lecture 5 - Module 4 - Modeling concurrent systems  
Lecture 6 - Summary  
Lecture 7 - Module 1 - Model checking tools  
Lecture 8 - Module 2 - Simple models in NuSMV  
Lecture 9 - Module 3 - Hardware verification using NuSMV  
Lecture 10 - Module 4 - Modeling concurrent systems in NuSMV  
Lecture 11 - Summary.  
Lecture 12 - Module 1 - A problem in concurrency  
Lecture 13 - Module 2 - What is a property?  
Lecture 14 - Module 3 - Invariants  
Lecture 15 - Module 4 - Safety properties  
Lecture 16 - Module 5 - Liveness properties  
Lecture 17 - Summary..  
Lecture 18 - Module 1 - Road map  
Lecture 19 - Module 2 - A gentle introduction to automata  
Lecture 20 - Module 3 - Simple properties of finite automata  
Lecture 21 - Module 4 - Safety properties described by automata  
Lecture 22 - Summary...  
Lecture 23 - Module 1 - Specifying properties  
Lecture 24 - Module 2 - Omega-regular expressions  
Lecture 25 - Module 3 - Bchi automata  
Lecture 26 - Module 4 - Simple properties of Bchi automata  
Lecture 27 - Summary....  
Lecture 28 - Module 1 - Overview  
Lecture 29 - Module 2 - Omega-regular expressions to NBA

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Module 3 - Checking emptiness of NBA
- Lecture 31 - Module 4 - Generalized NBA
- Lecture 32 - Summary.....
- Lecture 33 - Module 1 - Introduction to LTL
- Lecture 34 - Module 2 - Semantics of LTL
- Lecture 35 - Module 3 - A puzzle
- Lecture 36 - Summary.
- Lecture 37 - Module 1 - Automata based LTL model-checking
- Lecture 38 - Module 2 - LTL to NBA
- Lecture 39 - Module 3 - Automaton construction
- Lecture 40 - Summary..
- Lecture 41 - Module 1 - Tree view of a transition system
- Lecture 42 - Module 2 - CTL\*
- Lecture 43 - Module 3 - CTL
- Lecture 44 - summary...
- Lecture 45 - Module 1 - Adequate CTL formulae
- Lecture 46 - Module 2 - EX, EU, EG
- Lecture 47 - Module 3 - Final algorithm
- Lecture 48 - Module 4 - State-space explosion
- Lecture 49 - Summary....
- Lecture 50 - Module 1 - Introduction to BDDs
- Lecture 51 - Module 2 - Ordered BDDs
- Lecture 52 - Module 3 - Representing transition systems as OBDDs
- Lecture 53 - Summary.....
- Lecture 54 - Timed transition systems
- Lecture 55 - Concluding remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Functional Programming in Haskell

Subject Co-ordinator - Prof. Madhavan Mukund, Prof. S P Suresh

Co-ordinating Institute - Chennai Mathematical Institute

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Functions  
Lecture 2 - Types  
Lecture 3 - Haskell  
Lecture 4 - Running Haskell programs  
Lecture 5 - Currying  
Lecture 6 - Examples  
Lecture 7 - Lists  
Lecture 8 - Functions on lists  
Lecture 9 - Characters and strings  
Lecture 10 - Tuples  
Lecture 11 - Computation as rewriting  
Lecture 12 - Polymorphism and higher-order functions  
Lecture 13 - Map and filter  
Lecture 14 - List comprehension  
Lecture 15 - Folding through a list  
Lecture 16 - Measuring efficiency  
Lecture 17 - Sorting  
Lecture 18 - Using infinite lists  
Lecture 19 - Conditional polymorphism  
Lecture 20 - Defining functions in ghci  
Lecture 21 - User-defined datatypes  
Lecture 22 - Abstract datatypes  
Lecture 23 - Modules  
Lecture 24 - Recursive data types  
Lecture 25 - Binary search trees  
Lecture 26 - Balanced search trees  
Lecture 27 - Arrays  
Lecture 28 - Input/Output

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Virtual Reality

Subject Co-ordinator - Prof. Steven LaVall

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course mechanics
- Lecture 2 - Goals and VR definitions
- Lecture 3 - Historical perspective
- Lecture 4 - Birds-eye view (general)
- Lecture 5 - Birds-eye view (general) (Continued...)
- Lecture 6 - Birds-eye view (hardware)
- Lecture 7 - Birds-eye view (software)
- Lecture 8 - Birds-eye view (sensation and perception)
- Lecture 9 - Geometric modeling
- Lecture 10 - Transforming models
- Lecture 11 - Matrix algebra and 2D rotations
- Lecture 12 - 3D rotations and yaw, pitch, and roll
- Lecture 13 - 3D rotations and yaw, pitch, and roll (Continued...)
- Lecture 14 - Axis-angle representations
- Lecture 15 - Quaternions
- Lecture 16 - Converting and multiplying rotations
- Lecture 17 - Converting and multiplying rotations (Continued...)
- Lecture 18 - Homogeneous transforms
- Lecture 19 - The chain of viewing transforms
- Lecture 20 - Eye transforms
- Lecture 21 - Eye transforms (Continued...)
- Lecture 22 - Canonical view transform
- Lecture 23 - Viewport transform
- Lecture 24 - Viewport transform (Continued...)
- Lecture 25 - Three interpretations of light
- Lecture 26 - Refraction
- Lecture 27 - Simple lenses
- Lecture 28 - Diopters
- Lecture 29 - Imaging properties of lenses

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lens aberrations
- Lecture 31 - Optical system of eyes
- Lecture 32 - Photoreceptors
- Lecture 33 - Sufficient resolution for VR
- Lecture 34 - Light intensity
- Lecture 35 - Eye movements
- Lecture 36 - Eye movements (Continued...)
- Lecture 37 - Eye movement issues for VR
- Lecture 38 - Neuroscience of vision
- Lecture 39 - Depth perception
- Lecture 40 - Depth perception (Continued...)
- Lecture 41 - Motion perception
- Lecture 42 - Frame rates and displays
- Lecture 43 - Frame rates and displays (Continued...)
- Lecture 44 - Overview
- Lecture 45 - Orientation tracking
- Lecture 46 - Tilt drift correction
- Lecture 47 - Yaw drift correction
- Lecture 48 - Tracking with a camera
- Lecture 49 - Perspective n-point problem
- Lecture 50 - Filtering
- Lecture 51 - Lighthouse approach
- Lecture 52 - Visual Rendering-Overview
- Lecture 53 - Visual Rendering-overview (Continued...)
- Lecture 54 - Shading models
- Lecture 55 - Rasterization
- Lecture 56 - Pixel shading
- Lecture 57 - VR-specific problems
- Lecture 58 - Distortion shading
- Lecture 59 - Post-rendering image warp
- Lecture 60 - Physics and physiology
- Lecture 61 - Auditory perception
- Lecture 62 - Auditory localization
- Lecture 63 - Rendering
- Lecture 64 - Spatialization and display
- Lecture 65 - Combining other senses
- Lecture 66 - Interfaces -overview
- Lecture 67 - Locomotion
- Lecture 68 - Manipulation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - System control

Lecture 70 - Social interaction

Lecture 71 - Evaluation of VR Systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Machine Learning (Sponsored by AICTE)

Subject Co-ordinator - Dr. Balaraman Ravindran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - A brief introduction to machine learning  
Lecture 2 - Supervised Learning  
Lecture 3 - Unsupervised Learning  
Lecture 4 - Reinforcement Learning  
Lecture 5 - Probability Basics - 1  
Lecture 6 - Probability Basics - 2  
Lecture 7 - Linear Algebra - 1  
Lecture 8 - Linear Algebra - 2  
Lecture 9 - Statistical Decision Theory - Regression  
Lecture 10 - Statistical Decision Theory - Classification  
Lecture 11 - Bias-Variance  
Lecture 12 - Linear Regression  
Lecture 13 - Multivariate Regression  
Lecture 14 - Subset Selection 1  
Lecture 15 - Subset Selection 2  
Lecture 16 - Shrinkage Methods  
Lecture 17 - Principal Components Regression  
Lecture 18 - Partial Least Squares  
Lecture 19 - Linear Classification  
Lecture 20 - Logistic Regression  
Lecture 21 - Linear Discriminant Analysis 1  
Lecture 22 - Linear Discriminant Analysis 2  
Lecture 23 - Linear Discriminant Analysis 3  
Lecture 24 - Optimization  
Lecture 25 - Perceptron Learning  
Lecture 26 - SVM - Formulation  
Lecture 27 - SVM - Interpretation & Analysis  
Lecture 28 - SVMs for Linearly Non Separable Data  
Lecture 29 - SVM Kernels

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - SVM - Hinge Loss Formulation
- Lecture 31 - Weka Tutorial
- Lecture 32 - Early Models
- Lecture 33 - Backpropagation - I
- Lecture 34 - Backpropagation - II
- Lecture 35 - Initialization, Training and Validation
- Lecture 36 - Maximum Likelihood Estimate
- Lecture 37 - Priors and MAP Estimate
- Lecture 38 - Bayesian Parameter Estimation
- Lecture 39 - Introduction
- Lecture 40 - Regression Trees
- Lecture 41 - Stopping Criteria and Pruning
- Lecture 42 - Loss Functions for Classification
- Lecture 43 - Categorical Attributes
- Lecture 44 - Multiway Splits
- Lecture 45 - Missing Values, Imputation and Surrogate Splits
- Lecture 46 - Instability, Smoothness and Repeated Subtrees
- Lecture 47 - Tutorial
- Lecture 48 - Evaluation Measures I
- Lecture 49 - Bootstrapping and Cross Validation
- Lecture 50 - 2 Class Evaluation Measures
- Lecture 51 - The ROC Curve
- Lecture 52 - Minimum Description Length and Exploratory Analysis
- Lecture 53 - Introduction to Hypothesis Testing
- Lecture 54 - Basic Concepts
- Lecture 55 - Sampling Distributions and the Z Test
- Lecture 56 - Student's t-test
- Lecture 57 - The Two Sample and Paired Sample t-tests
- Lecture 58 - Confidence Intervals
- Lecture 59 - Bagging, Committee Machines and Stacking
- Lecture 60 - Boosting
- Lecture 61 - Gradient Boosting
- Lecture 62 - Random Forest
- Lecture 63 - Naive Bayes
- Lecture 64 - Bayesian Networks
- Lecture 65 - Undirected Graphical Models - Introduction
- Lecture 66 - Undirected Graphical Models - Potential Functions
- Lecture 67 - Hidden Markov Models
- Lecture 68 - Variable Elimination

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Belief Propagation
- Lecture 70 - Partitional Clustering
- Lecture 71 - Hierarchical Clustering
- Lecture 72 - Threshold Graphs
- Lecture 73 - The BIRCH Algorithm
- Lecture 74 - The CURE Algorithm
- Lecture 75 - Density Based Clustering
- Lecture 76 - Gaussian Mixture Models
- Lecture 77 - Expectation Maximization
- Lecture 78 - Expectation Maximization (Continued...)
- Lecture 79 - Spectral Clustering
- Lecture 80 - Learning Theory
- Lecture 81 - Frequent Itemset Mining
- Lecture 82 - The Apriori Property
- Lecture 83 - Introduction to Reinforcement Learning
- Lecture 84 - RL Framework and TD Learning
- Lecture 85 - Solution Methods and Applications
- Lecture 86 - Multi-class Classification

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Artificial Intelligence: Knowledge Representation

Subject Co-ordinator - Prof. Deepak Khemani

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Abductive Inferences and Expectations
- Lecture 3 - On Machine Learning
- Lecture 4 - A New Test of Intelligence?
- Lecture 5 - The World According to Us
- Lecture 6 - From Particles to Concepts
- Lecture 7 - The Domains for Reasoning
- Lecture 8 - Hierarchies in Representation
- Lecture 9 - Logic and Representation: A Quick Tour
- Lecture 10 - Symbols and Thought
- Lecture 11 - From Gears to Symbols
- Lecture 12 - Truth, Logic, and Provability
- Lecture 13 - A Syntactic Machine
- Lecture 14 - Entailment and Proof
- Lecture 15 - The Languages of Logic
- Lecture 16 - Patterns in Arguments
- Lecture 17 - Rules of Inference
- Lecture 18 - Propositional Logic
- Lecture 19 - Propositional Logic: Syntax
- Lecture 20 - Propositional Logic: Semantics
- Lecture 21 - Proofs: Natural Deduction
- Lecture 22 - The Deduction Theorem
- Lecture 23 - Models
- Lecture 24 - The Tableau Method
- Lecture 25 - First Order Logic
- Lecture 26 - First Order Logic: Syntax
- Lecture 27 - FOL: Universal Instantiation
- Lecture 28 - First Order Logic: Semantics
- Lecture 29 - FOL: Truth Assignments

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Modified Modus Ponens
- Lecture 31 - The Unification Algorithm
- Lecture 32 - Skolemization
- Lecture 33 - Expert Systems
- Lecture 34 - Backward Chaining Systems
- Lecture 35 - Deductive Retrieval
- Lecture 36 - The Resolution Refutation Method
- Lecture 37 - Clause Form in FOL
- Lecture 38 - Resolution Refutation in FOL
- Lecture 39 - First Order Logic with Equality
- Lecture 40 - Who was the surgeon?
- Lecture 41 - Consistency vs. Completeness
- Lecture 42 - Logic Programming
- Lecture 43 - Arithmetic
- Lecture 44 - Horn Clauses and Prolog
- Lecture 45 - SLD Derivation = Backward Chaining
- Lecture 46 - Programming in Logic
- Lecture 47 - Prolog: Programming in Logic
- Lecture 48 - Prolog: Procedural Interpretation
- Lecture 49 - Prolog: Query Evaluation
- Lecture 50 - Prolog: Unifying Terms
- Lecture 51 - Prolog: Goal Order
- Lecture 52 - Prolog: Tabling
- Lecture 53 - Prolog: Negation by Failure
- Lecture 54 - Prolog: The Cut Operator
- Lecture 55 - Rule Based Expert Systems
- Lecture 56 - The OPS5 Language
- Lecture 57 - Match, Resolve, Execute
- Lecture 58 - Conflict Resolution Strategies
- Lecture 59 - The Rete Algorithm
- Lecture 60 - The Rete Net
- Lecture 61 - The Rete Net : Examples
- Lecture 62 - Knowledge Representation
- Lecture 63 - Synonyms, Antonyms, Hyponyms, Meronyms
- Lecture 64 - Binary Relations
- Lecture 65 - Describing Family Relations
- Lecture 66 - Recursive Descriptions
- Lecture 67 - Abstract Entities
- Lecture 68 - Reification: Units of Measurement

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Semantic Nets and Knowledge Graphs
- Lecture 70 - DL: Description Logics
- Lecture 71 - Defining New Concepts and Roles
- Lecture 72 - The Sentences in DL
- Lecture 73 - A Family of Logics
- Lecture 74 - DL: Some Examples
- Lecture 75 - ALC Tableau
- Lecture 76 - Model Checking in ALC
- Lecture 77 - ALC Tableau: Examples
- Lecture 78 - Language Independent Representation
- Lecture 79 - Conceptual Dependency Theory
- Lecture 80 - CD States
- Lecture 81 - Inferences in MARGIE
- Lecture 82 - CD: Actions
- Lecture 83 - English to CD
- Lecture 84 - Representing Complex Verbs
- Lecture 85 - Semantic Parsing of Language
- Lecture 86 - Knowledge Structures
- Lecture 87 - Scripts
- Lecture 88 - SAM: Script Applier Mechanism
- Lecture 89 - A VIP Visit
- Lecture 90 - Invoking Scripts
- Lecture 91 - Goals, Plans, and Actions
- Lecture 92 - Goal Interactions
- Lecture 93 - Explanation Driven Understanding
- Lecture 94 - Tussle Over a Bicycle
- Lecture 95 - Plan Applier Mechanism (PAM)
- Lecture 96 - Requests and Rule Instances
- Lecture 97 - Managing Rule Instances
- Lecture 98 - Knowledge Structures: Frames
- Lecture 99 - Inheritance
- Lecture 100 - A Frame System for Travel Planning
- Lecture 101 - Inheritance in Taxonomies
- Lecture 102 - Default Reasoning
- Lecture 103 - Closed World Assumption
- Lecture 104 - Circumscription
- Lecture 105 - Default Logic
- Lecture 106 - Autoepistemic Reasoning
- Lecture 107 - The Event Calculus

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - The Effects of Events
- Lecture 109 - Epistemic Logic
- Lecture 110 - Kripke Structures: Possible Worlds Semantics
- Lecture 111 - The Muddy Children Puzzle
- Lecture 112 - The Effects of Epistemic Actions
- Lecture 113 - Reasoning with Beliefs

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Information Security - II

Subject Co-ordinator - Prof. V. Kamakoti

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Experimental Setup  
Lecture 2 - Need for Secure Systems  
Lecture 3 - Ignorance of A is Sin of B  
Lecture 4 - Function calls and Stacks  
Lecture 5 - Stack Smashing  
Lecture 6 - Virtual Machine Based Rootkits  
Lecture 7 - Security and Architecture  
Lecture 8 - Structured Computer Organization Completed  
Lecture 9 - X86 ISA - Part1  
Lecture 10 - X86 ISA - Part 2  
Lecture 11 - X86 Protected Mode  
Lecture 12 - X86 Memory Segmentation  
Lecture 13 - Process Isolation using Segmentation  
Lecture 14 - Paging and Virtual Memory  
Lecture 15 - Task Switching and Interrupt Service  
Lecture 16 - Memory Segmentation Deep dive - Part 1  
Lecture 17 - Memory Segmentation Deep dive - Part 2  
Lecture 18 - Memory Segmentation Deep dive - Part 3  
Lecture 19 - Memory Segmentation Deep dive - Part 4  
Lecture 20 - Segmentation Recap  
Lecture 21 - Lab 1 - Part 1  
Lecture 22 - Lab 1 - Part 2  
Lecture 23 - Lab 1 - Part 3  
Lecture 24 - ISR Recap  
Lecture 25 - Lab 2 - Part 1  
Lecture 26 - Lab 2 - Part 2  
Lecture 27 - Memory Management Recap  
Lecture 28 - Lab 3 - Part 1  
Lecture 29 - Lab 3 - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Task Switch recap
- Lecture 31 - Lab 4 - Part 1
- Lecture 32 - Lab 4 - Part 2
- Lecture 33 - Lab 4 - Part 3
- Lecture 34 - Lab 4 - Part 4
- Lecture 35 - Introduction to Basic Cryptography
- Lecture 36 - Public Key Cryptography
- Lecture 37 - Freescale ARM iMX6 Processor
- Lecture 38 - High Assurance Boot in iMX6
- Lecture 39 - Case Study
- Lecture 40 - Basics of Networking
- Lecture 41 - Network Processor Vs General Purpose Processor
- Lecture 42 - Network Processor Architecture

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Algorithms for Big Data

Subject Co-ordinator - Prof. John Augustine

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic definitions
- Lecture 2 - Conditional probability
- Lecture 3 - Example problems
- Lecture 4 - Karger's mincut algorithm
- Lecture 5 - Analysis of Karger's mincut algorithm
- Lecture 6 - Random variables
- Lecture 7 - Randomized quicksort
- Lecture 8 - Problem solving video - The rich get richer
- Lecture 9 - Problem solving video - Monty Hall problem
- Lecture 10 - Bernoulli, Binomial and Geometric distributions
- Lecture 11 - Tail Bounds
- Lecture 12 - Application of Chernoff bound
- Lecture 13 - Application of Chebyshev's inequality
- Lecture 14 - Intro to Big Data Algorithms
- Lecture 15 - SAT Problem
- Lecture 16 - Classification of States
- Lecture 17 - Stationary Distribution of a Markov Chain
- Lecture 18 - Celebrities Case Study
- Lecture 19 - Random Walks on Undirected Graphs
- Lecture 20 - Intro to Streaming, Morris Algorithm
- Lecture 21 - Reservoir Sampling
- Lecture 22 - Approximate Median
- Lecture 23 - Overview
- Lecture 24 - Balls, bins, hashing
- Lecture 25 - Chain hashing, SUHA, Power of Two choices
- Lecture 26 - Bloom filter
- Lecture 27 - Pairwise independence
- Lecture 28 - Estimating expectation of continuous function
- Lecture 29 - Universal hash functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Perfect hashing
- Lecture 31 - Count-min filter for heavy hitters in data streams
- Lecture 32 - Problem solving video - Doubly Stochastic Transition Matrix
- Lecture 33 - Problem solving video - Random Walks on Linear Structures
- Lecture 34 - Problem solving video - Lollipop Graph
- Lecture 35 - Problem solving video - Cat And Mouse
- Lecture 36 - Estimating frequency moments
- Lecture 37 - Property testing framework
- Lecture 38 - Testing Connectivity
- Lecture 39 - Enforce and Test Introduction
- Lecture 40 - Testing if a graph is a biclique
- Lecture 41 - Testing bipartiteness
- Lecture 42 - Property testing and random walk algorithms
- Lecture 43 - Testing if a graph is bipartite (using random walks)
- Lecture 44 - Graph streaming algorithms: Introduction
- Lecture 45 - Graph streaming algorithms: Matching
- Lecture 46 - Graph streaming algorithms: Graph sparsification
- Lecture 47 - MapReduce
- Lecture 48 - K-Machine Model (aka Pregel Model)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Reinforcement Learning

Subject Co-ordinator - Dr. B. Ravindran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Tutorial 1 - Probability Basics 1  
Lecture 2 - Tutorial 1 - Probability Basics 2  
Lecture 3 - Tutorial 2 - Linear algebra - 1  
Lecture 4 - Tutorial 2 - Linear algebra - 2  
Lecture 5 - Introduction to RL  
Lecture 6 - RL Framework and applications  
Lecture 7 - Introduction to Immediate RL  
Lecture 8 - Bandit Optimalities  
Lecture 9 - Value function based methods  
Lecture 10 - UCB 1  
Lecture 11 - Concentration Bounds  
Lecture 12 - UCB 1 Theorem  
Lecture 13 - PAC Bounds  
Lecture 14 - Median Elimination  
Lecture 15 - Thompson Sampling  
Lecture 16 - Policy Search  
Lecture 17 - REINFORCE  
Lecture 18 - Contextual Bandits  
Lecture 19 - Full RL Introduction  
Lecture 20 - Returns, Value Functions and MDPs  
Lecture 21 - MDP Modelling  
Lecture 22 - Bellman Equation  
Lecture 23 - Bellman Optimality Equation  
Lecture 24 - Cauchy Sequence and Green's Equation  
Lecture 25 - Banach Fixed Point Theorem  
Lecture 26 - Convergence Proof  
Lecture 27 - L<sub>p</sub> Convergence  
Lecture 28 - Value Iteration  
Lecture 29 - Policy Iteration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dynamic Programming
- Lecture 31 - Monte Carlo
- Lecture 32 - Control in Monte Carlo
- Lecture 33 - Off Policy MC
- Lecture 34 - UCT
- Lecture 35 - TD(0)
- Lecture 36 - TD(0) Control
- Lecture 37 - Q-Learning
- Lecture 38 - Afterstate
- Lecture 39 - Eligibility Traces
- Lecture 40 - Backward View of Eligibility Traces
- Lecture 41 - Eligibility Trace Control
- Lecture 42 - Thompson Sampling Recap
- Lecture 43 - Function Approximation
- Lecture 44 - Linear Parameterization
- Lecture 45 - State Aggregation Methods
- Lecture 46 - Function Approximation and Eligibility Traces
- Lecture 47 - LSTD and LSTDQ
- Lecture 48 - LSPI and Fitted Q
- Lecture 49 - DQN and Fitted Q-Iteration
- Lecture 50 - Policy Gradient Approach
- Lecture 51 - Actor Critic and REINFORCE
- Lecture 52 - REINFORCE (cont'd)
- Lecture 53 - Policy Gradient with Function Approximation
- Lecture 54 - Hierarchical Reinforcement Learning
- Lecture 55 - Types of Optimality
- Lecture 56 - Semi Markov Decision Processes
- Lecture 57 - Options
- Lecture 58 - Learning with Options
- Lecture 59 - Hierarchical Abstract Machines
- Lecture 60 - MAXQ
- Lecture 61 - MAXQ Value Function Decomposition
- Lecture 62 - Option Discovery
- Lecture 63 - POMDP Introduction
- Lecture 64 - Solving POMDP



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Operating Systems

Subject Co-ordinator - Prof. Chester Rebeiro

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Intro to the Course  
Lecture 2 - Introduction to OS  
Lecture 3 - PC Hardware  
Lecture 4 - From Programs to Processes  
Lecture 5 - Sharing the CPU  
Lecture 6 - Introduction  
Lecture 7 - Virtual Memory  
Lecture 8 - MMU Mapping  
Lecture 9 - Segmentation  
Lecture 10 - Memory Management in xv6  
Lecture 11 - PC Booting  
Lecture 12 - Week 3 Introduction  
Lecture 13 - Create Execute and Exit from Processes  
Lecture 14 - System Calls for Process Management  
Lecture 15 - Interrupts  
Lecture 16 - Interrupt Handling  
Lecture 17 - Software Interrupts and System calls  
Lecture 18 - CPU Context switching  
Lecture 19 - CPU Scheduling  
Lecture 20 - Priority Based Scheduling Algorithms  
Lecture 21 - Multi-Processor Scheduling  
Lecture 22 - Scheduling in Linux  
Lecture 23 - Completely Fair Scheduling  
Lecture 24 - Inter Process Communication  
Lecture 25 - Synchronization  
Lecture 26 - Software solutions for critical sections  
Lecture 27 - Bakery Algorithm  
Lecture 28 - Hardware Locks  
Lecture 29 - Mutexes

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- Lecture 30 - Semaphores
- Lecture 31 - Dining Philosophers Problem
- Lecture 32 - Deadlocks
- Lecture 33 - Dealing with Deadlocks
- Lecture 34 - Threads - Part 1
- Lecture 35 - Threads - Part 2
- Lecture 36 - Operating system security
- Lecture 37 - Information Flow policies
- Lecture 38 - Buffer Overflows
- Lecture 39 - Preventing Buffer Overflow Attacks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Programming, Data Structures and Algorithms in Python

Subject Co-ordinator - Prof. Madhavan Mukund

Co-ordinating Institute - Chennai Mathematical Institute

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1 - Algorithms and programming  
Lecture 2 - Lecture 2 - Improving naive gcd  
Lecture 3 - Lecture 3 - Euclid's algorithm for gcd  
Lecture 4 - Lecture 4 - Downloading and installing Python  
Lecture 5 - Lecture 1 - Assignment statement, basic types - int, float, bool  
Lecture 6 - Lecture 2 - Strings  
Lecture 7 - Lecture 3 - Lists  
Lecture 8 - Lecture 4 - Control Flow  
Lecture 9 - Lecture 5 - Functions  
Lecture 10 - Lecture 6 - Examples  
Lecture 11 - Lecture 1 - More about range()  
Lecture 12 - Lecture 2 - Manipulating lists  
Lecture 13 - Lecture 3 - Breaking out of a loop  
Lecture 14 - Lecture 4 - Arrays vs lists, binary search  
Lecture 15 - Lecture 5 - Efficiency  
Lecture 16 - Lecture 6 - Selection Sort  
Lecture 17 - Lecture 7 - Insertion Sort  
Lecture 18 - Lecture 8 - Recursion  
Lecture 19 - Lecture 1 - Mergesort  
Lecture 20 - Lecture 2 - Mergesort, analysis  
Lecture 21 - Lecture 3 - Quicksort  
Lecture 22 - Lecture 4 - Quicksort analysis  
Lecture 23 - Lecture 5 - Tuples and dictionaries  
Lecture 24 - Lecture 6 - Function definitions  
Lecture 25 - Lecture 7 - List Comprehension  
Lecture 26 - Lecture 1 - Exception Handling  
Lecture 27 - Lecture 2 - Standard input and output  
Lecture 28 - Lecture 3 - Handling files  
Lecture 29 - Lecture 4 - String functions

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Lecture 30 - Lecture 5 - Formatting printed output  
Lecture 31 - Lecture 6 - pass, del() and None  
Lecture 32 - Lecture 1 - Backtracking, N queens  
Lecture 33 - Lecture 2 - Global scope, nested functions  
Lecture 34 - Lecture 3 - Generating permutations  
Lecture 35 - Lecture 4 - Sets, stacks, queues  
Lecture 36 - Lecture 5 - Priority queues and heaps  
Lecture 37 - Lecture 1 - Abstract datatypes, classes and objects  
Lecture 38 - Lecture 2 - Classes and objects in Python  
Lecture 39 - Lecture 3 - User defined lists  
Lecture 40 - Lecture 4 - Search trees  
Lecture 41 - Lecture 1 - Memoization and dynamic programming  
Lecture 42 - Lecture 2 - Grid paths  
Lecture 43 - Lecture 3 - Longest common subsequence  
Lecture 44 - Lecture 4 - Matrix multiplication  
Lecture 45 - Lecture 5 - Wrap-up, Python vs other languages

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Privacy and Security in Online Social Networks

Subject Co-ordinator - Prof. Ponnurangam Kumaraguru

Co-ordinating Institute - IIITD

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Intro to Course  
Lecture 2 - Intro to Course  
Lecture 3 - Incidents  
Lecture 4 - Tutorial 1 - Part 1 Ubuntu  
Lecture 5 - Tutorial 1 - Part 2 Python  
Lecture 6 - OSM APIs and tools for data collection  
Lecture 7 - Tutorial 2 - Part 1 Facebook API  
Lecture 8 - Tutorial 2 - Part 2 Facebook API  
Lecture 9 - Trust and Credibility on OSM  
Lecture 10 - Misinformation on Social Media  
Lecture 11 - Privacy and Social Media  
Lecture 12 - Tutorial 3 - Part 1 Twitter API  
Lecture 13 - Tutorial 3 - Part 2 MySQL  
Lecture 14 - Tutorial 3 - Part 3 MongoDB  
Lecture 15 - Privacy and Pictures on Online Social Media  
Lecture 16 - Policing and Online Social Media  
Lecture 17 - Policing and Online Social Media  
Lecture 18 - Policing and Online Social Media  
Lecture 19 - eCrime on Online Social Media  
Lecture 20 - eCrime on Online Social Media  
Lecture 21 - Tutorial 4 - Social Network Analysis  
Lecture 22 - Link Farming in Online Social Media  
Lecture 23 - Nudges  
Lecture 24 - Semantic attacks  
Lecture 25 - Tutorial 5 - Analyzing text using Python NLTK  
Lecture 26 - Profile Linking on Online Social Media  
Lecture 27 - Anonymous Networks  
Lecture 28 - Tutorial 6 - Gephi Network Visualization  
Lecture 29 - Privacy in Location Based Social Networks - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Privacy in Location Based Social Networks - Part 2
- Lecture 31 - Tutorial 7 - Visualization - Highcharts
- Lecture 32 - Beware of What You Share Inferring Home Location in Social Networks
- Lecture 33 - On the dynamics of username change behavior on Twitter
- Lecture 34 - Boston Marathon Analyzing Fake Content on Twitter

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Mobile Computing

Subject Co-ordinator - Prof. Pushpendra Singh

Co-ordinating Institute - IIITD

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Java Basics  
Lecture 2 - Java  
Lecture 3 - Java  
Lecture 4 - Java  
Lecture 5 - Java  
Lecture 6 - Introduction to Android Studio  
Lecture 7 - Your First App  
Lecture 8 - Deploying your App to a Phone  
Lecture 9 - Extending app - Buttons, Toast  
Lecture 10 - Android Development Environment  
Lecture 11 - User Interface  
Lecture 12 - Application Fundamentals  
Lecture 13 - Extending the application  
Lecture 14 - Activity Lifecycle - I  
Lecture 15 - Activity Lifecycle - II  
Lecture 16 - Activity LifeCycle - III  
Lecture 17 - Adding Icon, Layouts, Handling Rotation - I  
Lecture 18 - Adding Icon, Layouts, Handling Rotation - II  
Lecture 19 - Debugging  
Lecture 20 - Intents - I  
Lecture 21 - Intents - II  
Lecture 22 - Observer Pattern  
Lecture 23 - Fragments - I  
Lecture 24 - Fragments - II  
Lecture 25 - Fragment Basic Programming Example  
Lecture 26 - Fragments - Advanced Example  
Lecture 27 - Implicit Intents  
Lecture 28 - Saving Data - I  
Lecture 29 - Saving Data - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Security and System Permissions
- Lecture 31 - Services
- Lecture 32 - Processes and threads
- Lecture 33 - Working with Fragments - I
- Lecture 34 - Working with Fragments - II
- Lecture 35 - Working with Fragments - III
- Lecture 36 - RecyclerView, Adapter
- Lecture 37 - RecyclerView, Adapter, ViewHolder
- Lecture 38 - ViewPager
- Lecture 39 - Dialogues



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Modern Application Development

Subject Co-ordinator - Tanmai Gopal, Prof. Gaurav Raina

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Introduction to a web-app
- Lecture 3 - Building a web-app
- Lecture 4 - Networks
- Lecture 5 - Practical - Running your own web-server
- Lecture 6 - Protocols
- Lecture 7 - Practical - SSH + Network experiments
- Lecture 8 - Practical - Building a webapp with nodejs and using git. Introduction to reverse proxies.
- Lecture 9 - Practical - Introduction to server-side javascript and HTML/CSS
- Lecture 10 - Introduction to client-side Javascript
- Lecture 11 - Practical - APIs and mobile apps use web-servers
- Lecture 12 - Introduction to databases
- Lecture 13 - Data modelling and constraints
- Lecture 14 - Interacting with a DBMS
- Lecture 15 - Practical - Deeper exploration of a DBMS (column types and more)
- Lecture 16 - Introduction to SQL
- Lecture 17 - Understanding database performance
- Lecture 18 - Transactions and ACID properties
- Lecture 19 - Database security, backup and recovery
- Lecture 20 - Analytics and Views
- Lecture 21 - Scaling a database
- Lecture 22 - Connecting your webapp to your database and SQL Injection
- Lecture 23 - SQL and NoSQL systems
- Lecture 24 - Authentication with HTTP
- Lecture 25 - Understanding security, and some best practices for webapps
- Lecture 26 - Introduction to authentication, hashing, curl and sessions
- Lecture 27 - Introduction to mobile apps
- Lecture 28 - Introduction to Mobile Application Development Part 2
- Lecture 29 - Introduction to Android

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Getting started with Android Application Development
- Lecture 31 - Building Custom UI using XML and Logs
- Lecture 32 - Building a Blog App
- Lecture 33 - Deploying an app to the Google Play Store
- Lecture 34 - Introduction to iOS
- Lecture 35 - The API Economy

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Information Security-3

Subject Co-ordinator - Prof. V. Kamakoti

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Operating System Introduction  
Lecture 2 - Storage Hierarchy, Exceptions, Interrupts and traps  
Lecture 3 - OS Management Services  
Lecture 4 - OS Security Issues  
Lecture 5 - Process and Threads  
Lecture 6 - Process Scheduling  
Lecture 7 - Scheduling Algorithm  
Lecture 8 - Process Synchronization  
Lecture 9 - Memory Management - 1  
Lecture 10 - Memory Management - 2  
Lecture 11 - File Systems - 1  
Lecture 12 - File Systems - 2  
Lecture 13 - Unix Filesystem  
Lecture 14 - Unix Filesystem (Continued...)  
Lecture 15 - Linux  
Lecture 16 - Linux  
Lecture 17 - Linux  
Lecture 18 - Linux  
Lecture 19 - Linux  
Lecture 20 - Linux  
Lecture 21 - Linux  
Lecture 22 - Linux  
Lecture 23 - Linux  
Lecture 24 - Linux  
Lecture 25 - Basic Networking Administration  
Lecture 26 - Filesystems and Devices  
Lecture 27 - Shell Introduction  
Lecture 28 - Shell Comments and Variables  
Lecture 29 - Shell Variables

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Shell Arrays and Arithmetic
- Lecture 31 - Shell Condition and Relation
- Lecture 32 - Shell Examples
- Lecture 33 - Shell Functions
- Lecture 34 - Shell File Test
- Lecture 35 - Shell Loop Control
- Lecture 36 - Shell Script Variations
- Lecture 37 - Shell Pattern Matching
- Lecture 38 - Shell Case Statements
- Lecture 39 - Shell Co-routines
- Lecture 40 - Shell Signals and Traps
- Lecture 41 - Shell Subshell
- Lecture 42 - Shell Declarations
- Lecture 43 - Shell Examples 2
- Lecture 44 - Shell Review
- Lecture 45 - An Introduction
- Lecture 46 - Structure of a Network
- Lecture 47 - Network Core - Definition
- Lecture 48 - Network Access and Physical Media
- Lecture 49 - Structure of ISP and Packet Delays
- Lecture 50 - Network Protocol Layers
- Lecture 51 - Network Devices
- Lecture 52 - Network Security - An Introduction
- Lecture 53 - Public Key Cryptography
- Lecture 54 - Digital Signatures
- Lecture 55 - Security in Practise
- Lecture 56 - Security in Practise (Continued...)
- Lecture 57 - Wireshark
- Lecture 58 - Snort
- Lecture 59 - Review I
- Lecture 60 - Review II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:AI:Constraint Satisfaction

Subject Co-ordinator - Prof. Deepak Khemani

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Constraint Satisfaction Problems
- Lecture 2 - CSP Examples: Map colouring, N-Queens, Classroom scheduling
- Lecture 3 - CSP Examples: Huffman-Clowes Labelling, Waltz Algorithm, Crosswords
- Lecture 4 - Model Based Diagnosis - An application of CSP
- Lecture 5 - Constraint Networks - An Introduction
- Lecture 6 - Binary Constraint Networks (BCN), Equivalent Networks
- Lecture 7 - Projection Networks
- Lecture 8 - Constraint Propagation
- Lecture 9 - Algorithms AC1 and AC3
- Lecture 10 - Can we do better than AC3?
- Lecture 11 - Algorithm AC4
- Lecture 12 - Generalized AC, Path-Consistency
- Lecture 13 - i-Consistency, Algorithm PC1
- Lecture 14 - Algorithm PC2, Strong i-Consistency
- Lecture 15 - Directional Consistency and Graph Ordering
- Lecture 16 - Min-Width and Min-Induced-Width Ordering
- Lecture 17 - Directional Arc-Consistency and Tree CSPs
- Lecture 18 - Directional Path-Consistency and Directional i-Consistency
- Lecture 19 - Backtrack-Free search and Adaptive Consistency
- Lecture 20 - Adaptive Consistency: Bucket Elimination
- Lecture 21 - Search Methods for Solving CSPs
- Lecture 22 - Algorithm Backtracking
- Lecture 23 - Look-Ahead Methods in Search
- Lecture 24 - Look-Ahead Search: Examples
- Lecture 25 - Combining Search with Reasoning: Algorithm DPLL
- Lecture 26 - Algorithm Backmarking
- Lecture 27 - Dynamic Value Ordering, Dynamic Variable Ordering
- Lecture 28 - Look-Back Methods - Definitions
- Lecture 29 - Gaschnig's Backjumping: The Culprit Variable

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gaschnig's Backjumping, Graph-Based Backjumping
- Lecture 31 - Graph-Based Backjumping: Internal and Relevant Dead-Ends
- Lecture 32 - Conflict-Directed Backjumping: Definitions
- Lecture 33 - Algorithm Conflict-Directed Backjumping
- Lecture 34 - Combining Look-Ahead and Look-Back: FC-CBJ
- Lecture 35 - Learning During Search
- Lecture 36 - Model Based Systems
- Lecture 37 - Model Based Diagnosis
- Lecture 38 - Truth Maintenance Systems
- Lecture 39 - Planning as Constraint Satisfaction
- Lecture 40 - Planning as Constraint Satisfaction (Continued...)
- Lecture 41 - Planning as Satisfiability
- Lecture 42 - Wrapping Up and Further Study

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computer Organization

Subject Co-ordinator - Prof. V. Kamakoti

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction High Speed Circuit - Design Recursive Doubling

Lecture 2 - High Speed Circuit Design - Fast Adder Circuits

Lecture 3 - Lab 1

Lecture 4 - Fast Adder Circuits (Continued...)

Lecture 5 - Fast Multiplier Circuit

Lecture 6 - Fast Multiplier Circuit (Continued...)

Lecture 7 - Programming using X86 ISA - Addressing Modes

Lecture 8 - Programming using X86 ISA - Addressing Modes

Lecture 9 - Floating point - Precision and Accuracy

Lecture 10 - Floating Point - Addition, Subtraction and Multiplication

Lecture 11 - Instruction Set Architecture

Lecture 12 - Instruction Set Architecture (Continued...)

Lecture 13 - Lab 2

Lecture 14 - Lab 2

Lecture 15 - Lab 2

Lecture 16 - Orthogonal ISA, C Constructs Mapping, Addressing Modes

Lecture 17 - Atomic and Predicated Instructions

Lecture 18 - Atomic and Predicated Instructions (Continued...)

Lecture 19 - General Purpose Registers

Lecture 20 - Expanding opcodes

Lecture 21 - Introduction to Pipelining

Lecture 22 - Pipelining

Lecture 23 - Data Hazards

Lecture 24 - Lab 2

Lecture 25 - Dynamic Instruction Scheduling

Lecture 26 - Dynamic Instruction Scheduling (Continued...)

Lecture 27 - Control Hazard, Branch Prediction

Lecture 28 - Process Management

Lecture 29 - Branch prediction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Global Branch Prediction
- Lecture 31 - Structural Hazard, Architectural Enhancements
- Lecture 32 - Lab 3
- Lecture 33 - Locality of Reference, Demand paging
- Lecture 34 - Page Replacement Algorithm
- Lecture 35 - Multilevel Paging, Translational Lookaside Buffer
- Lecture 36 - Multilevel Paging
- Lecture 37 - Multilevel Paging - Part 1
- Lecture 38 - Page Frame Allocation, Beledy's Anomaly
- Lecture 39 - Paging, Cache
- Lecture 40 - Cache
- Lecture 41 - Cache Organisation
- Lecture 42 - Cache - Cache Coherency, Dual Ported Cache
- Lecture 43 - Multilevel Caching, Multitasking
- Lecture 44 - Cache, Degree of Multiprogramming
- Lecture 45 - Shared Memory Architecture
- Lecture 46 - Shared Memory Architecture - Part I
- Lecture 47 - Virtually Indexed - Virtually Tagged and Physically Tagged Caches
- Lecture 48 - Lab 4
- Lecture 49 - Shared Memory Architecture, Cache Coherence
- Lecture 50 - Concurrent Programming in Hardware - Part I
- Lecture 51 - Concurrent Programming in Hardware - Part II
- Lecture 52 - Conclusion



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Wireless and Cellular Communication

Subject Co-ordinator - Prof. David Kovil Pillai

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of Cellular Systems - Part 1
- Lecture 2 - Overview of Cellular Systems - Part 2
- Lecture 3 - Overview of Cellular Systems - Part 3
- Lecture 4 - 5G and other Wireless Technologies
- Lecture 5 - Basic Cellular Terminology
- Lecture 6 - Introduction to Antennas and Propagation Models
- Lecture 7 - Link budget, Fading margin, Outage
- Lecture 8 - Cellular Concept
- Lecture 9 - Cellular system design and analysis
- Lecture 10 - Cellular Geometry and System Design
- Lecture 11 - Cellular System Capacity, Trunking
- Lecture 12 - Handoff and Mobility
- Lecture 13 - Handoff Part 2, Classification of Signal Variation
- Lecture 14 - Shadowing, Outage, Multipath
- Lecture 15 - Rayleigh Fading and Statistical Characterization
- Lecture 16 - Properties of Rayleigh Distribution
- Lecture 17 - BER in Fading, Narrowband vs Wideband Channels
- Lecture 18 - Characterization of Multipath Fading Channels
- Lecture 19 - Choice of Modulation
- Lecture 20 - Coherent versus Differential Detection
- Lecture 21 - Review of Lecture 1-19
- Lecture 22 - Coherent vs Differential Detection - Part II and BER in Fading
- Lecture 23 - BER in Fading - Part II, Ricean Fading
- Lecture 24 - Ricean and Nakagami Fading, Moment Generating Function (MGF)
- Lecture 25 - MGF Part II, WSSUS Model
- Lecture 26 - WSSUS Part II, Coherence Time, Doppler Spectrum
- Lecture 27 - Doppler, Temporal Characteristics of Fading Channels
- Lecture 28 - WSSUS-Characterization of Time Dispersive Fading Channels
- Lecture 29 - WSSUS-Classification of Fading Channels

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- Lecture 30 - Practical Channel Models (ITU, COST), Computer generation of Rayleigh fading
- Lecture 31 - Rayleigh Fading simulation - Clark and Gans Method, Jakes Method
- Lecture 32 - Jakes Method properties
- Lecture 33 - Introduction to Diversity, Antenna selection diversity
- Lecture 34 - Statistical Characterization of Antenna Diversity, Optimal Diversity Combining
- Lecture 35 - BER in fading, Equal Gain Combining
- Lecture 36 - Array Gain, Diversity Gain, Alamouti Scheme
- Lecture 37 - Alamouti Scheme - Part II, Channel Capacity
- Lecture 38 - Capacity of fading Channels, Capacity with Outage
- Lecture 39 - Channel State Information, Optimum Power Allocation
- Lecture 40
- Lecture 41
- Lecture 42
- Lecture 43
- Lecture 44
- Lecture 45
- Lecture 46 - (Missing)
- Lecture 47 - (Missing)
- Lecture 48 - Rake Receiver for multipath channels
- Lecture 49 - Multiuser environment
- Lecture 50 - CDMA system Capacity
- Lecture 51 - CDMA Multiuser Detectors - Part 1
- Lecture 52 - CDMA Multiuser Detectors - Part 2
- Lecture 53
- Lecture 54
- Lecture 55
- Lecture 56

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Distributed Systems

Subject Co-ordinator - Dr. Rajiv Misra

Co-ordinating Institute - IIT - Patna

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Distributed Systems
- Lecture 2 - Basic Algorithms in Message Passing System
- Lecture 3 - Leader Election in Rings
- Lecture 4 - Distributed Models of Computation, Causality and Logical Time
- Lecture 5 - Size of Vector Clock, Matrix Clocks, Virtual Time and Physical Clock Synchronization
- Lecture 6 - Global State and Snapshot Recording Algorithms
- Lecture 7 - Distributed Mutual Exclusion and Non-Token based Approaches
- Lecture 8 - Quorum Based Distributed Mutual Exclusion Approaches
- Lecture 9 - Token Based Distributed Mutual Exclusion Approaches
- Lecture 10 - Consensus and Agreement Algorithms
- Lecture 11 - Checkpointing and Rollback Recovery
- Lecture 12 - Deadlock Detection in Distributed Systems
- Lecture 13 - Distributed Shared Memory
- Lecture 14 - Distributed Minimum Spanning Tree
- Lecture 15 - Termination Detection in Distributed System
- Lecture 16 - Message Ordering and Group Communication
- Lecture 17 - Self-Stabilization
- Lecture 18 - Case Study 1 - Distributed Randomized Algorithms
- Lecture 19 - Case Study 2 - Peer-to-Peer Computing and Structured Overlay Network
- Lecture 20 - Case Study 3 - The Google File System (GFS)
- Lecture 21 - Case Study 4 - MapReduce
- Lecture 22 - Case Study 5 - HDFS
- Lecture 23 - Case Study 6 - Spark
- Lecture 24 - Case Study 7 - Distributed Algorithms for Sensor Networks
- Lecture 25 - Case Study 8 - Authentication in Distributed Systems
- Lecture 26 - Case Study 9 - Bitcoin
- Lecture 27 - Case Study 10 - BlockChain Technology

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Social Networks

Subject Co-ordinator - Prof. Sudarshan Iyengar

Co-ordinating Institute - IIT - Ropar

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Answer to the puzzle  
Lecture 3 - Introduction to Python - 1  
Lecture 4 - Introduction to Python - 2  
Lecture 5 - Introduction to Networkx - 1  
Lecture 6 - Introduction to Networkx - 2  
Lecture 7 - Social Networks  
Lecture 8 - Google Page Rank  
Lecture 9 - Searching in a Network  
Lecture 10 - Link Prediction  
Lecture 11 - The Contagions  
Lecture 12 - Importance of Acquaintances  
Lecture 13 - Marketing on Social Networks  
Lecture 14 - Introduction to Datasets  
Lecture 15 - Ingredients Network  
Lecture 16 - Synonymy Network  
Lecture 17 - Web Graph  
Lecture 18 - Social Network Datasets  
Lecture 19 - Datasets  
Lecture 20 - Datasets  
Lecture 21 - Datasets  
Lecture 22 - Datasets  
Lecture 23 - Introduction  
Lecture 24 - Advanced Material  
Lecture 25 - Programming Illustration  
Lecture 26 - Summary to Datasets  
Lecture 27 - Introduction  
Lecture 28 - Granovetter's Strength of weak ties  
Lecture 29 - Triads, clustering coefficient and neighborhood overlap

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Structure of weak ties, bridges, and local bridges
- Lecture 31 - Validation of Granovetter's experiment using cell phone data
- Lecture 32 - Embeddedness
- Lecture 33 - Structural Holes
- Lecture 34 - Social Capital
- Lecture 35 - Finding Communities in a graph (Brute Force Method)
- Lecture 36 - Community Detection Using Girvan Newman Algorithm
- Lecture 37 - Visualising Communities using Gephi
- Lecture 38 - Tie Strength, Social Media and Passive Engagement
- Lecture 39 - Betweenness Measures and Graph Partitioning
- Lecture 40 - Strong and Weak Relationship - Summary
- Lecture 41 - Introduction to Homophily - Should you watch your company ?
- Lecture 42 - Selection and Social Influence
- Lecture 43 - Interplay between Selection and Social Influence
- Lecture 44 - Homophily - Definition and measurement
- Lecture 45 - Foci Closure and Membership Closure
- Lecture 46 - Introduction to Fatman Evolutionary model
- Lecture 47 - Fatman Evolutionary Model - The Base Code (Adding people)
- Lecture 48 - Fatman Evolutionary Model - The Base Code (Adding Social Foci)
- Lecture 49 - Fatman Evolutionary Model - Implementing Homophily
- Lecture 50 - Quantifying the Effect of Triadic Closure
- Lecture 51 - Fatman Evolutionary Model - Implementing Closures
- Lecture 52 - Fatman Evolutionary Model - Implementing Social Influence
- Lecture 53 - Fatman Evolutionary Model - Storing and analyzing longitudinal data
- Lecture 54 - Spatial Segregation
- Lecture 55 - Spatial Segregation
- Lecture 56 - Spatial Segregation
- Lecture 57 - Schelling Model Implementation - 1 (Introduction)
- Lecture 58 - Schelling Model Implementation - 2 (Base Code)
- Lecture 59 - Schelling Model Implementation - 3 (Visualization and Getting a list of boundary and internal nodes)
- Lecture 60 - Schelling Model Implementation - 4 (Getting a list of unsatisfied nodes)
- Lecture 61 - Schelling Model Implementation - 5 (Shifting the unsatisfied nodes and visualizing the final graph)
- Lecture 62 - Chapter - 5 Positive and Negative Relationships (Introduction)
- Lecture 63 - Structural Balance
- Lecture 64 - Enemy'S Enemy is a Friend
- Lecture 65 - Characterizing the Structure of Balanced Networks
- Lecture 66 - Balance Theorem
- Lecture 67 - Proof of Balance Theorem
- Lecture 68 - Introduction to positive and negative edges

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- Lecture 69 - Outline of implementation
- Lecture 70 - Creating graph, displaying it and counting unstable triangles
- Lecture 71 - Moving a network from an unstable to stable state
- Lecture 72 - Forming two coalitions
- Lecture 73 - Forming two coalitions (Continued...)
- Lecture 74 - Visualizing coalitions and the evolution
- Lecture 75 - The Web Graph
- Lecture 76 - Collecting the Web Graph
- Lecture 77 - Equal Coin Distribution
- Lecture 78 - Random Coin Dropping
- Lecture 79 - Google Page Ranking Using Web Graph
- Lecture 80 - Implementing PageRank Using Points Distribution Method - 1
- Lecture 81 - Implementing PageRank Using Points Distribution Method - 2
- Lecture 82 - Implementing PageRank Using Points Distribution Method - 3
- Lecture 83 - Implementing PageRank Using Points Distribution Method - 4
- Lecture 84 - Implementing PageRank Using Random Walk Method - 1
- Lecture 85 - Implementing PageRank Using Random Walk Method - 2
- Lecture 86 - DegreeRank versus PageRank
- Lecture 87 - We Follow
- Lecture 88 - Why do we Follow?
- Lecture 89 - Diffusion in Networks
- Lecture 90 - Modeling Diffusion
- Lecture 91 - Modeling Diffusion (Continued...)
- Lecture 92 - Impact of Communities on Diffusion
- Lecture 93 - Cascade and Clusters
- Lecture 94 - Knowledge, Thresholds and the Collective Action
- Lecture 95 - An Introduction to the Programming Screencast (Coding 4 major ideas)
- Lecture 96 - The Base Code
- Lecture 97 - Coding the First Big Idea - Increasing the Payoff
- Lecture 98 - Coding the Second Big Idea - Key People
- Lecture 99 - Coding the Third Big Idea - Impact of Communities on Cascades
- Lecture 100 - Coding the Fourth Big Idea - Cascades and Clusters
- Lecture 101 - Introduction to Hubs and Authorities (A Story)
- Lecture 102 - Principle of Repeated Improvement (A story)
- Lecture 103 - Principle of Repeated Improvement (An example)
- Lecture 104 - Hubs and Authorities
- Lecture 105 - PageRank Revisited - An example
- Lecture 106 - PageRank Revisited - Convergence in the Example
- Lecture 107 - PageRank Revisited - Conservation and Convergence

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- Lecture 108 - PageRank, conservation and convergence - Another example
- Lecture 109 - Matrix Multiplication (Pre-requisite 1)
- Lecture 110 - Convergence in Repeated Matrix Multiplication (Pre-requisite 1)
- Lecture 111 - Addition of Two Vectors (Pre-requisite 2)
- Lecture 112 - Convergence in Repeated Matrix Multiplication- The Details
- Lecture 113 - PageRank as a Matrix Operation
- Lecture 114 - PageRank Explained
- Lecture 115 - Introduction to Powerlaw
- Lecture 116 - Why do Normal Distributions Appear?
- Lecture 117 - Power Law emerges in WWW graphs
- Lecture 118 - Detecting the Presence of Powerlaw
- Lecture 119 - Rich Get Richer Phenomenon
- Lecture 120 - Summary So Far
- Lecture 121 - Implementing Rich-getting-richer Phenomenon (Barabasi-Albert Model) - 1
- Lecture 122 - Implementing Rich-getting-richer Phenomenon (Barabasi-Albert Model) - 2
- Lecture 123 - Implementing a Random Graph (Erdos-Renyi Model) - 1
- Lecture 124 - Implementing a Random Graph (Erdos-Renyi Model) - 2
- Lecture 125 - Forced Versus Random Removal of Nodes (Attack Survivability)
- Lecture 126 - Rich Get Richer - A Possible Reason
- Lecture 127 - Rich Get Richer - The Long Tail
- Lecture 128 - Epidemics- An Introduction
- Lecture 129 - Introduction to epidemics (Continued...)
- Lecture 130 - Simple Branching Process for Modeling Epidemics
- Lecture 131 - Simple Branching Process for Modeling Epidemics (Continued...)
- Lecture 132 - Basic Reproductive Number
- Lecture 133 - Modeling epidemics on complex networks
- Lecture 134 - SIR and SIS spreading models
- Lecture 135 - Comparison between SIR and SIS spreading models
- Lecture 136 - Basic Reproductive Number Revisited for Complex Networks
- Lecture 137 - Percolation model
- Lecture 138 - Analysis of basic reproductive number in branching model (The problem statement)
- Lecture 139 - Analyzing basic reproductive number - 2
- Lecture 140 - Analyzing basic reproductive number - 3
- Lecture 141 - Analyzing basic reproductive number - 4
- Lecture 142 - Analyzing basic reproductive number - 5
- Lecture 143 - Small World Effect - An Introduction
- Lecture 144 - Milgram's Experiment
- Lecture 145 - The Reason
- Lecture 146 - The Generative Model

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 147 - Decentralized Search - I
- Lecture 148 - Decentralized Search - II
- Lecture 149 - Decentralized Search - III
- Lecture 150 - Programming illustration- Small world networks
- Lecture 151 - Base code
- Lecture 152 - Making homophily based edges
- Lecture 153 - Adding weak ties
- Lecture 154 - Plotting change in diameter
- Lecture 155 - Programming illustration- Myopic Search
- Lecture 156 - Myopic Search
- Lecture 157 - Myopic Search comparison to optimal search
- Lecture 158 - Time Taken by Myopic Search
- Lecture 159 - PseudoCores
- Lecture 160 - How to be Viral
- Lecture 161 - Who are the right key nodes?
- Lecture 162 - finding the right key nodes (the core)
- Lecture 163 - Coding K-Shell Decomposition
- Lecture 164 - Coding cascading Model
- Lecture 165 - Coding the importance of core nodes in cascading
- Lecture 166 - Pseudo core



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:An Introduction to Probability in Computing

Subject Co-ordinator - Prof. John Augustine

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Probability - A box of chocolates
- Lecture 2 - Introduction to Probability - Axiomatic Approach to Probability Theory
- Lecture 3 - Introduction to Probability - Verifying Matrix Multiplication (Statement, Algorithm and Independence)
- Lecture 4 - Introduction to Probability - Verifying Matrix Multiplication (Correctness and Law of Total Probability)
- Lecture 5 - Introduction to Probability - How Strong is your Network?
- Lecture 6 - Introduction to Probability - How to Understand the World? Play with it!
- Lecture 7 - Tutorial 1
- Lecture 8 - Tutorial 2
- Lecture 9 - Discrete Random Variables - Basic Definitions
- Lecture 10 - Discrete Random Variables - Linearity of Expectation and Jensen's Inequality
- Lecture 11 - Discrete Random Variables - Conditional Expectation I
- Lecture 12 - Discrete Random Variables - Conditional Expectation II
- Lecture 13 - Discrete Random Variables - Geometric Random Variables and Collecting Coupons
- Lecture 14 - Discrete Random Variables - Randomized Selection
- Lecture 15 - Tail Bounds I - Markov's Inequality
- Lecture 16 - Tail Bounds I - The Second Moment, Variance and Chebyshev's Inequality
- Lecture 17 - Tail Bounds I - Median via Sampling
- Lecture 18 - Tail Bounds I - Median via Sampling - Analysis
- Lecture 19 - Tail Bounds I - Moment Generating Functions and Chernoff Bounds
- Lecture 20 - Tail Bounds I - Parameter Estimation
- Lecture 21 - Tail Bounds I - Control Group Selection
- Lecture 22 - Applications of Tail Bounds - Routing in Sparse Networks
- Lecture 23 - Applications of Tail Bounds - Analysis of Valiant's Routing
- Lecture 24 - Applications of Tail Bounds - Random Graphs
- Lecture 25 - Live Session 2
- Lecture 26 - Live Session

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Human Computer Interaction

Subject Co-ordinator - Prof. Ponnurangam Kumaraguru

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Human Computer Interaction
- Lecture 2 - What is HCI? Commonalities and Differences in Interfaces
- Lecture 3 - Door handle, Elevators, Contextual Inquiry, Affinity Diagrams
- Lecture 4 - Lab Session Contextual Inquiry
- Lecture 5 - Lab Session Affinity Diagram
- Lecture 6 - Tutorial on Photoshop
- Lecture 7 - Tutorial on UI Designing using Photoshop
- Lecture 8 - Institutional Review Board, Ethics committee, IRB documents / application, consent form
- Lecture 9 - Tutorial on Proto.io
- Lecture 10 - Tutorial on Lookback
- Lecture 11 - How to understand user needs? Surveys, Questionnaire
- Lecture 12 - How to understand user needs? Surveys, Questionnaire - Continues
- Lecture 13 - Prototyping
- Lecture 14 - User-Centered Design
- Lecture 15 - Lab Session
- Lecture 16 - Design Patterns
- Lecture 17 - Lab Session
- Lecture 18 - Usable security
- Lecture 19 - Lab Session
- Lecture 20 - Continuity of Usable Security
- Lecture 21 - Visual Design
- Lecture 22 - Visual Design - 2
- Lecture 23 - Crypto price Tracker App
- Lecture 24 - Interacto
- Lecture 25 - Tech Hinder
- Lecture 26 - busKARO
- Lecture 27 - MayMayMe
- Lecture 28 - noWhinge

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Information Security-IV

Subject Co-ordinator - Prof.M J Shankar Raman, Prof. V. Kamakoti, Prof.Vasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - WISE Gen and The IT Revolution - 1
- Lecture 2 - WISE Gen and The IT Revolution - 1 (Continued...)
- Lecture 3 - WISE GEN - Next Step
- Lecture 4 - Network Security
- Lecture 5 - Symmetric Key Cryptography and Digital Signatures
- Lecture 6 - Basic Network Security Components
- Lecture 7 - Internet Security Threats
- Lecture 8 - History of Kali Linux
- Lecture 9 - Penetration Testing with Kali Linux
- Lecture 10 - Network Security and Forensics Introduction - I
- Lecture 11 - Network Security and Forensics Introduction - II
- Lecture 12 - Penetration Testing
- Lecture 13 - Penetration testing steps in Kali Linux
- Lecture 14 - Kali Linux Installation
- Lecture 15 - Reconnaissance - Part I
- Lecture 16 - Reconnaissance - Part II
- Lecture 17 - Serverside Attacks
- Lecture 18 - Serverside Attacks
- Lecture 19 - Serverside Attacks
- Lecture 20 - Serverside Attacks
- Lecture 21 - Serverside Attacks
- Lecture 22 - Serverside Attacks
- Lecture 23 - Client Side Attacks - Tools in Kali Linux - 1
- Lecture 24 - Client Side Attacks - Tools in Kali Linux - 2
- Lecture 25 - Client Side Attacks - Tools in Kali Linux - 3
- Lecture 26 - Client Side Attacks - Tools in Kali Linux - 4
- Lecture 27 - Authentication Based Attacks - Tools in Kali Linux - 1
- Lecture 28 - Authentication Based Attacks - Tools in Kali Linux - 2
- Lecture 29 - Authentication Based Attacks - Tools in Kali Linux - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Authentication Based Attacks - Tools in Kali Linux - 4
- Lecture 31 - Authentication Based Attacks - Tools in Kali Linux - 5
- Lecture 32 - Web Attacks - Tools in Kali Linux - 1
- Lecture 33 - Web Attacks - Tools in Kali Linux - 2
- Lecture 34 - Penetration Testing Attacks - Defensive Countermeasures
- Lecture 35 - Technical Fundamentals for Evidence Acquisition - 1
- Lecture 36 - Technical Fundamentals for Evidence Acquisition - 2
- Lecture 37 - Packet Capture Tools and Methods
- Lecture 38 - Wireshark Introduction
- Lecture 39 - Packet Analysis
- Lecture 40 - Flow Analysis
- Lecture 41 - Case study 1
- Lecture 42 - Case study 1 (Continued...)
- Lecture 43 - Wireless Forensics - Technology
- Lecture 44 - Wireless Network Security Framework
- Lecture 45 - Wireless Access Points - Security issues
- Lecture 46 - Case Study 2 - Use of tools
- Lecture 47 - Network Security Devices - IDS
- Lecture 48 - IDS Evidence Acquisition and SNORT
- Lecture 49 - SNORT Rules
- Lecture 50 - SNORT Installation
- Lecture 51 - SNORT Configuration and Demonstration
- Lecture 52 - Evidence collection in Switches and Routers
- Lecture 53 - Evidence collection in Routers and Firewalls
- Lecture 54 - IPTables rules and tool usage
- Lecture 55 - Logs, Rules and Automated Tools
- Lecture 56 - Re-cap of All Topics
- Lecture 57 - Introduction to Meltdown Attack
- Lecture 58 - Introduction to Meltdown - Address Space Basics
- Lecture 59 - Meltdown Attack - Out of Order Execution
- Lecture 60 - Meltdown Attack - Recovering from Exception

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Data Science for Engineers

Subject Co-ordinator - Prof. Shankar Narasimhan, Prof. Ragunathan Rengasamy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Data science for engineers Course philosophy and expectation

Lecture 2 - Introduction to R

Lecture 3 - Introduction to R (Continued...)

Lecture 4 - Variables and datatypes in R

Lecture 5 - Data frames

Lecture 6 - Recasting and joining of dataframes

Lecture 7 - Arithmetic, Logical and Matrix operations in R

Lecture 8 - Advanced programming in R

Lecture 9 - Advanced Programming in R

Lecture 10 - Control structures

Lecture 11 - Data visualization in R Basic graphics

Lecture 12 - Linear Algebra for Data science

Lecture 13 - Solving Linear Equations

Lecture 14 - Solving Linear Equations (Continued...)

Lecture 15 - Linear Algebra - Distance, Hyperplanes and Halfspaces, Eigenvalues, Eigenvectors

Lecture 16 - Linear Algebra - Distance, Hyperplanes and Halfspaces, Eigenvalues, Eigenvectors (Continued... 1)

Lecture 17 - Linear Algebra - Distance, Hyperplanes and Halfspaces, Eigenvalues, Eigenvectors (Continued... 2)

Lecture 18 - Linear Algebra - Distance, Hyperplanes and Halfspaces, Eigenvalues, Eigenvectors (Continued... 3)

Lecture 19 - Statistical Modelling

Lecture 20 - Random Variables and Probability Mass/Density Functions

Lecture 21 - Sample Statistics

Lecture 22 - Hypotheses Testing

Lecture 23 - Optimization for Data Science

Lecture 24 - Unconstrained Multivariate Optimization

Lecture 25 - Unconstrained Multivariate Optimization (Continued...)

Lecture 26 - Gradient (Steepest) Descent (OR) Learning Rule

Lecture 27 - Multivariate Optimization With Equality Constraints

Lecture 28 - Multivariate Optimization With Inequality Constraints

Lecture 29 - Introduction to Data Science

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- Lecture 30 - Solving Data Analysis Problems - A Guided Thought Process
- Lecture 31 - Module
- Lecture 32 - Linear Regression
- Lecture 33 - Model Assessment
- Lecture 34 - Diagnostics to Improve Linear Model Fit
- Lecture 35 - Simple Linear Regression Model Building
- Lecture 36 - Simple Linear Regression Model Assessment
- Lecture 37 - Simple Linear Regression Model Assessment (Continued...)
- Lecture 38 - Multiple Linear Regression
- Lecture 39 - Cross Validation
- Lecture 40 - Multiple Linear Regression Modelling Building and Selection
- Lecture 41 - Classification
- Lecture 42 - Logistic Regression
- Lecture 43 - Logistic Regression (Continued...)
- Lecture 44 - Performance Measures
- Lecture 45 - Logistic Regression Implementation in R
- Lecture 46 - K-Nearest Neighbors (kNN)
- Lecture 47 - K-Nearest Neighbors implementation in R
- Lecture 48 - K-means Clustering
- Lecture 49 - K-means implementation in R
- Lecture 50 - Data Science for engineers - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:The Joy of Computing using Python

Subject Co-ordinator - Prof. Sudarshan Iyengar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Programming
- Lecture 2 - Why Programming ?
- Lecture 3 - Programming for Everybody
- Lecture 4 - Any Prerequisites ?
- Lecture 5 - Where to start?
- Lecture 6 - Why do we have so many languages?
- Lecture 7 - How to go about programming?
- Lecture 8 - Why to learn programming?
- Lecture 9 - What is programming?
- Lecture 10 - How to give instructions ?
- Lecture 11 - Introduction To Scratch
- Lecture 12 - Introduction To Loops
- Lecture 13 - More About Loops
- Lecture 14 - Solution To Looping Problem
- Lecture 15 - Scratch
- Lecture 16 - Scratch
- Lecture 17 - Scratch
- Lecture 18 - More On Scratch
- Lecture 19 - Introduction to Anaconda
- Lecture 20 - Installation of Anaconda
- Lecture 21 - Introduction to Spyder IDE
- Lecture 22 - Printing statements in Python
- Lecture 23 - Understanding Variables in Python
- Lecture 24 - Executing a sequence of instructions in the Console
- Lecture 25 - Writing your First Program
- Lecture 26 - Taking inputs from the user
- Lecture 27 - Discount Calculation
- Lecture 28 - Motivation to if condition
- Lecture 29 - A reminder on how to deal with numbers

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- Lecture 30 - Understanding if condition's working
- Lecture 31 - Realizing the importance of syntax and indentation
- Lecture 32 - Introductions to loops
- Lecture 33 - Loops
- Lecture 34 - Loops
- Lecture 35 - Loops
- Lecture 36 - Introduction to While Loop
- Lecture 37 - Lists Part 1
- Lecture 38 - Lists Part 2
- Lecture 39 - Lists Part 3
- Lecture 40 - Lists Part 4
- Lecture 41 - Loops and Conditionals
- Lecture 42 - Loops and Conditionals
- Lecture 43 - Crowd Computing - Just estimate 01
- Lecture 44 - Crowd Computing - Just estimate 02
- Lecture 45 - Crowd Computing - Just estimate 03
- Lecture 46 - Crowd Computing - Just estimate 04
- Lecture 47 - Crowd Computing - Just estimate 05
- Lecture 48 - Crowd Computing - Just estimate 06
- Lecture 49 - Permutations - Jumbled Words 01
- Lecture 50 - Permutations - Jumbled Words 02
- Lecture 51 - Permutations - Jumbled Words 03
- Lecture 52 - Theory of Evolution 01
- Lecture 53 - Theory of Evolution 02
- Lecture 54 - Theory of Evolution 03
- Lecture 55 - Theory of Evolution 04
- Lecture 56 - Practice is the key
- Lecture 57 - Magic Square Hit and Trial 01
- Lecture 58 - Magic Square Hit and Trial 02
- Lecture 59 - Magic Square Hit and Trial 03
- Lecture 60 - Magic Square Hit and Trial 04
- Lecture 61 - Magic Square Hit and Trial 05
- Lecture 62 - Let's program and play
- Lecture 63 - Dobble Game - Spot the similarity 01
- Lecture 64 - Dobble Game - Spot the similarity 02
- Lecture 65 - Dobble Game - Spot the similarity 03
- Lecture 66 - Dobble Game - Spot the similarity 04
- Lecture 67 - What is your date of birth?
- Lecture 68 - Birthday Paradox - Find your twin 01

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Lecture 69 - Birthday Paradox - Find your twin 02  
Lecture 70 - Birthday Paradox - Find your twin 03  
Lecture 71 - Birthday Paradox - Find your twin 04  
Lecture 72 - Birthday Paradox - Find your twin 05  
Lecture 73 - What's your favourite movie?  
Lecture 74 - Guess the Movie Name 01  
Lecture 75 - Guess the Movie Name 02  
Lecture 76 - Guess the Movie Name 03  
Lecture 77 - Guess the Movie Name 04  
Lecture 78 - Guess the Movie Name 05  
Lecture 79 - Guess the Movie Name 06  
Lecture 80 - Dictionaries  
Lecture 81 - Speech to Text  
Lecture 82 - Speech to Text  
Lecture 83 - Speech to Text  
Lecture 84 - Monte Hall  
Lecture 85 - Monte Hall  
Lecture 86 - Rock, Paper and Scissor  
Lecture 87 - Rock, Paper and Scissor  
Lecture 88 - Rock, Paper and Scissor  
Lecture 89 - Rock, Paper and Scissor  
Lecture 90 - Sorting and Searching  
Lecture 91 - Sorting and Searching  
Lecture 92 - Sorting and Searching  
Lecture 93 - Sorting and Searching  
Lecture 94 - Sorting and Searching  
Lecture 95 - Sorting and Searching  
Lecture 96 - Sorting and Searching  
Lecture 97 - Sorting and Searching  
Lecture 98 - Substitution Cipher -The science of secrecy  
Lecture 99 - Substitution Cipher -The science of secrecy 01  
Lecture 100 - Substitution Cipher -The science of secrecy 02  
Lecture 101 - Substitution Cipher -The science of secrecy 03  
Lecture 102 - Tic Tac Toe - Down the memory Lane  
Lecture 103 - Tic Tac Toe - Down the memory Lane 01  
Lecture 104 - Tic Tac Toe - Down the memory Lane 02  
Lecture 105 - Tic Tac Toe - Down the memory Lane 03  
Lecture 106 - Tic Tac Toe - Down the memory Lane 04  
Lecture 107 - Tic Tac Toe - Down the memory Lane 05

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Lecture 108 - Recursion  
Lecture 109 - Recursion 01  
Lecture 110 - Recursion 02  
Lecture 111 - Recursion 03  
Lecture 112 - Recursion 04  
Lecture 113 - Recursion 05  
Lecture 114 - Recursion 06  
Lecture 115 - Snakes and Ladders - Not on the Board  
Lecture 116 - Snakes and Ladders - Not on the Board - Part 01  
Lecture 117 - Snakes and Ladders - Not on the Board - Part 02  
Lecture 118 - Snakes and Ladders - Not on the Board - Part 03  
Lecture 119 - Snakes and Ladders - Not on the Board - Part 04  
Lecture 120 - Snakes and Ladders - Not on the Board - Part 05  
Lecture 121 - Snakes and Ladders - Not on the Board - Part 06  
Lecture 122 - Spiral Traversing - Let's Animate  
Lecture 123 - Spiral Traversing - Let's Animate - Part 01  
Lecture 124 - Spiral Traversing - Let's Animate - Part 02  
Lecture 125 - Spiral Traversing - Let's Animate - Part 03  
Lecture 126 - Spiral Traversing - Let's Animate - Part 04  
Lecture 127 - Spiral Traversing - Let's Animate - Part 05  
Lecture 128 - Spiral Traversing - Let's Animate - Part 06  
Lecture 129 - Spiral Traversing - Let's Animate - Part 07  
Lecture 130 - GPS - Track the route  
Lecture 131 - GPS - Track the route - Part 01  
Lecture 132 - GPS - Track the route - Part 02  
Lecture 133 - GPS - Track the route - Part 03  
Lecture 134 - GPS - Track the route - Part 04  
Lecture 135 - Tuples- Python Data Structure  
Lecture 136 - Lottery Simulation - Profit or Loss  
Lecture 137 - Lottery Simulation - Profit or Loss - Part 01  
Lecture 138 - Lottery Simulation - Profit or Loss - Part 02  
Lecture 139 - Lottery Simulation - Profit or Loss - Part 03  
Lecture 140 - Lottery Simulation - Profit or Loss - Part 04  
Lecture 141 - Lottery Simulation - Profit or Loss - Part 05  
Lecture 142 - Lottery Simulation - Profit or Loss - Part 06  
Lecture 143 - Image Processing - Enhance your images  
Lecture 144 - Image Processing - Enhance your images - Part 01  
Lecture 145 - Image Processing - Enhance your images - Part 02  
Lecture 146 - Image Processing - Enhance your images - Part 03

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Lecture 147 - Anagrams  
Lecture 148 - Anagrams - Part 01  
Lecture 149 - Anagrams - Part 02  
Lecture 150 - Anagrams - Part 03  
Lecture 151 - Anagrams - Part 04  
Lecture 152 - Facebook Sentiment Analysis  
Lecture 153 - Facebook Sentiment Analysis - Part 01  
Lecture 154 - Facebook Sentiment Analysis - Part 02  
Lecture 155 - Facebook Sentiment Analysis - Part 03  
Lecture 156 - Facebook Sentiment Analysis - Part 04  
Lecture 157 - Natural Language Processing - Author Stylometry  
Lecture 158 - Natural Language Processing - Author Stylometry - Part 01  
Lecture 159 - Natural Language Processing - Author Stylometry - Part 02  
Lecture 160 - Natural Language Processing - Author Stylometry - Part 03  
Lecture 161 - Natural Language Processing - Author Stylometry - Part 04  
Lecture 162 - Natural Language Processing - Author Stylometry - Part 05  
Lecture 163 - Natural Language Processing - Author Stylometry - Part 06  
Lecture 164 - Natural Language Processing - Author Stylometry - Part 07  
Lecture 165 - Natural Language Processing - Author Stylometry - Part 08  
Lecture 166 - Natural Language Processing - Author Stylometry - Part 09  
Lecture 167 - Natural Language Processing - Author Stylometry - Part 10  
Lecture 168 - Introduction to Networkx - Part 01  
Lecture 169 - Introduction to Networkx - Part 02  
Lecture 170 - Six Degrees of Separation  
Lecture 171 - Six Degrees of Separation  
Lecture 172 - Six Degrees of Separation  
Lecture 173 - Six Degrees of Separation  
Lecture 174 - Area Calculation - Don't Measure  
Lecture 175 - Area Calculation - Don't Measure - Part 01  
Lecture 176 - Area Calculation - Don't Measure - Part 02  
Lecture 177 - Area Calculation - Don't Measure - Part 03  
Lecture 178 - Area Calculation - Don't Measure - Part 04  
Lecture 179 - Area Calculation - Don't Measure - Part 05  
Lecture 180 - Area Calculation - Don't Measure - Part 06  
Lecture 181 - FLAMES - Part 01  
Lecture 182 - FLAMES - Part 02  
Lecture 183 - FLAMES - Part 03  
Lecture 184 - FLAMES - Part 04  
Lecture 185 - FLAMES - Part 05

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 186 - FLAMES - Part 06  
Lecture 187 - Data Compression - Part 01  
Lecture 188 - Data Compression - Part 02  
Lecture 189 - Data Compression - Part 03  
Lecture 190 - Data Compression - Part 04  
Lecture 191 - Data Compression - Part 05  
Lecture 192 - Browser Automation Watsapp using Python - Part 01  
Lecture 193 - Browser Automation Watsapp using Python - Part 02  
Lecture 194 - Browser Automation Watsapp using Python - Part 03  
Lecture 195 - Browser Automation Watsapp using Python - Part 04  
Lecture 196 - Fun with Calendar - Part 01  
Lecture 197 - Fun with Calendar - Part 02  
Lecture 198 - Fun with Calendar - Part 03  
Lecture 199 - Fun with Calendar - Part 04  
Lecture 200 - Fun with Calendar - Part 05  
Lecture 201 - Fun with Calendar - Part 06  
Lecture 202 - Fun with Calendar - Part 07  
Lecture 203 - Fun with Calendar - Part 08  
Lecture 204 - Fun with Calendar - Part 09  
Lecture 205 - Fun with Calendar - Part 10  
Lecture 206 - Fun with Calendar - Part 11  
Lecture 207 - Fun with Calendar - Part 12  
Lecture 208 - Page Rank - How does Google Work ? - Part 01  
Lecture 209 - Page Rank - How does Google Work ? - Part 02  
Lecture 210 - Page Rank - How does Google Work ? - Part 03  
Lecture 211 - Page Rank - How does Google Work ? - Part 04  
Lecture 212 - Page Rank - How does Google Work ? - Part 05  
Lecture 213 - Page Rank - How does Google Work ? - Part 06  
Lecture 214 - Page Rank - How does Google Work ? - Part 07  
Lecture 215 - Page Rank - How does Google Work ? - Part 08  
Lecture 216 - Page Rank - How does Google Work ? - Part 09  
Lecture 217 - Page Rank - How does Google Work ? - Part 10  
Lecture 218 - Page Rank - How does Google Work ? - Part 11  
Lecture 219 - Page Rank - How does Google Work ? - Part 12  
Lecture 220 - Page Rank - How does Google Work ? - Part 13  
Lecture 221 - Page Rank - How does Google Work ? - Part 14  
Lecture 222 - Page Rank - How does Google Work ? - Part 15  
Lecture 223 - Page Rank - How does Google Work ? - Part 16  
Lecture 224 - Collatz Conjecture - Part 01

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Lecture 225 - Collatz Conjecture - Part 02

Lecture 226 - JOC Conclusion

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Discrete Mathematics

Subject Co-ordinator - Prof. Sudarshan Iyengar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Motivation for Counting  
Lecture 2 - Paper Folding Example  
Lecture 3 - Rubik's Cube Example  
Lecture 4 - Factorial Example  
Lecture 5 - Counting in Computer Science  
Lecture 6 - Motivation for Catalan numbers  
Lecture 7 - Rule of Sum and Rule of Product  
Lecture 8 - Problems on Rule of Sum and Rule of Product  
Lecture 9 - Factorial Explained  
Lecture 10 - Proof of  $n!$  - Part 1  
Lecture 11 - Proof of  $n!$  - Part 2  
Lecture 12 - Astronomical Numbers  
Lecture 13 - Permutations - Part 1  
Lecture 14 - Permutations - Part 2  
Lecture 15 - Permutations - Part 3  
Lecture 16 - Permutations - Part 4  
Lecture 17 - Problems on Permutations  
Lecture 18 - Combinations - Part 1  
Lecture 19 - Combinations - Part 2  
Lecture 20 - Combinations - Part 3  
Lecture 21 - Combinations - Part 4  
Lecture 22 - Problems on Combinations  
Lecture 23 - Difference between Permutations and Combinations  
Lecture 24 - Combination with Repetition - Part 1  
Lecture 25 - Combination with Repetition - Part 2  
Lecture 26 - Combination with Repetition - Problems  
Lecture 27 - Binomial theorem  
Lecture 28 - Applications of Binomial theorem  
Lecture 29 - Properties of Binomial theorem

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- Lecture 30 - Multinomial theorem
- Lecture 31 - Problems on Binomial theorem
- Lecture 32 - Pascal's Triangle
- Lecture 33 - Fun facts on Pascal's Triangle
- Lecture 34 - Catalan Numbers - Part 1
- Lecture 35 - Catalan Numbers - Part 2
- Lecture 36 - Catalan Numbers - Part 3
- Lecture 37 - Catalan Numbers - Part 4
- Lecture 38 - Examples of Catalan numbers
- Lecture 39 - Chapter Summary
- Lecture 40 - Introduction to Set Theory
- Lecture 41 - Example, definition and notation
- Lecture 42 - Sets - Problems Part 1
- Lecture 43 - Subsets - Part 1
- Lecture 44 - Subsets - Part 2
- Lecture 45 - Subsets - Part 3
- Lecture 46 - Union and intersections of sets
- Lecture 47 - Union and intersections of sets - Part 1
- Lecture 48 - Union and intersections of sets - Part 2
- Lecture 49 - Union and intersections of sets - Part 3
- Lecture 50 - Cardinality of Union of two sets - Part 1
- Lecture 51 - Cardinality of Union of two sets - Part 2
- Lecture 52 - Cardinality of Union of three sets
- Lecture 53 - Power Set - Part 1
- Lecture 54 - Power set - Part 2
- Lecture 55 - Power set - Part 3
- Lecture 56 - Connection between Binomial Theorem and Power Sets
- Lecture 57 - Power set - Problems
- Lecture 58 - Complement of a set
- Lecture 59 - De Morgan's Laws - Part 1
- Lecture 60 - De Morgan's Laws - Part 2
- Lecture 61 - A proof technique
- Lecture 62 - De Morgan's Laws - Part 3
- Lecture 63 - De Morgan's Laws - Part 4
- Lecture 64 - Set difference - Part 1
- Lecture 65 - Set difference - Part 2
- Lecture 66 - Symmetric difference
- Lecture 67 - History
- Lecture 68 - Summary

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- Lecture 69 - Motivational example
- Lecture 70 - Introduction to Statements
- Lecture 71 - Examples and Non-examples of Statements
- Lecture 72 - Introduction to Negation
- Lecture 73 - Negation - Explanation
- Lecture 74 - Negation - Truthtable
- Lecture 75 - Examples for Negation
- Lecture 76 - Motivation for OR operator
- Lecture 77 - Introduction to OR operator
- Lecture 78 - Truthtable for OR operator
- Lecture 79 - OR operator for 3 Variables
- Lecture 80 - Truthtable for AND operator
- Lecture 81 - AND operator for 3 Variables
- Lecture 82 - Primitive and Compound statements - Part 1
- Lecture 83 - Primitive and Compound statements - Part 2
- Lecture 84 - Problems involving NOT, OR and AND operators
- Lecture 85 - Introduction to implication
- Lecture 86 - Examples and Non-examples of Implication - Part 1
- Lecture 87 - Examples and Non-examples of Implication - Part 2
- Lecture 88 - Explanation of Implication
- Lecture 89 - Introduction to Double Implication
- Lecture 90 - Explanation of Double Implication
- Lecture 91 - Converse, Inverse and Contrapositive
- Lecture 92 - XOR operator - Part 1
- Lecture 93 - XOR operator - Part 2
- Lecture 94 - XOR operator - Part 3
- Lecture 95 - Problems
- Lecture 96 - Tautology, Contradiction - Part 1
- Lecture 97 - Tautology, Contradiction - Part 2
- Lecture 98 - Tautology, Contradiction - Part 3
- Lecture 99 - SAT Problem - Part 1
- Lecture 100 - SAT Problem - Part 2
- Lecture 101 - Logical Equivalence - Part 1
- Lecture 102 - Logical Equivalence - Part 2
- Lecture 103 - Logical Equivalence - Part 3
- Lecture 104 - Logical Equivalence - Part 4
- Lecture 105 - Motivation for laws of logic
- Lecture 106 - Double negation - Part 1
- Lecture 107 - Double negation - Part 2

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- Lecture 108 - Laws of Logic
- Lecture 109 - De Morgan's Law - Part 1
- Lecture 110 - De Morgan's Law - Part 2
- Lecture 111 - Rules of Inferences - Part 1
- Lecture 112 - Rules of Inferences - Part 2
- Lecture 113 - Rules of Inferences - Part 3
- Lecture 114 - Rules of Inferences - Part 4
- Lecture 115 - Rules of Inferences - Part 5
- Lecture 116 - Rules of Inferences - Part 6
- Lecture 117 - Rules of Inferences - Part 7
- Lecture 118 - Conclusion
- Lecture 119 - Introduction to Relation
- Lecture 120 - Graphical Representation of a Relation
- Lecture 121 - Various sets
- Lecture 122 - Matrix Representation of a Relation
- Lecture 123 - Relation - An Example
- Lecture 124 - Cartesian Product
- Lecture 125 - Set Representation of a Relation
- Lecture 126 - Revisiting Representations of a Relation
- Lecture 127 - Examples of Relations
- Lecture 128 - Number of relations - Part 1
- Lecture 129 - Number of relations - Part 2
- Lecture 130 - Reflexive relation - Introduction
- Lecture 131 - Example of a Reflexive relation
- Lecture 132 - Reflexive relation - Matrix representation
- Lecture 133 - Number of Reflexive relations
- Lecture 134 - Symmetric Relation - Introduction
- Lecture 135 - Symmetric Relation - Matrix representation
- Lecture 136 - Symmetric Relation - Examples and non examples
- Lecture 137 - Parallel lines revisited
- Lecture 138 - Number of symmetric relations - Part 1
- Lecture 139 - Number of symmetric relations - Part 2
- Lecture 140 - Examples of Reflexive and Symmetric Relations
- Lecture 141 - Pattern
- Lecture 142 - Transitive relation - Examples and non examples
- Lecture 143 - Antisymmetric relation
- Lecture 144 - Examples of Transitive and Antisymmetric Relation
- Lecture 145 - Antisymmetric - Graphical representation
- Lecture 146 - Antisymmetric - Matrix representation

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- Lecture 147 - Number of Antisymmetric relations
- Lecture 148 - Condition for relation to be reflexive
- Lecture 149 - Few notations
- Lecture 150 - Condition for relation to be reflexive
- Lecture 151 - Condition for relation to be reflexive
- Lecture 152 - Condition for relation to be symmetric
- Lecture 153 - Condition for relation to be symmetric
- Lecture 154 - Condition for relation to be antisymmetric
- Lecture 155 - Equivalence relation
- Lecture 156 - Equivalence relation - Example 4
- Lecture 157 - Partition - Part 1
- Lecture 158 - Partition - Part 2
- Lecture 159 - Partition - Part 3
- Lecture 160 - Partition - Part 4
- Lecture 161 - Partition - Part 5
- Lecture 162 - Partition - Part 6
- Lecture 163 - Motivational Example - 1
- Lecture 164 - Motivational Example - 2
- Lecture 165 - Commonality in examples
- Lecture 166 - Motivational Example - 3
- Lecture 167 - Example - 4 Explanation
- Lecture 168 - Introduction to functions
- Lecture 169 - Definition of a function - Part 1
- Lecture 170 - Definition of a function - Part 2
- Lecture 171 - Definition of a function - Part 3
- Lecture 172 - Relations vs Functions - Part 1
- Lecture 173 - Relations vs Functions - Part 2
- Lecture 174 - Introduction to One-One Function
- Lecture 175 - One-One Function - Example 1
- Lecture 176 - One-One Function - Example 2
- Lecture 177 - One-One Function - Example 3
- Lecture 178 - Proving a Function is One-One
- Lecture 179 - Examples and Non- examples of One-One function
- Lecture 180 - Cardinality condition in One-One function - Part 1
- Lecture 181 - Cardinality condition in One-One function - Part 2
- Lecture 182 - Introduction to Onto Function - Part 1
- Lecture 183 - Introduction to Onto Function - Part 2
- Lecture 184 - Definition of Onto Function
- Lecture 185 - Examples of Onto Function

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 186 - Cardinality condition in Onto function - Part 1
- Lecture 187 - Cardinality condition in Onto function - Part 2
- Lecture 188 - Introduction to Bijection
- Lecture 189 - Examples of Bijection
- Lecture 190 - Cardinality condition in Bijection - Part 1
- Lecture 191 - Cardinality condition in Bijection - Part 2
- Lecture 192 - Counting number of functions
- Lecture 193 - Number of functions
- Lecture 194 - Number of One-One functions - Part 1
- Lecture 195 - Number of One-One functions - Part 2
- Lecture 196 - Number of One-One functions - Part 3
- Lecture 197 - Number of Onto functions
- Lecture 198 - Number of Bijections
- Lecture 199 - Counting number of functions.
- Lecture 200 - Motivation for Composition of functions - Part 1
- Lecture 201 - Motivation for Composition of functions - Part 2
- Lecture 202 - Definition of Composition of functions
- Lecture 203 - Why study Composition of functions
- Lecture 204 - Example of Composition of functions - Part 1
- Lecture 205 - Example of Composition of functions - Part 2
- Lecture 206 - Motivation for Inverse functions
- Lecture 207 - Inverse functions
- Lecture 208 - Examples of Inverse functions
- Lecture 209 - Application of inverse functions - Part 1
- Lecture 210 - Three stories
- Lecture 211 - Three stories - Connecting the dots
- Lecture 212 - Mathematical induction - An illustration
- Lecture 213 - Mathematical Induction - Its essence
- Lecture 214 - Mathematical Induction - The formal way
- Lecture 215 - MI - Sum of odd numbers
- Lecture 216 - MI - Sum of powers of 2
- Lecture 217 - MI - Inequality 1
- Lecture 218 - MI - Inequality 1 (solution)
- Lecture 219 - MI - To prove divisibility
- Lecture 220 - MI - To prove divisibility (solution)
- Lecture 221 - MI - Problem on satisfying inequalities
- Lecture 222 - MI - Problem on satisfying inequalities (solutions)
- Lecture 223 - MI - Inequality 2
- Lecture 224 - MI - Inequality 2 solution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 225 - Mathematical Induction - Example 9
- Lecture 226 - Mathematical Induction - Example 10 solution
- Lecture 227 - Binomial Coefficients - Proof by induction
- Lecture 228 - Checker board and Triominoes - A puzzle
- Lecture 229 - Checker board and triominoes - Solution
- Lecture 230 - Mathematical induction - An important note
- Lecture 231 - Mathematical Induction - A false proof
- Lecture 232 - A false proof - Solution
- Lecture 233 - Motivation for Pigeonhole Principle
- Lecture 234 - Group of n people
- Lecture 235 - Set of n integers
- Lecture 236 - 10 points on an equilateral triangle
- Lecture 237 - Pigeonhole Principle - A result
- Lecture 238 - Consecutive integers
- Lecture 239 - Consecutive integers solution
- Lecture 240 - Matching initials
- Lecture 241 - Matching initials - Solution
- Lecture 242 - Numbers adding to 9
- Lecture 243 - Numbers adding to 9 - Solution
- Lecture 244 - Deck of cards
- Lecture 245 - Deck of cards - Solution
- Lecture 246 - Number of errors
- Lecture 247 - Number of errors - Solution
- Lecture 248 - Puzzle - Challenge for you
- Lecture 249 - Friendship - an interesting property
- Lecture 250 - Connectedness through Connecting people
- Lecture 251 - Traversing the bridges
- Lecture 252 - Three utilities problem
- Lecture 253 - Coloring the India map
- Lecture 254 - Definition of a Graph
- Lecture 255 - Degree and degree sequence
- Lecture 256 - Relation between number of edges and degrees
- Lecture 257 - Relation between number of edges and degrees - Proof
- Lecture 258 - Hand shaking lemma - Corollary
- Lecture 259 - Problems based on Hand shaking lemma
- Lecture 260 - Havel Hakimi theorem - Part 1
- Lecture 261 - Havel Hakimi theorem - Part 2
- Lecture 262 - Havel Hakimi theorem - Part 3
- Lecture 263 - Havel Hakimi theorem - Part 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 264 - Havel Hakimi theorem - Part 5
- Lecture 265 - Regular graph and irregular graph
- Lecture 266 - Walk
- Lecture 267 - Trail
- Lecture 268 - Path and closed path
- Lecture 269 - Definitions revisited
- Lecture 270 - Examples of walk, trail and path
- Lecture 271 - Cycle and circuit
- Lecture 272 - Example of cycle and circuit
- Lecture 273 - Relation between walk and path
- Lecture 274 - Relation between walk and path - An induction proof
- Lecture 275 - Subgraph
- Lecture 276 - Spanning and induced subgraph
- Lecture 277 - Spanning and induced subgraph - A result
- Lecture 278 - Introduction to Tree
- Lecture 279 - Connected and Disconnected graphs
- Lecture 280 - Property of a cycle
- Lecture 281 - Edge condition for connectivity
- Lecture 282 - Connecting connectedness and path
- Lecture 283 - Connecting connectedness and path - An illustration
- Lecture 284 - Cut vertex
- Lecture 285 - Cut edge
- Lecture 286 - Illustration of cut vertices and cut edges
- Lecture 287 - NetworkX - Need of the hour
- Lecture 288 - Introduction to Python - Installation
- Lecture 289 - Introduction to Python - Basics
- Lecture 290 - Introduction to NetworkX
- Lecture 291 - Story so far - Using NetworkX
- Lecture 292 - Directed, weighted and multi graphs
- Lecture 293 - Illustration of Directed, weighted and multi graphs
- Lecture 294 - Graph representations - Introduction
- Lecture 295 - Adjacency matrix representation
- Lecture 296 - Incidence matrix representation
- Lecture 297 - Isomorphism - Introduction
- Lecture 298 - Isomorphic graphs - An illustration
- Lecture 299 - Isomorphic graphs - A challenge
- Lecture 300 - Non-isomorphic graphs
- Lecture 301 - Isomorphism - A question
- Lecture 302 - Complement of a Graph - Introduction

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- Lecture 303 - Complement of a Graph - Illustration
- Lecture 304 - Self complement
- Lecture 305 - Complement of a disconnected graph is connected
- Lecture 306 - Complement of a disconnected graph is connected - Solution
- Lecture 307 - Which is more? Connected graphs or disconnected graphs?
- Lecture 308 - Bipartite graphs.
- Lecture 309 - Bipartite graphs
- Lecture 310 - Bipartite graphs - A puzzle
- Lecture 311 - Bipartite graphs - Converse part of the puzzle
- Lecture 312 - Definition of Eulerian Graph
- Lecture 313 - Illustration of Eulerian graph
- Lecture 314 - Non- example of Eulerian graph
- Lecture 315 - Litmus test for an Eulerian graph
- Lecture 316 - Why even degree?
- Lecture 317 - Proof for even degree implies graph is Eulerian
- Lecture 318 - A condition for Eulerian trail
- Lecture 319 - Why the name Eulerian
- Lecture 320 - Can you traverse all locations?
- Lecture 321 - Definition of Hamiltonian graphs
- Lecture 322 - Examples of Hamiltonian graphs
- Lecture 323 - Hamiltonian graph - A result
- Lecture 324 - A result on connectedness
- Lecture 325 - A result on Path
- Lecture 326 - Dirac's Theorem
- Lecture 327 - Dirac's theorem - A note
- Lecture 328 - Ore's Theorem
- Lecture 329 - Dirac's Theorem v/s Ore's Theorem
- Lecture 330 - Eulerian and Hamiltonian Are they related
- Lecture 331 - Importance of Hamiltonian graphs in Computer science
- Lecture 332 - Constructing non intersecting roads
- Lecture 333 - Definition of a Planar graph
- Lecture 334 - Examples of Planar graphs
- Lecture 335 -  $V - E + R = 2$
- Lecture 336 - Illustration of  $V - E + R = 2$
- Lecture 337 -  $V - E + R = 2$ ; Use induction
- Lecture 338 - Proof of  $V - E + R = 2$
- Lecture 339 - Famous non-planar graphs
- Lecture 340 - Litmus test for planarity
- Lecture 341 - Planar graphs - Inequality 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 342 - 3 Utilities problem - Revisited
- Lecture 343 - Complete graph on 5 vertices is non-planar - Proof
- Lecture 344 - Prisoners and cells
- Lecture 345 - Prisoners example and Proper coloring
- Lecture 346 - Chromatic number of a graph
- Lecture 347 - Examples on Proper coloring
- Lecture 348 - Recalling the India map problem
- Lecture 349 - Recalling the India map problem - Solution
- Lecture 350 - NetworkX - Digraphs
- Lecture 351 - NetworkX - Adjacency matrix
- Lecture 352 - NetworkX - Random graphs
- Lecture 353 - NetworkX - Subgraph
- Lecture 354 - NetworkX - Isomorphic graphs Part 1
- Lecture 355 - NetworkX - Isomorphic graphs Part 2
- Lecture 356 - NetworkX - Isomorphic graphs
- Lecture 357 - NetworkX - Graph complement
- Lecture 358 - NetworkX - Eulerian graphs
- Lecture 359 - NetworkX - Bipartite graphs
- Lecture 360 - NetworkX - Coloring
- Lecture 361 - Counting in a creative way
- Lecture 362 - Example 1 - Fun with words
- Lecture 363 - Words and the polynomial
- Lecture 364 - Words and the polynomial - Explained
- Lecture 365 - Example 2 - Picking five balls
- Lecture 366 - Picking five balls - Solution
- Lecture 367 - Picking five balls - Another version
- Lecture 368 - Definition of Generating function
- Lecture 369 - Generating function examples - Part 1
- Lecture 370 - Generating function examples - Part 2
- Lecture 371 - Generating function examples - Part 3
- Lecture 372 - Binomial expansion - A generating function
- Lecture 373 - Binomial expansion - Explained
- Lecture 374 - Picking 7 balls - The naive way
- Lecture 375 - Picking 7 balls - The creative way
- Lecture 376 - Generating functions - Problem 1
- Lecture 377 - Generating functions - Problem 2
- Lecture 378 - Generating functions - Problem 3
- Lecture 379 - Why Generating function?
- Lecture 380 - Introduction to Advanced Counting

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Lecture 381 - Example 1  
Lecture 382 - Inclusion-Exclusion Formula  
Lecture 383 - Proof of Inclusion - Exclusion formula  
Lecture 384 - Example 2  
Lecture 385 - Example 3  
Lecture 386 - Example 4  
Lecture 387 - Example 5  
Lecture 388 - Example 6  
Lecture 389 - A tip in solving problems  
Lecture 390 - Example 7  
Lecture 391 - Example 8  
Lecture 392 - Example 10  
Lecture 393 - Example 11  
Lecture 394 - Example 11  
Lecture 395 - Example 12  
Lecture 396 - Number of Onto Functions.  
Lecture 397 - Formula for Number of Onto Functions  
Lecture 398 - Example 13  
Lecture 399 - Example 14  
Lecture 400 - Derangements  
Lecture 401 - Derangements of 4 numbers  
Lecture 402 - Example 15  
Lecture 403 - Example 16  
Lecture 404 - Example 17  
Lecture 405 - Example 18  
Lecture 406 - Example 19  
Lecture 407 - Placing rooks on the chessboard  
Lecture 408 - Rook Polynomial  
Lecture 409 - Rook Polynomial  
Lecture 410 - Motivation for recurrence relation  
Lecture 411 - Getting started with recurrence relations  
Lecture 412 - What is a recurrence relation?  
Lecture 413 - Compound Interest as a recurrence relation  
Lecture 414 - Examples of recurrence relations  
Lecture 415 - Example - Number of ways of climbing steps  
Lecture 416 - Number of ways of climbing steps  
Lecture 417 - Example - Rabbits on an island  
Lecture 418 - Example - n-bit string  
Lecture 419 - Example - n-bit string without consecutive zero

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 420 - Solving Linear Recurrence Relations - A theorem
- Lecture 421 - A note on the proof
- Lecture 422 - Solving recurrence relation - Example 1
- Lecture 423 - Solving recurrence relation - Example 2
- Lecture 424 - Fibonacci Sequence
- Lecture 425 - Introduction to Fibonacci sequence
- Lecture 426 - Solution of Fibonacci sequence
- Lecture 427 - A basic introduction to 'complexity'
- Lecture 428 - Intuition for 'complexity'
- Lecture 429 - Visualizing complexity order as a graph
- Lecture 430 - Tower of Hanoi
- Lecture 431 - Recurrence relation of Tower of Hanoi
- Lecture 432 - Solution for the recurrence relation of Tower of Hanoi
- Lecture 433 - A searching technique
- Lecture 434 - Recurrence relation for Binary search
- Lecture 435 - Solution for the recurrence relation of Binary search
- Lecture 436 - Example
- Lecture 437 - Example
- Lecture 438 - Door knock example and Merge sort
- Lecture 439 - Introduction to Merge sort - 1
- Lecture 440 - Recurrence relation for Merge sort
- Lecture 441 - Introduction to advanced topics
- Lecture 442 - Introduction to Chromatic polynomial
- Lecture 443 - Chromatic polynomial of complete graphs
- Lecture 444 - Chromatic polynomial of cycle on 4 vertices - Part 1
- Lecture 445 - Chromatic polynomial of cycle on 4 vertices - Part 2
- Lecture 446 - Correspondence between partition and generating functions
- Lecture 447 - Correspondence between partition and generating functions
- Lecture 448 - Distinct partitions and odd partitions
- Lecture 449 - Distinct partitions and generating functions
- Lecture 450 - Odd partitions and generating functions
- Lecture 451 - Distinct partitions equals odd partitions
- Lecture 452 - Distinct partitions equals odd partitions
- Lecture 453 - Why 'partitions' to 'polynomial'?
- Lecture 454 - Example
- Lecture 455 - Motivation for exponential generating function
- Lecture 456 - Recurrence relation
- Lecture 457 - Introduction to Group Theory
- Lecture 458 - Uniqueness of the identity element

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 459 - Formal definition of a Group
- Lecture 460 - Groups
- Lecture 461 - Groups
- Lecture 462 - Groups
- Lecture 463 - Subgroup
- Lecture 464 - Lagrange's theorem
- Lecture 465 - Summary
- Lecture 466 - Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Deep Learning

Subject Co-ordinator - Prof.Mitesh Khapra

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Biological Neuron
- Lecture 2 - From Spring to Winter of AI
- Lecture 3 - The Deep Revival
- Lecture 4 - From Cats to Convolutional Neural Networks
- Lecture 5 - Faster, higher, stronger
- Lecture 6 - The Curious Case of Sequences
- Lecture 7 - Beating humans at their own games (literally)
- Lecture 8 - The Madness (2013)
- Lecture 9 - (Need for) Sanity
- Lecture 10 - Motivation from Biological Neurons
- Lecture 11 - McCulloch Pitts Neuron, Thresholding Logic
- Lecture 12 - Perceptrons
- Lecture 13 - Error and Error Surfaces
- Lecture 14 - Perceptron Learning Algorithm
- Lecture 15 - Proof of Convergence of Perceptron Learning Algorithm
- Lecture 16 - Deep Learning (CS7015)
- Lecture 17 - Deep Learning (CS7015)
- Lecture 18 - Deep Learning (CS7015)
- Lecture 19 - Deep Learning (CS7015)
- Lecture 20 - Deep Learning (CS7015)
- Lecture 21 - Deep Learning (CS7015)
- Lecture 22 - Deep Learning (CS7015)
- Lecture 23 - Feedforward Neural Networks (a.k.a multilayered network of neurons)
- Lecture 24 - Learning Parameters of Feedforward Neural Networks (Intuition)
- Lecture 25 - Output functions and Loss functions
- Lecture 26 - Backpropagation (Intuition)
- Lecture 27 - Backpropagation
- Lecture 28 - Backpropagation
- Lecture 29 - Backpropagation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Backpropagation
- Lecture 31 - Derivative of the activation function
- Lecture 32 - Information content, Entropy and cross entropy
- Lecture 33 - Recap
- Lecture 34 - Contours Maps
- Lecture 35 - Momentum based Gradient Descent
- Lecture 36 - Nesterov Accelerated Gradient Descent
- Lecture 37 - Stochastic And Mini-Batch Gradient Descent
- Lecture 38 - Tips for Adjusting Learning Rate and Momentum
- Lecture 39 - Line Search
- Lecture 40 - Gradient Descent with Adaptive Learning Rate
- Lecture 41 - Bias Correction in Adam
- Lecture 42 - Eigenvalues and Eigenvectors
- Lecture 43 - Linear Algebra
- Lecture 44 - Eigenvalue Decomposition
- Lecture 45 - Principal Component Analysis and its Interpretations
- Lecture 46 - PCA
- Lecture 47 - PCA
- Lecture 48 - PCA
- Lecture 49 - PCA
- Lecture 50 - Singular Value Decomposition
- Lecture 51 - Introduction to Autoencoders
- Lecture 52 - Link between PCA and Autoencoders
- Lecture 53 - Regularization in autoencoders (Motivation)
- Lecture 54 - Denoising Autoencoders
- Lecture 55 - Sparse Autoencoders
- Lecture 56 - Contractive Autoencoders
- Lecture 57 - Bias and Variance
- Lecture 58 - Train error vs Test error
- Lecture 59 - Train error vs Test error (Recap)
- Lecture 60 - True error and Model complexity
- Lecture 61 - L2 regularization
- Lecture 62 - Dataset augmentation
- Lecture 63 - Parameter sharing and tying
- Lecture 64 - Adding Noise to the inputs
- Lecture 65 - Adding Noise to the outputs
- Lecture 66 - Early stopping
- Lecture 67 - Ensemble Methods
- Lecture 68 - Dropout

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - A quick recap of training deep neural networks
- Lecture 70 - Unsupervised pre-training
- Lecture 71 - Better activation functions
- Lecture 72 - Better initialization strategies
- Lecture 73 - Batch Normalization
- Lecture 74 - One-hot representations of words
- Lecture 75 - Distributed Representations of words
- Lecture 76 - SVD for learning word representations
- Lecture 77 - SVD for learning word representations (Continued...)
- Lecture 78 - Continuous bag of words model
- Lecture 79 - Skip-gram model
- Lecture 80 - Skip-gram model (Continued...)
- Lecture 81 - Contrastive estimation
- Lecture 82 - Hierarchical softmax
- Lecture 83 - GloVe representations
- Lecture 84 - Evaluating word representations
- Lecture 85 - Relation between SVD and Word2Vec
- Lecture 86 - The convolution operation
- Lecture 87 - Relation between input size, output size and filter size
- Lecture 88 - Convolutional Neural Networks
- Lecture 89 - Convolutional Neural Networks (Continued...)
- Lecture 90 - CNNs (success stories on ImageNet)
- Lecture 91 - CNNs (success stories on ImageNet) (Continued...)
- Lecture 92 - Image Classification continued (GoogLeNet and ResNet)
- Lecture 93 - Visualizing patches which maximally activate a neuron
- Lecture 94 - Visualizing filters of a CNN
- Lecture 95 - Occlusion experiments
- Lecture 96 - Finding influence of input pixels using backpropagation
- Lecture 97 - Guided Backpropagation
- Lecture 98 - Optimization over images
- Lecture 99 - Create images from embeddings
- Lecture 100 - Deep Dream
- Lecture 101 - Deep Art
- Lecture 102 - Fooling Deep Convolutional Neural Networks
- Lecture 103 - Sequence Learning Problems
- Lecture 104 - Recurrent Neural Networks
- Lecture 105 - Backpropagation through time
- Lecture 106 - The problem of Exploding and Vanishing Gradients
- Lecture 107 - Some Gory Details

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Selective Read, Selective Write, Selective Forget - The Whiteboard Analogy
- Lecture 109 - Long Short Term Memory (LSTM) and Gated Recurrent Units (GRUs)
- Lecture 110 - How LSTMs avoid the problem of vanishing gradients
- Lecture 111 - How LSTMs avoid the problem of vanishing gradients (Continued...)
- Lecture 112 - Introduction to Encoder Decoder Models
- Lecture 113 - Applications of Encoder Decoder models
- Lecture 114 - Attention Mechanism
- Lecture 115 - Attention Mechanism (Continued...)
- Lecture 116 - Attention over images
- Lecture 117 - Hierarchical Attention

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Foundations to Computer Systems Design

Subject Co-ordinator - Prof. V. Kamakoti

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the Course  
Lecture 2 - CMOS Transistors and Gates  
Lecture 3 - Basic Gates  
Lecture 4 - Building Gates Using Simulator  
Lecture 5 - Hierarchical Design and Verification  
Lecture 6 - Building Blocks of a Digital Computer  
Lecture 7 - Binary Number Systems  
Lecture 8 - Signed Number Systems  
Lecture 9 - Twos Complement Number System  
Lecture 10 - Binary Adder Circuits  
Lecture 11 - Building the ALU of HACK  
Lecture 12 - HACK ALU Functionality  
Lecture 13 - Tips for Project P1  
Lecture 14 - Sequential Logic Design  
Lecture 15 - Latches and Flipflops  
Lecture 16 - The Memory Hierarchy  
Lecture 17 - Design of Program Counter  
Lecture 18 - Introduction to Computer Organization  
Lecture 19 - Memory Mapped I/O  
Lecture 20 - Tips for Projects P2 and P3  
Lecture 21 - Tips for Project 4  
Lecture 22 - Tips for Project 4  
Lecture 23 - Introduction to Computer Architecture  
Lecture 24 - The HACK Microarchitecture  
Lecture 25 - The HACK CPU - A Deep Dive - Part 1  
Lecture 26 - The HACK CPU - A Deep Dive - Part 2  
Lecture 27 - The Data Memory  
Lecture 28 - The HACK Computer  
Lecture 29 - The Assembler Construction

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- Lecture 30 - Understanding the Working of Assembler
- Lecture 31 - Assembler
- Lecture 32 - Assembler
- Lecture 33 - Assembler
- Lecture 34 - Project 6
- Lecture 35 - Virtual Machines - What and Why?
- Lecture 36 - The VM Instruction Set Architecture
- Lecture 37 - The execution of a VM Program
- Lecture 38 - How powerful is the VM?
- Lecture 39 - Project 7
- Lecture 40 - Project 7
- Lecture 41 - Deep Understanding of VM ISA using VM Emulator
- Lecture 42 - Virtual Machine II - Program flow commands and Introduction to Function Calls
- Lecture 43 - Implementation of Function Call
- Lecture 44 - Working of the Virtual Machine
- Lecture 45 - Project 8
- Lecture 46 - Handling Static Variables
- Lecture 47 - Project 8
- Lecture 48 - Introduction to The JACK Programming Language
- Lecture 49 - Project 9
- Lecture 50 - Understanding Syntax of JACK using Examples
- Lecture 51 - Project 9
- Lecture 52 - The JACK Syntax - Language Specification
- Lecture 53 - Application Development using JACK
- Lecture 54 - JACK Compiler
- Lecture 55 - Project 10
- Lecture 56 - The JACK Grammar
- Lecture 57 - Compiler for JACK
- Lecture 58 - The Token Analyzer
- Lecture 59 - Testing the Correctness
- Lecture 60 - The Jack Compiler - Back-end Introduction
- Lecture 61 - The Jack Compiler - Handling Variables
- Lecture 62 - The Jack Compiler - Handling Expressions
- Lecture 63 - The Jack Compiler - Handling Flow of Control
- Lecture 64 - The Jack Compiler - Handling Objects
- Lecture 65 - The Jack Compiler - Handling Arrays
- Lecture 66 - The Jack Compiler Backend
- Lecture 67 - The Jack Compiler Backend
- Lecture 68 - The Jack Compiler Backend

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- Lecture 69 - The Jack Compiler Backend
- Lecture 70 - The Jack Compiler Backend
- Lecture 71 - The Jack Compiler Backend
- Lecture 72 - Jack Compiler
- Lecture 73 - Jack Compiler
- Lecture 74 - Jack Compiler
- Lecture 75 - Understand the Operating System - Compiler Interactions
- Lecture 76 - Project 12 - One sample journey from Jack to Hack
- Lecture 77 - Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Machine Learning for Engineering and Science Appl

Subject Co-ordinator - Prof. Ganapathy, Prof. Balaji Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course History of Artificial Intelligence
- Lecture 2 - Overview of Machine Learning
- Lecture 3 - Why Linear Algebra ? Scalars, Vectors, Tensors
- Lecture 4 - Basic Operations
- Lecture 5 - Norms
- Lecture 6 - Linear Combinations Span Linear Independence
- Lecture 7 - Matrix Operations Special Matrices Matrix Decompositions
- Lecture 8 - Introduction to Probability Theory Discrete and Continuous Random Variables
- Lecture 9 - Conditional, Joint, Marginal Probabilities Sum Rule and Product Rule Bayes' Theorem
- Lecture 10 - Bayes' Theorem - Simple Examples
- Lecture 11 - Independence Conditional Independence Chain Rule Of Probability
- Lecture 12 - Expectation
- Lecture 13 - Variance Covariance
- Lecture 14 - Some Relations for Expectation and Covariance (Slightly Advanced)
- Lecture 15 - Machine Representation of Numbers, Overflow, Underflow, Condition Number
- Lecture 16 - Derivatives, Gradient, Hessian, Jacobian, Taylor Series
- Lecture 17 - Matrix Calculus (Slightly Advanced)
- Lecture 18 - Optimization 1 Unconstrained Optimization
- Lecture 19 - Introduction to Constrained Optimization
- Lecture 20 - Introduction to Numerical Optimization Gradient Descent - 1
- Lecture 21 - Gradient Descent 2 Proof of Steepest Descent Numerical Gradient Calculation Stopping Criteria
- Lecture 22 - Introduction to Packages
- Lecture 23 - The Learning Paradigm
- Lecture 24 - A Linear Regression Example
- Lecture 25 - Linear Regression Least Squares Gradient Descent
- Lecture 26 - Coding Linear Regression
- Lecture 27 - Generalized Function for Linear Regression
- Lecture 28 - Goodness of Fit
- Lecture 29 - Bias-Variance Trade Off

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- Lecture 30 - Gradient Descent Algorithms
- Lecture 31 - Introduction to Week 5 (Deep Learning)
- Lecture 32 - Logistic Regression
- Lecture 33 - Binary Entropy cost function
- Lecture 34 - OR Gate Via Classification
- Lecture 35 - NOR, AND, NAND Gates
- Lecture 36 - XOR Gate
- Lecture 37 - Differentiating the sigmoid
- Lecture 38 - Gradient of logistic regression
- Lecture 39 - Code for Logistic Regression
- Lecture 40 - Multinomial Classification - Introduction
- Lecture 41 - Multinomial Classification - One Hot Vector
- Lecture 42 - Multinomial Classification - Softmax
- Lecture 43 - Schematic of multinomial logistic regression
- Lecture 44 - Biological neuron
- Lecture 45 - Structure of an Artificial Neuron
- Lecture 46 - Feedforward Neural Network
- Lecture 47 - Introduction to back prop
- Lecture 48 - Summary of Week 05
- Lecture 49 - Introduction to Convolution Neural Networks (CNN)
- Lecture 50 - Types of convolution
- Lecture 51 - CNN Architecture Part 1 (LeNet and Alex Net)
- Lecture 52 - CNN Architecture Part 2 (VGG Net)
- Lecture 53 - CNN Architecture Part 3 (GoogleNet)
- Lecture 54 - CNN Architecture Part 4 (ResNet)
- Lecture 55 - CNN Architecture Part 5 (DenseNet)
- Lecture 56 - Train Network for Image Classification
- Lecture 57 - Semantic Segmentation
- Lecture 58 - Hyperparameter optimization
- Lecture 59 - Transfer Learning
- Lecture 60 - Segmentation of Brain Tumors from MRI using Deep Learning
- Lecture 61 - Activation Functions
- Lecture 62 - Learning Rate decay, Weight initialization
- Lecture 63 - Data Normalization
- Lecture 64 - Batch Norm
- Lecture 65 - Introduction to RNNs
- Lecture 66 - Example - Sequence Classification
- Lecture 67 - Training RNNs - Loss and BPTT
- Lecture 68 - Vanishing Gradients and TBPTT

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- Lecture 69 - RNN Architectures
- Lecture 70 - LSTM
- Lecture 71 - Why LSTM Works
- Lecture 72 - Deep RNNs and Bi- RNNs
- Lecture 73 - Summary of RNNs
- Lecture 74 - Introduction.
- Lecture 75 - Knn
- Lecture 76 - Binary decision trees
- Lecture 77 - Binary regression trees
- Lecture 78 - Bagging
- Lecture 79 - Random Forest
- Lecture 80 - Boosting
- Lecture 81 - Gradient boosting
- Lecture 82 - Unsupervised learning and Kmeans
- Lecture 83 - Agglomerative clustering
- Lecture 84 - Probability Distributions- Gaussian, Bernoulli
- Lecture 85 - Covariance Matrix of Gaussian Distribution
- Lecture 86 - Central Limit Theorem
- Lecture 87 - Naïve Bayes
- Lecture 88 - MLE Intro
- Lecture 89 - PCA - Part 1
- Lecture 90 - PCA - Part 2
- Lecture 91 - Support Vector Machines
- Lecture 92 - MLE, MAP and Bayesian Regression
- Lecture 93 - Introduction to Generative model
- Lecture 94 - Generative Adversarial Networks (GAN)
- Lecture 95 - Variational Auto-encoders (VAE)
- Lecture 96 - Applications
- Lecture 97 - Applications
- Lecture 98 - Introduction to Week 12
- Lecture 99 - Application 1 description - Fin Heat Transfer
- Lecture 100 - Application 1 solution
- Lecture 101 - Application 2 description - Computational Fluid Dynamics
- Lecture 102 - Application 2 solution
- Lecture 103 - Application 3 description - Topology Optimization
- Lecture 104 - Application 3 solution
- Lecture 105 - Application 4 Solution of PDE/ODE using Neural Networks
- Lecture 106 - Summary and road ahead

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Information Security 5 - Secure Systems Engineering

Subject Co-ordinator - Prof. Chester Rebeiro

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Secure Systems Engineering
- Lecture 2 - Program Binaries
- Lecture 3 - Buffer Overflows in the Stack
- Lecture 4 - Buffer Overflows
- Lecture 5 - Gdb - Demo
- Lecture 6 - Skip instruction - Demo
- Lecture 7 - Buffer Overflow - Demo
- Lecture 8 - Buffer Overflow (create a shell) - Demo
- Lecture 9 - Preventing buffer overflows with canaries and W^X
- Lecture 10 - Return-to-libc attack
- Lecture 11 - ROP Attacks
- Lecture 12 - Demonstration of Canaries, W^X, and ASLR to prevent Buffer Overflow Attacks
- Lecture 13 - Demonstration of a Return-to-Libc Attack
- Lecture 14 - Demonstration of a Return Oriented Programming (ROP) Attack
- Lecture 15 - ASLR - Part 1
- Lecture 16 - ASLR - Part 2
- Lecture 17 - Buffer overreads
- Lecture 18 - Demonstration of Load Time Relocation
- Lecture 19 - Demonstration of Position Independent Code
- Lecture 20 - PLT Demonstration
- Lecture 21 - Format string vulnerabilities
- Lecture 22 - Integer Vulnerabilities
- Lecture 23 - Heap
- Lecture 24 - Heap exploits
- Lecture 25 - Demo of Integer Vulnerabilities - I
- Lecture 26 - Demo of Integer Vulnerabilities - II
- Lecture 27 - Demo of Format String Vulnerabilities
- Lecture 28 - Access Control
- Lecture 29 - Access control in linux

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Mandatory access Control
- Lecture 31 - Confinement in Applications
- Lecture 32 - Software fault isolation
- Lecture 33 - Trusted Execution Environments
- Lecture 34 - ARM Trustzone
- Lecture 35 - SGX - Part 1
- Lecture 36 - SGX - Part 2
- Lecture 37 - PUF - Part 1
- Lecture 38 - PUF - Part 2
- Lecture 39 - PUF - Part 3
- Lecture 40 - Covert Channels
- Lecture 41 - Flush+Reload Attacks
- Lecture 42 - Prime+Probe
- Lecture 43 - Meltdown
- Lecture 44 - Spectre Variant - 1
- Lecture 45 - Spectre variant - 2
- Lecture 46 - rowhammer
- Lecture 47 - Heap demo - 1
- Lecture 48 - Heap demo - 2
- Lecture 49 - Heap demo - 3
- Lecture 50 - PowerAnalysisAttacks
- Lecture 51 - Hardware Trojans
- Lecture 52 - FANCI
- Lecture 53 - Detecting Hardware Trojans in ICs
- Lecture 54 - Protecting against Hardware Trojans
- Lecture 55 - Side Channel Analysis
- Lecture 56 - Fault Attacks on AES
- Lecture 57 - Demo
- Lecture 58 - Demo
- Lecture 59 - Demo

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Multimodal Interaction

Subject Co-ordinator - Dr. Stefan Hillmann, Prof. Dr. Sebastian Moller

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Medium vs. Modality  
Lecture 3 - Multimedia and Multimodality  
Lecture 4 - Modality Relations  
Lecture 5 - Characteristics of Multimodal Systems  
Lecture 6 - Introduction  
Lecture 7 - Speech Production  
Lecture 8 - Hearing - Ear  
Lecture 9 - Hearing - Perception  
Lecture 10 - Introduction  
Lecture 11 - The Human Eye  
Lecture 12 - Gestalt Perception  
Lecture 13 - Resolution and Sensitivity  
Lecture 14 - Depth Perception  
Lecture 15 - Reading  
Lecture 16 - Introduction  
Lecture 17 - Haptics  
Lecture 18 - Smell  
Lecture 19 - Taste  
Lecture 20 - Memory  
Lecture 21 - Motorsystem  
Lecture 22 - Introduction  
Lecture 23 - Processing Multiple Signals  
Lecture 24 - Multimodal Dual-Tasks  
Lecture 25 - Effects of Discongruent Signals  
Lecture 26 - Relevance  
Lecture 27 - Introduction 1  
Lecture 28 - Introduction 2  
Lecture 29 - Gesture to Space

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Turn Taking
- Lecture 31 - Conclusion
- Lecture 32 - Introduction
- Lecture 33 - Overview
- Lecture 34 - Automatic Speech Recognition
- Lecture 35 - Emotion Recognition
- Lecture 36 - Text Recognition
- Lecture 37 - Introduction1
- Lecture 38 - Icons
- Lecture 39 - Text Generation
- Lecture 40 - Text to Speech
- Lecture 41 - Speech Generation
- Lecture 42 - Introduction .
- Lecture 43 - Multimodal Interactive Systems Development
- Lecture 44 - Introduction . .
- Lecture 45 - Virtual Reality
- Lecture 46 - Introduction to Audio for Virtual Reality
- Lecture 47 - Spatial Hearing
- Lecture 48 - Dummy Heads
- Lecture 49 - Individuality of HRTFs
- Lecture 50 - Sterophony
- Lecture 51 - Crosstalk Cancelation
- Lecture 52 - Ambisonics
- Lecture 53 - Sound Field Synthesis
- Lecture 54 - Challenges with Projection-based Systems
- Lecture 55 - Capturing of Sound Scenes
- Lecture 56 - Closing Remarks



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Deep Learning - Part 2

Subject Co-ordinator - Prof.Mitesh Khapra

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Recap of Probability Theory
- Lecture 2 - Why are we interested in Joint Distributions
- Lecture 3 - How do we represent a joint distribution
- Lecture 4 - Can we represent the joint distribution more compactly
- Lecture 5 - Can we use a graph to represent a joint distribution
- Lecture 6 - Different types of reasoning encoded in a Bayesian Network
- Lecture 7 - Independencies encoded by a Bayesian Network (Case 1)
- Lecture 8 - Independencies encoded by a Bayesian Network (Case 2)
- Lecture 9 - Independencies encoded by a Bayesian Network (Case 3)
- Lecture 10 - Bayesian Networks
- Lecture 11 - I-Maps
- Lecture 12 - Markov Networks
- Lecture 13 - Factors in Markov Network
- Lecture 14 - Local Independencies in a Markov Network
- Lecture 15 - Joint Distributions
- Lecture 16 - The concept of a latent variable
- Lecture 17 - Restricted Boltzmann Machines
- Lecture 18 - RBMs as Stochastic Neural Networks
- Lecture 19 - Unsupervised Learning with RBMs
- Lecture 20 - Computing the gradient of the log likelihood
- Lecture 21 - Motivation for Sampling
- Lecture 22 - Motivation for Sampling - Part 2
- Lecture 23 - Markov Chains
- Lecture 24 - Why do we care about Markov Chains ?
- Lecture 25 - Setting up a Markov Chain for RBMs
- Lecture 26 - Training RBMs Using Gibbs Sampling
- Lecture 27 - Training RBMs Using Contrastive Divergence
- Lecture 28 - Revisiting Autoencoders
- Lecture 29 - Variational Autoencoders

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Variational Autoencoders
- Lecture 31 - Neural Autoregressive Density Estimator
- Lecture 32 - Masked Autoencoder Density Estimator (MADE)
- Lecture 33 - Generative Adversarial Networks - The Intuition
- Lecture 34 - Generative Adversarial Networks - Architecture
- Lecture 35 - Generative Adversarial Networks - The Math Behind it
- Lecture 36 - Generative Adversarial Networks - Some Cool Stuff and Applications
- Lecture 37 - Bringing it all together (the deep generative summary)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Machine Learning

Subject Co-ordinator - Prof. Henrik Bostrom, Prof. Fredrik Kilander, Prof. Carl Gustaf Jansson

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the Machine Learning Course  
Lecture 2 - Foundation of Artificial Intelligence and Machine Learning  
Lecture 3 - Intelligent Autonomous Systems and Artificial Intelligence  
Lecture 4 - Applications of Machine Learning  
Lecture 5 - Tutorial for week 1  
Lecture 6 - Characterization of Learning Problems  
Lecture 7 - Objects, Categories and Features  
Lecture 8 - Feature related issues  
Lecture 9 - Scenarios for Concept Learning  
Lecture 10 - Tutorial for week 2  
Lecture 11 - Forms of Representation  
Lecture 12 - Decision Trees  
Lecture 13 - Bayes (ian) Belief Networks  
Lecture 14 - Artificial Neural Networks  
Lecture 15 - Genetic algorithm  
Lecture 16 - Logic Programming  
Lecture 17 - Tutorial for week 3  
Lecture 18 - Inductive Learning based on Symbolic Representations and Weak Theories  
Lecture 19 - Generalization as Search - Part 1  
Lecture 20 - Generalization as Search - Part 2  
Lecture 21 - Decision Tree Learning Algorithms - Part 1  
Lecture 22 - Decision Tree Learning Algorithms - Part 2  
Lecture 23 - Instance Based Learning - Part 1  
Lecture 24 - Instance Based Learning - Part 2  
Lecture 25 - Cluster Analysis  
Lecture 26 - Tutorial for week 4  
Lecture 27 - Machine Learning enabled by Prior Theories  
Lecture 28 - Explanation Based Learning  
Lecture 29 - Inductive Logic Programming

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Reinforcement Learning - Part 1 Introduction
- Lecture 31 - Reinforcement Learning - Part 2 Learning Algorithms
- Lecture 32 - Reinforcement Learning - Part 3 Q-Learning
- Lecture 33 - Case - Based Reasoning
- Lecture 34 - Tutorial for week 5
- Lecture 35 - Fundamentals of Artificial Neural Networks - Part 1
- Lecture 36 - Fundamentals of Artificial Neural Networks - Part 2
- Lecture 37 - Perceptrons
- Lecture 38 - Model of Neuron in an ANN
- Lecture 39 - Learning in a Feed Forward Multiple Layer ANN - Backpropagation
- Lecture 40 - Recurrent Neural Networks
- Lecture 41 - Hebbian Learning and Associative Memory
- Lecture 42 - Hopfield Networks and Boltzman Machines - Part 1
- Lecture 43 - Hopfield Networks and Boltzman Machines - Part 2
- Lecture 44 - Convolutional Neural Networks - Part 1
- Lecture 45 - Convolutional Neural Networks - Part 2
- Lecture 46 - DeepLearning
- Lecture 47 - Tutorial for week 6
- Lecture 48 - Tools and Resources
- Lecture 49 - Interdisciplinary Inspiration
- Lecture 50 - Preparation for Exam and Example of Applications

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:C Programming and Assembly Language

Subject Co-ordinator - Prof. Janakiraman Viraraghavan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Applied Natural Language Processing

Subject Co-ordinator - Prof. Ramaseshan R

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Operations on a Corpus
- Lecture 3 - Probability and NLP
- Lecture 4 - Vector Space models
- Lecture 5 - Sequence Learning
- Lecture 6 - Machine Translation
- Lecture 7 - Preprocessing
- Lecture 8 - Statistical Properties of Words - Part 1
- Lecture 9 - Statistical Properties of Words - Part 2
- Lecture 10 - Statistical Properties of Words - Part 3
- Lecture 11 - Vector Space Models for NLP
- Lecture 12 - Document Similarity - Demo, Inverted index, Exercise
- Lecture 13 - Vector Representation of words
- Lecture 14 - Contextual understanding of text
- Lecture 15 - Co-occurrence matrix, n-grams
- Lecture 16 - Collocations, Dense word Vectors
- Lecture 17 - SVD, Dimensionality reduction, Demo
- Lecture 18 - Query Processing
- Lecture 19 - Topic Modeling
- Lecture 20 - Examples for word prediction
- Lecture 21 - Introduction to Probability in the context of NLP
- Lecture 22 - Joint and conditional probabilities, independence with examples
- Lecture 23 - The definition of probabilistic language model
- Lecture 24 - Chain rule and Markov assumption
- Lecture 25 - Generative Models
- Lecture 26 - Bigram and Trigram Language models - peeking inside the model building
- Lecture 27 - Out of vocabulary words and curse of dimensionality
- Lecture 28 - Exercise
- Lecture 29 - Naive-Bayes, classification

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Machine learning, perceptron, linearly separable
- Lecture 31 - Linear Models for Claassification
- Lecture 32 - Biological Neural Network
- Lecture 33 - Perceptron
- Lecture 34 - Perceptron Learning
- Lecture 35 - Logical XOR
- Lecture 36 - Activation Functions
- Lecture 37 - Gradient Descent
- Lecture 38 - Feedforward and Backpropagation Neural Network
- Lecture 39 - Why Word2Vec?
- Lecture 40 - What are CBOW and Skip-Gram Models?
- Lecture 41 - One word learning architecture
- Lecture 42 - Forward pass for Word2Vec
- Lecture 43 - Matrix Operations Explained
- Lecture 44 - CBOW and Skip Gram Models
- Lecture 45 - Building Skip-gram model using Python
- Lecture 46 - Reduction of complexity - sub-sampling, negative sampling
- Lecture 47 - Binay tree, Hierarchical softmax
- Lecture 48 - Mapping the output layer to Softmax
- Lecture 49 - Updating the weights using hierarchical softmax
- Lecture 50 - Discussion on the results obtained from word2vec
- Lecture 51 - Recap and Introduction
- Lecture 52 - ANN as a LM and its limitations
- Lecture 53 - Sequence Learning and its applications
- Lecture 54 - Introuduction to Recurrent Neural Network
- Lecture 55 - Unrolled RNN
- Lecture 56 - RNN - Based Language Model
- Lecture 57 - BPTT - Forward Pass
- Lecture 58 - BPTT - Derivatives for W,V and U
- Lecture 59 - BPTT - Exploding and vanishing gradient
- Lecture 60 - LSTM
- Lecture 61 - Truncated BPTT
- Lecture 62 - GRU
- Lecture 63 - Introduction and Historical Approaches to Machine Translation
- Lecture 64 - What is SMT?
- Lecture 65 - Noisy Channel Model, Bayes Rule, Language Model
- Lecture 66 - Translation Model, Alignment Variables
- Lecture 67 - Alignments again!
- Lecture 68 - IBM Model 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - IBM Model 2
- Lecture 70 - Introduction to Phrase-based translation
- Lecture 71 - Symmetrization of alignments
- Lecture 72 - Extraction of Phrases
- Lecture 73 - Learning/estimating the phrase probabilities using another Symmetrization example
- Lecture 74 - Introduction to evaluation of Machine Translation
- Lecture 75 - BLEU - A short Discussion of the seminal paper
- Lecture 76 - BLEU Demo using NLTK and other Metrics
- Lecture 77 - Encoder-Decoder model for Neural Machine Translation
- Lecture 78 - RNN Based Machine Translation
- Lecture 79 - Recap and Connecting Bloom Taxonomy with Machine Learning
- Lecture 80 - Introduction to Attention based Translation
- Lecture 81 - Research Paper discussion on Neural machine translation by jointly learning to align and translate
- Lecture 82 - Typical NMT architecture and models for multi-language translation
- Lecture 83 - Beam Search, Stochastic Gradient Descent, Mini Batch, Batch
- Lecture 84 - Beam Search, Stochastic Gradient Descent, Mini Batch, Batch
- Lecture 85 - Introduction to Conversation Modeling
- Lecture 86 - A few examples in Conversation Modeling
- Lecture 87 - Some ideas to Implement IR-based Conversation Modeling
- Lecture 88 - Discussion of some ideas in Question Answering
- Lecture 89 - Hyperspace Analogue to Language - HAL
- Lecture 90 - Correlated Occurrence Analogue to Lexical Semantic - COALS
- Lecture 91 - Global Vectors - Glove
- Lecture 92 - Evaluation of Word vectors



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Python for Data Science

Subject Co-ordinator - Prof. Rangunathan Rengasamy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Python for Data Science  
Lecture 2 - Introduction to Python  
Lecture 3 - Introduction to Spyder - Part 1  
Lecture 4 - Introduction to Spyder - Part 2  
Lecture 5 - Variables and Datatypes  
Lecture 6 - Operators  
Lecture 7 - Jupyter setup  
Lecture 8 - Sequence data - Part 1  
Lecture 9 - Sequence data - Part 2  
Lecture 10 - Sequence data - Part 3  
Lecture 11 - Sequence data - Part 4  
Lecture 12 - Numpy  
Lecture 13 - Reading data  
Lecture 14 - Pandas Dataframes - I  
Lecture 15 - Pandas Dataframes - II  
Lecture 16 - Pandas Dataframes - III  
Lecture 17 - Control structures and Functions  
Lecture 18 - Exploratory data analysis  
Lecture 19 - Data Visualization - Part I  
Lecture 20 - Data Visualization - Part II  
Lecture 21 - Dealing with missing data  
Lecture 22 - Introduction to Classification Case Study  
Lecture 23 - Case Study on Classification - Part I  
Lecture 24 - Case Study on Classification - Part II  
Lecture 25 - Introduction to Regression Case Study  
Lecture 26 - Case Study on Regression - Part I  
Lecture 27 - Case Study on Regression - Part II  
Lecture 28 - Case Study on Regression - Part III  
Lecture 29 - Module : Predictive Modelling

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear Regression
- Lecture 31 - Model Assessment
- Lecture 32 - Diagnostics to Improve Linear Model Fit
- Lecture 33 - Cross Validation
- Lecture 34 - Classification
- Lecture 35 - Logistic Regression
- Lecture 36 - K-Nearest Neighbors (kNN)
- Lecture 37 - K-means Clustering
- Lecture 38 - Logistic Regression (Continued...)
- Lecture 39 - Decision Trees
- Lecture 40 - Multiple Linear Regression

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Practical Machine Learning with Tensorflow

Subject Co-ordinator - Dr. B. Ravindran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview of Tensorflow  
Lecture 2 - Machine Learning Refresher  
Lecture 3 - Steps in Machine Learning Process  
Lecture 4 - Loss Functions in Machine Learning  
Lecture 5 - Gradient Descent  
Lecture 6 - Gradient Descent Variations  
Lecture 7 - Model Selection and Evaluation  
Lecture 8 - Machine Learning Visualization  
Lecture 9 - Deep Learning Refresher  
Lecture 10 - Introduction to Tensors  
Lecture 11 - Mathematical Foundations of Deep Learning (Continued...)  
Lecture 12 - Building Data Pipelines for Tensorflow - Part 1  
Lecture 13 - Building Data Pipelines for Tensorflow - Part 2  
Lecture 14 - Building Data Pipelines for Tensorflow - Part 3  
Lecture 15 - Text Processing with Tensorflow  
Lecture 16 - Classify Images  
Lecture 17 - Regression  
Lecture 18 - Classify Structured Data  
Lecture 19 - Text Classification  
Lecture 20 - Underfitting and Overfitting  
Lecture 21 - Save and Restore Models  
Lecture 22 - CNNs - Part 1  
Lecture 23 - CNNs - Part 2  
Lecture 24 - Transfer learning with pretrained CNNs  
Lecture 25 - Transfer learning with TF hub  
Lecture 26 - Image classification and visualization  
Lecture 27 - Estimator API  
Lecture 28 - Logistic Regression  
Lecture 29 - Boosted Trees

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to word embeddings
- Lecture 31 - Recurrent Neural Networks - Part 1
- Lecture 32 - Recurrent Neural Networks - Part 2
- Lecture 33 - Time Series Forecasting with RNNs
- Lecture 34 - Text Generation with RNNs
- Lecture 35 - TensorFlow Customization
- Lecture 36 - Customizing tf.keras - Part 1
- Lecture 37 - Customizing tf.keras - Part 2
- Lecture 38 - TensorFlow Distributed Training

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Database Systems

Subject Co-ordinator - Prof. P.Sreenivasa Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Database Architecture
- Lecture 3 - RDBMS Architecture
- Lecture 4 - Introduction to ER Model
- Lecture 5 - Entities and Relationships
- Lecture 6 - Modelling Weak Entities and Design Choices
- Lecture 7 - Relational Data Model and Notion of Keys
- Lecture 8 - Introduction to Relational Algebra
- Lecture 9 - Operators in Relational Model
- Lecture 10 - Uses of Renaming, Join and Division in Relation Algebra
- Lecture 11 - Example Queries in Relation Model and Outer Join Operation
- Lecture 12 - Convert ER-Model to a Relational Model
- Lecture 13 - Introduction to tuple relational calculus
- Lecture 14 - Example TRC queries
- Lecture 15 - Data definition using SQL
- Lecture 16 - Basic SQL query block and subqueries
- Lecture 17 - Correlated subqueries
- Lecture 18 - Aggregate functions
- Lecture 19 - Views
- Lecture 20 - Programmatic access of SQL
- Lecture 21 - Normal forms - Introduction
- Lecture 22 - Deriving new functional dependencies
- Lecture 23 - Proving soundness and completeness of Armstrong's Axioms
- Lecture 24 - Normal forms - 2NF, 3NF, BCNF
- Lecture 25 - Properties of decompositions
- Lecture 26 - Normal forms - 4NF, 5NF
- Lecture 27 - Introduction to file organization
- Lecture 28 - File organization methods
- Lecture 29 - Dynamic File organization using Hashing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Index structures
- Lecture 31 - B+ trees on Disks
- Lecture 32 - Performance and Reliability of Multiple Disks
- Lecture 33 - Relational Query Evaluation
- Lecture 34 - Join operator processing algorithms
- Lecture 35 - Query optimization
- Lecture 36 - ACID properties and operations in transactions
- Lecture 37 - Schedules
- Lecture 38 - Concurrency control using Locks
- Lecture 39 - Recovery using undo logging method
- Lecture 40 - Recovery using Redo and Undo-Redo logging methods
- Lecture 41 - Recoverable schedules and transaction isolation levels

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Foundations of Cryptography

Subject Co-ordinator - Prof. Ashish Choudhury

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Symmetric-key Encryption
- Lecture 3 - Historical Ciphers and their Cryptanalysis
- Lecture 4 - Perfect Security
- Lecture 5 - Limitations of Perfect Security
- Lecture 6 - Introduction to Computational Security
- Lecture 7 - Semantic Security
- Lecture 8 - Pseudo-random Generators (PRGs)
- Lecture 9 - Operations on Pseudorandom Generators
- Lecture 10 - Stream Ciphers
- Lecture 11 - Provably-secure Instantiation of PRG
- Lecture 12 - Practical Instantiations of PRG
- Lecture 13 - CPA-security
- Lecture 14 - Pseudo-random Functions (PRFs)
- Lecture 15 - CPA-secure Encryption from PRF
- Lecture 16 - Modes of Operations of Block Ciphers - Part I
- Lecture 17 - Modes of Operations of Block Ciphers - Part II
- Lecture 18 - Theoretical Constructions of Block Ciphers
- Lecture 19 - Practical Constructions of Block Ciphers - Part I
- Lecture 20 - Practical Constructions of Block Ciphers - Part II
- Lecture 21 - From Passive to Active Adversary
- Lecture 22 - Message Integrity and Authentication
- Lecture 23 - Message Authentication for Long Messages - Part I
- Lecture 24 - Message Authentication for Long Messages - Part II
- Lecture 25 - Information-theoretic MACs - Part I
- Lecture 26 - Information-theoretic MACs - Part II
- Lecture 27 - Cryptographic Hash Functions - Part I
- Lecture 28 - Cryptographic Hash Functions - Part II
- Lecture 29 - Message Authentication Using Hash Functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Generic Attacks on Hash Functions and Additional Applications of Hash Functions
- Lecture 31 - Random Oracle Model - Part I
- Lecture 32 - Random Oracle Model - Part II
- Lecture 33 - Authenticated Encryption
- Lecture 34 - Composing CPA-secure Cipher with a Secure MAC - Part I
- Lecture 35 - Composing CPA-secure Cipher with a Secure MAC - Part II
- Lecture 36 - Key-Exchange Protocols - Part I
- Lecture 37 - Key-Exchange Protocols - Part II
- Lecture 38 - Cyclic groups
- Lecture 39 - Cryptographic Hardness Assumptions in the Cyclic Groups
- Lecture 40 - Candidate Cyclic Groups for Cryptographic Purposes - Part I
- Lecture 41 - Candidate Cyclic Groups for Cryptographic Purposes - Part II
- Lecture 42 - Cryptographic Applications of the Discrete Log Assumption
- Lecture 43 - Public-key Encryption
- Lecture 44 - El Gamal Public-key Encryption Scheme
- Lecture 45 - RSA Assumption
- Lecture 46 - RSA Public-key Cryptosystem
- Lecture 47 - Hybrid Public-key Cryptosystem
- Lecture 48 - CCA-Secure Public-key Ciphers
- Lecture 49 - CCA-Secure Public-key Ciphers Based on Diffie-Hellman Problems
- Lecture 50 - CCA-Secure Public-key Ciphers Based on RSA Assumption
- Lecture 51 - Digital Signatures
- Lecture 52 - RSA Signatures
- Lecture 53 - Identification Schemes
- Lecture 54 - Schnorr Signature Scheme and TLS/SSL
- Lecture 55 - Number Theory
- Lecture 56 - Secret Sharing
- Lecture 57 - Zero-Knowledge Protocols - Part I
- Lecture 58 - Zero-Knowledge Protocols - Part II
- Lecture 59 - Good Bye for Now



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Modern Application Development

Subject Co-ordinator - Prof. Madhavan Mukund, Prof. Abhijat Vichare, Prof. Aamod Sane

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Modern Application Development - Part 1  
Lecture 2 - Introduction to Modern Application Development - Part 2  
Lecture 3 - Introduction to Modern Application Development - Part 3  
Lecture 4 - Introduction to Modern Application Development - Part 4  
Lecture 5 - Introduction to Modern Application Development - Part 5  
Lecture 6 - Command Line - Part 1  
Lecture 7 - Command Line - Part 2  
Lecture 8 - Command Line - Practice Questions - Part 1  
Lecture 9 - Command Line - Practice Questions - Part 2  
Lecture 10 - Comparing CLI, GUI, and Web Interfaces  
Lecture 11 - Producing HTML+CSS output - Part 1  
Lecture 12 - Producing HTML+CSS output - Part 2  
Lecture 13 - Introduction to Input in HTML  
Lecture 14 - Session 2 - Part 1  
Lecture 15 - Session 2 - Part 2  
Lecture 16 - Session 2 - Part 3  
Lecture 17 - Session 1 - Part 1 - Introduction to HTML and CSS  
Lecture 18 - Session 1 - Part 2  
Lecture 19 - Week6 - Session 1  
Lecture 20 - Week6 - Session 2  
Lecture 21 - Introduction to JDBC  
Lecture 22 - Week 7 Session 1 - Part 1  
Lecture 23 - Week 7 Session 1 - Part 2  
Lecture 24 - Week 8 Session 1  
Lecture 25 - Week 8 Session 2  
Lecture 26 - Week 8 Session 3  
Lecture 27 - Week 9 Session 1  
Lecture 28 - Week 9 Session 3  
Lecture 29 - Week 10 Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Week 10 Part 2

Lecture 31 - Week 10 Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Deep Learning for Computer Vision

Subject Co-ordinator - Prof. Vineeth N Balasubramanian

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction
- Lecture 2 - History
- Lecture 3 - Image Formation
- Lecture 4 - Image Representation
- Lecture 5 - Linear Filtering
- Lecture 6 - Image in Frequency Domain
- Lecture 7 - Image Sampling
- Lecture 8 - Edge Detection
- Lecture 9 - From Edges to Blobs and Corners
- Lecture 10 - Scale Space, Image Pyramids and Filter Banks
- Lecture 11 - Feature Detectors
- Lecture 12 - Image Segmentation
- Lecture 13 - Other Feature Spaces
- Lecture 14 - Human Visual System
- Lecture 15 - Feature Matching
- Lecture 16 - Hough Transform
- Lecture 17 - From Points to Images
- Lecture 18 - Image Descriptor Matching
- Lecture 19 - Pyramid Matching
- Lecture 20 - From Traditional Vision to Deep Learning
- Lecture 21 - Neural Networks
- Lecture 22 - Neural Networks
- Lecture 23 - Feedforward Neural Networks and Backpropagation - Part 1
- Lecture 24 - Feedforward Neural Networks and Backpropagation - Part 2
- Lecture 25 - Gradient Descent and Variants - Part 1
- Lecture 26 - Gradient Descent and Variants - Part 2
- Lecture 27 - Regularization in Neural Networks - Part 1
- Lecture 28 - Regularization in Neural Networks - Part 2
- Lecture 29 - Improving Training of Neural Networks - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Improving Training of Neural Networks - Part 2
- Lecture 31 - Convolutional Neural Networks
- Lecture 32 - Convolutional Neural Networks
- Lecture 33 - Backpropagation in CNNs
- Lecture 34 - Evolution of CNN Architectures for Image Classification - Part 1
- Lecture 35 - Evolution of CNN Architectures for Image Classification - Part 2
- Lecture 36 - Recent CNN Architectures
- Lecture 37 - Finetuning in CNNs
- Lecture 38 - Explaining CNNs
- Lecture 39 - Explaining CNNs
- Lecture 40 - Explaining CNNs
- Lecture 41 - Explaining CNNs
- Lecture 42 - Explaining CNNs
- Lecture 43 - Going Beyond Explaining CNNs
- Lecture 44 - CNNs for Object Detection-I - Part 1
- Lecture 45 - CNNs for Object Detection-I - Part 2
- Lecture 46 - CNNs for Object Detection-II
- Lecture 47 - CNNs for Segmentation
- Lecture 48 - CNNs for Human Understanding
- Lecture 49 - CNNs for Human Understanding
- Lecture 50 - CNNs for Human Understanding
- Lecture 51 - CNNs for Other Image Tasks
- Lecture 52 - Recurrent Neural Networks
- Lecture 53 - Backpropagation in RNNs
- Lecture 54 - LSTMs and GRUs
- Lecture 55 - Video Understanding using CNNs and RNNs
- Lecture 56 - Attention in Vision Models
- Lecture 57 - Vision and Language
- Lecture 58 - Beyond Captioning
- Lecture 59 - Other Attention Models
- Lecture 60 - Self-Attention and Transformers
- Lecture 61 - Deep Generative Models
- Lecture 62 - Generative Adversarial Networks - Part 1
- Lecture 63 - Generative Adversarial Networks - Part 2
- Lecture 64 - Variational Autoencoders
- Lecture 65 - Combining VAEs and GANs
- Lecture 66 - Beyond VAEs and GANs
- Lecture 67 - Beyond VAEs and GANs
- Lecture 68 - GAN Improvements

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Deep Generative Models across Multiple Domains
- Lecture 70 - VAEs and Disentanglement
- Lecture 71 - Deep Generative Models
- Lecture 72 - Deep Generative Models
- Lecture 73 - Few-shot and Zero-shot Learning - Part 1
- Lecture 74 - Few-shot and Zero-shot Learning - Part 2
- Lecture 75 - Self-Supervised Learning
- Lecture 76 - Adversarial Robustness
- Lecture 77 - Pruning and Model Compression
- Lecture 78 - Neural Architecture Search
- Lecture 79 - Course Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Artificial Intelligence Search Methods For Problems

Subject Co-ordinator - Prof. Deepak Khemani

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Prologue
- Lecture 2 - The Winograd Schema Challenge
- Lecture 3 - Introduction (2013 version)
- Lecture 4 - Can Machines Think?
- Lecture 5 - The Turing Test
- Lecture 6 - Language and Thought
- Lecture 7 - The Willing Suspension of Disbelief
- Lecture 8 - Machines with Wheels and Gears
- Lecture 9 - The Notion of Mind in Philosophy
- Lecture 10 - Reasoning = Computation
- Lecture 11 - Concepts and Categories
- Lecture 12 - How did AI get its name?
- Lecture 13 - The Chess Saga
- Lecture 14 - A Brief History of AI
- Lecture 15 - The Worlds in our Minds
- Lecture 16 - Epiphemona in Computers
- Lecture 17 - State Space Search
- Lecture 18 - Domain Independent Algorithms
- Lecture 19 - Deterministic Search
- Lecture 20 - DFS and BFS
- Lecture 21 - Comparing DFS and BFS
- Lecture 22 - Depth First Iterative Deepening
- Lecture 23 - Heuristic Search
- Lecture 24 - Heuristic Functions and the Search Landscape
- Lecture 25 - Solution Space Search
- Lecture 26 - The Traveling Salesman Problem
- Lecture 27 - Escaping Local Optima
- Lecture 28 - Stochastic Local Search
- Lecture 29 - Genetic Algorithms

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Genetic Algorithms and SAT
- Lecture 31 - Genetic Algorithms for the TSP
- Lecture 32 - Emergent Systems
- Lecture 33 - Ant Colony Optimization
- Lecture 34 - Finding Optimal Paths
- Lecture 35 - Branch and Bound
- Lecture 36 - Algorithm A\*
- Lecture 37 - A\*
- Lecture 38 - Is A\* Admissible?
- Lecture 39 - Admissibility of A\*
- Lecture 40 - Higher, Faster ...
- Lecture 41 - B&B - A\* - wA\* - Best First
- Lecture 42 - A\*
- Lecture 43 - The Monotone Condition
- Lecture 44 - DNA Sequence Alignment
- Lecture 45 - Divide and Conquer Frontier Search.
- Lecture 46 - Smart Memory Graph Search
- Lecture 47 - Variations on A\*
- Lecture 48 - Breadth First Heuristic Search
- Lecture 49 - Beam Stack Search
- Lecture 50 - Game Theory
- Lecture 51 - Popular Recreational Games
- Lecture 52 - Board Games and Game Trees
- Lecture 53 - The Evaluation Function in Board Games
- Lecture 54 - Algorithm Minimax and Alpha-Beta Pruning
- Lecture 55 - A Cluster of Strategies
- Lecture 56 - SSS\*
- Lecture 57 - SSS\*
- Lecture 58 - Automated Domain Independent Planning
- Lecture 59 - The Blocks World Domain
- Lecture 60 - State Space Planning
- Lecture 61 - Goal Stack Planning (GSP)
- Lecture 62 - GSP
- Lecture 63 - Plan Space Planning (PSP)
- Lecture 64 - PSP
- Lecture 65 - Multi-Armed Robots
- Lecture 66 - Means-Ends Analysis
- Lecture 67 - The Planning Graph
- Lecture 68 - Algorithm Graphplan

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Problem Decomposition.
- Lecture 70 - Algorithm AO\*
- Lecture 71 - AO\*
- Lecture 72 - Rule Based Expert Systems
- Lecture 73 - The Inference Engine
- Lecture 74 - The OPS5 Language
- Lecture 75 - Conflict Resolution
- Lecture 76 - Business Rule Management Systems
- Lecture 77 - The Rete Net
- Lecture 78 - Rete Algorithm
- Lecture 79 - Rete Algorithm
- Lecture 80 - Reasoning in Logic
- Lecture 81 - Rules of Inference
- Lecture 82 - Forward Reasoning
- Lecture 83 - First Order Logic
- Lecture 84 - Implicit Quantifier Notation
- Lecture 85 - Backward Reasoning
- Lecture 86 - Depth First Search on Goal Trees
- Lecture 87 - Incompleteness...
- Lecture 88 - Constraint Satisfaction Problems
- Lecture 89 - Binary Constraint Networks
- Lecture 90 - Interpreting Line Drawings
- Lecture 91 - Model Based Diagnosis
- Lecture 92 - Solving CSPs
- Lecture 93 - Arc Consistency
- Lecture 94 - Propagation = Reasoning
- Lecture 95 - Lookahead Search



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Computational Complexity

Subject Co-ordinator - Prof. Subrahmanyam Kalyanasundaram

Co-ordinating Institute - IIT - Hyderabad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Computational Complexity
- Lecture 2 - The Class P
- Lecture 3 - The Class NP
- Lecture 4 - The Class NP - Alternate Definition
- Lecture 5 - Polynomial Time Reductions
- Lecture 6 - NP - Completeness
- Lecture 7 - Cook Levin Theorem - Part 1
- Lecture 8 - Cook Levin Theorem - Part 2
- Lecture 9 - More NP Complete Problems
- Lecture 10 - Polynomial Hierarchy - Part 1
- Lecture 11 - Polynomial Hierarchy - Part 2
- Lecture 12 - Polynomial Hierarchy - Part 3
- Lecture 13 - Time Hierarchy Theorem
- Lecture 14 - Introduction to Space Complexity
- Lecture 15 - NL-Completeness
- Lecture 16 - Savitch's Theorem
- Lecture 17 - NL = co-NL - Part 1
- Lecture 18 - NL = co-NL - Part 2
- Lecture 19 - PSPACE Completeness
- Lecture 20 - Games and PSPACE Completeness
- Lecture 21 - Space Hierarchy Theorem
- Lecture 22 - Ladner's Theorem
- Lecture 23 - Oracle Turing Machines
- Lecture 24 - Polynomial Hierarchy Using Oracles
- Lecture 25 - Baker-Gill-Solovay Theorem - Part 1
- Lecture 26 - Baker-Gill-Solovay Theorem - Part 2
- Lecture 27 - Randomized Complexity Classes - Part 1
- Lecture 28 - Randomized Complexity Classes - Part 2
- Lecture 29 - Randomized Complexity Classes - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Randomized Complexity Classes - Part 4
- Lecture 31 - Comparison Between Randomized Complexity Classes
- Lecture 32 - BPP is in Polynomial Hierarchy
- Lecture 33 - Circuit Complexity - Part 1
- Lecture 34 - Circuit Complexity - Part 2
- Lecture 35 - Formal Definition of Circuits
- Lecture 36 - Hierarchy Theorem for Circuit Size
- Lecture 37 - Complexity Class : P/Poly
- Lecture 38 - Karp-Lipton Theorem
- Lecture 39 - Turing Machines That Take Advice
- Lecture 40 - Classes NC and AC
- Lecture 41 - Parity Not in AC0 - Part 1
- Lecture 42 - Parity Not in AC0 - Part 2
- Lecture 43 - Adleman's Theorem
- Lecture 44 - Polynomial Identity Testing and Bipartite Perfect Matching in RNC
- Lecture 45 - Search Bipartite Perfect Matching is in RNC - Part 1
- Lecture 46 - Search Bipartite Perfect Matching is in RNC - Part 2
- Lecture 47 - Promise Problems and Valiant-Vazirani Theorem
- Lecture 48 - Valiant Vazirani Theorem Continued
- Lecture 49 - #P and the Complexity of Counting
- Lecture 50 - Permanent is #P-Complete - Part 1
- Lecture 51 - Permanent is #P-Complete - Part 2
- Lecture 52 - Toda's Theorem - Part 1
- Lecture 53 - Toda's Theorem - Part 2
- Lecture 54 - Introduction to Communication Complexity - Part 1
- Lecture 55 - Introduction to Communication Complexity - Part 2
- Lecture 56 - Lower Bound Techniques
- Lecture 57 - Communication Complexity of Relations
- Lecture 58 - Monotone Depth Lower Bound for Matching
- Lecture 59 - Interactive Proofs
- Lecture 60 - #3SAT is in IP
- Lecture 61 - Public Coin Interactive Proofs and AM/MA
- Lecture 62 - Simulating Private Coins using Public Coins
- Lecture 63 - Summary and Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Parameterized Algorithms

Subject Co-ordinator - Prof. Neeldhara Misra

Co-ordinating Institute - IIT Gandhinagar, IMSC

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Invitation to FPT
- Lecture 2 - Formalizing FPT
- Lecture 3 - Kernelization: High Degree Rule
- Lecture 4 - Kernelization: d-Hitting Set
- Lecture 5 - Kernelization: Crown Reduciton
- Lecture 6 - Kernelization: Nemhauser-Trotter and Expansion Lemma
- Lecture 7 - Introduction to Branching
- Lecture 8 - Analyzing Recurrences
- Lecture 9 - High-Degree Branching for FVS
- Lecture 10 - Vertex Cover above LP
- Lecture 11 - Applications of Vertex Cover above Matching
- Lecture 12 - Iterative Compression I: Setting Up the Method
- Lecture 13 - Iterative Compression II: Vertex Cover and Tournament Feedback Vertex Set
- Lecture 14 - Iterative Compression III: Feedback Vertex Set and 3-Hitting Set
- Lecture 15 - Iterative Compression IV: Odd Cycle Transversal
- Lecture 16 - Introduction to Randomized Algorithms via a Simple Randomized FPT Algorithm for FVS
- Lecture 17 - Color Coding for Longest Path
- Lecture 18 - Chromatic Coding for Feedback Arc Set on Tournaments
- Lecture 19 - Random Separation and Subgraph Isomorphism
- Lecture 20 - Derandomization
- Lecture 21 - Divide and Conquer and Separator
- Lecture 22 - Towards Defining Treewidth
- Lecture 23 - Treewidth and Constructing Treedecomposition of Few Graph Classes
- Lecture 24 - Structural Properties of Treedecomposition and Win-Win
- Lecture 25 - Nice Tree Decomposition and Algorithm for Max Weight Independent Set
- Lecture 26 - Dynamic Programming Algorithm over graphs of Bounded Treewidth
- Lecture 27 - FPT Apppproximation Algorithm for Computing Tree Decomposition - Part 1
- Lecture 28 - FPT Apppproximation Algorithm for Computing Tree Decomposition - Part 2
- Lecture 29 - FPT Apppproximation Algorithm for Computing Tree Decomposition and Applications - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - FPT Approximation Algorithm for Computing Tree Decomposition and Applications - Part 2
- Lecture 31 - Dynamic Programming Over Subsets for Set Cover
- Lecture 32 - Dynamic Programming Over Subsets for Steiner Tree
- Lecture 33 - ILP for Envy-Free Allocations and Lobbying
- Lecture 34 - ILP for Imbalance Parameterized by Vertex Cover
- Lecture 35 - Important Cuts: Basic
- Lecture 36 - Important Cuts: Enumeration and Bounds
- Lecture 37 - FPT Algorithm for Multiway Cut
- Lecture 38 - FPT Algorithm for Directed Feedback Edge Set
- Lecture 39 - Algebraic Techniques: Inclusion Exclusion (Coloring)
- Lecture 40 - Algebraic Techniques: Inclusion Exclusion (Hamiltonian Path)
- Lecture 41 - Algebraic Techniques: Matrix Multiplication
- Lecture 42 - Algebraic Techniques: Polynomial Method
- Lecture 43 - Matroids: Representative Sets
- Lecture 44 - Matroids: Representative Sets - Computation and Combinatorics
- Lecture 45 - Matroids: Representative Sets - Applications (Paths and Kernels)
- Lecture 46 - Matroids: Representative Sets - Applications (Directed Long Cycle)
- Lecture 47 - Reductions - An Introduction
- Lecture 48 - Reductions - Problems as Hard as Clique I (Clique on Regular Graphs)
- Lecture 49 - Reductions - Problems as Hard as Clique (PVC, MCC, MIS)
- Lecture 50 - Reductions - Problems as Hard as Clique (Dominating Set, Set Cover)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Getting Started with Competitive Programming

Subject Co-ordinator - Prof. Neeldhara Misra

Co-ordinating Institute - IIT - Gandhinagar

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 0 - Welcome and Initial Setup  
Lecture 1 - Reversort  
Lecture 2 - Engineering Reversort  
Lecture 3 - Number Game  
Lecture 4 - Will It Stop?  
Lecture 5 - Trouble Sort  
Lecture 6 - The Meeting Place Cannot Be Changed  
Lecture 7 - Magic Ship  
Lecture 8 - Simple Skewness  
Lecture 9 - Pancake Flipping  
Lecture 10 - Islands War  
Lecture 11 - Stable Marriage - I  
Lecture 12 - Stable Marriage - II  
Lecture 13 - When Greedy Does Not Work - Coin Change  
Lecture 14 - When Greedy Does Not Work - Guarding a Museum  
Lecture 15 - When Greedy Does Not Work - Traveling Salesman  
Lecture 16 - DSU - Definition and Motivation  
Lecture 17 - DSU via Union by Rank and Path Compression  
Lecture 18 - DSU - Implementation  
Lecture 19 - Destroying Array - I (Problem Statement and Solution)  
Lecture 20 - Destroying Array - II (Implementation)  
Lecture 21 - War-I (Problem Statement)  
Lecture 22 - War-II (Solution)  
Lecture 23 - War-III (Implementation)  
Lecture 24 - Graph Foundations  
Lecture 25 - BFS and DFS  
Lecture 26 - Mahmoud and Ehab and the bipartiteness  
Lecture 27 - Cover It!  
Lecture 28 - Diamond Inheritance

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- Lecture 29 - SSSP - Overview BFS Revisited
- Lecture 30 - SSSP and Dijkstra's Algorithm
- Lecture 31 - Sending Email
- Lecture 32 - SSSP and Modified Dijkstra
- Lecture 33 - SSSP with Negative Cycles - Bellman-Ford
- Lecture 34 - Wormholes
- Lecture 35 - APSP and Floyd-Warshall
- Lecture 36 - Page Hopping
- Lecture 37 - Introduction to MSTs
- Lecture 38 - Prim's Algorithm
- Lecture 39 - Kruskal's Algorithm
- Lecture 40 - Cherries Mesh
- Lecture 41 - Heirarchy
- Lecture 42 - Island Hopping
- Lecture 43 - Introduction to MaxFlow
- Lecture 44 - Ford-Fulkerson for MaxFlow
- Lecture 45 - Implementing Edmonds-Karp
- Lecture 46 - Maximum Matching via MaxFlow
- Lecture 47 - Sport Elimination via MaxFlow
- Lecture 48 - Maxflow-Mincut Duality
- Lecture 49 - Police Chase
- Lecture 50 - Sam I AM and Vertex Covers
- Lecture 51 - Top-Down Dynamic Programming with Frog 1 - Part A
- Lecture 52 - Top-Down Dynamic Programming with Frog 1 - Part B
- Lecture 53 - Bottom-Up Dynamic Programming with Dice Combinations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Quantum Computing: Quantum Algorithms

Subject Co-ordinator - Prof. Prabha Mandayam

Co-ordinating Institute - IBM and IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Quantum Computing Roadmap
- Lecture 2 - Quantum Mission in India
- Lecture 3 - A Brief Introduction to Applications of Quantum
- Lecture 4 - Quantum Computing Basics
- Lecture 5 - Postulates of Quantum Mechanics - Part 1
- Lecture 6 - Postulates of Quantum Mechanics - Part 2
- Lecture 7 - Quantum Measurements
- Lecture 8 - Quantum Gates and Circuits - Part 1
- Lecture 9 - Quantum Gates and Circuits - Part 2
- Lecture 10 - Programming using IBM Quantum Experience and Circuit Composer
- Lecture 11 - Quantum Computing Concepts: Entanglement and Interference - Part 1
- Lecture 12 - Quantum Computing Concepts: Entanglement and Interference - Part 2
- Lecture 13 - Programming using Qiskit - Part 1
- Lecture 14 - Programming using Qiskit - Part 2
- Lecture 15 - Quantum Algorithms: Deutsch Jozsa Algorithm
- Lecture 16 - Quantum Algorithms: Bernstein Vazirani Algorithm
- Lecture 17 - Quantum Algorithms: Grover's Search
- Lecture 18 - Grover's algorithm Programming
- Lecture 19 - NISQ-era quantum algorithms
- Lecture 20 - Variational Quantum Algorithms
- Lecture 21 - Variational Quantum Eigensolver
- Lecture 22 - Quantum Generative Adversarial Networks (QGANs)
- Lecture 23 - Fixing quantum errors with quantum tricks: A brief introduction to QEC - Part 1
- Lecture 24 - Fixing quantum errors with quantum tricks: A brief introduction to QEC - Part 2
- Lecture 25 - Fixing quantum errors with quantum tricks: A brief introduction to QEC - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Systems and Usable Security

Subject Co-ordinator - Prof. Neminath Hubballi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Computer Security - Part 1
- Lecture 2 - Introduction to Computer Security - Part 2
- Lecture 3 - Malicious Software - Part 1
- Lecture 4 - Malicious Software - Part 2
- Lecture 5 - Social Engineering and Phishing Attacks - Part 1
- Lecture 6 - Social Engineering and Phishing Attacks - Part 2
- Lecture 7 - Operating System Security - Part 1
- Lecture 8 - Operating System Security - Part 2
- Lecture 9 - Operating System Security - Part 3
- Lecture 10 - Operating System Security - Part 4
- Lecture 11 - Email Security - Part 1
- Lecture 12 - Email Security - Part 2
- Lecture 13 - Transport Layer Security - Part 1
- Lecture 14 - Transport Layer Security - Part 2
- Lecture 15 - IP Security - Part 1
- Lecture 16 - IP Security - Part 2
- Lecture 17 - Security and Usability Overview
- Lecture 18 - User Privacy and Usability



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Online Privacy

Subject Co-ordinator - Prof. Ponnurangam Kumaraguru

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Online Privacy
- Lecture 2 - Privacy concepts and studies
- Lecture 3 - Fair Information Practices
- Lecture 4 - Right to Privacy Contextual Integrity
- Lecture 5 - Privacy Policy - Part I
- Lecture 6 - Privacy Policy - Part II
- Lecture 7 - Privacy-based technologies and decision making
- Lecture 8 - Social Media Privacy
- Lecture 9 - Identity resolution
- Lecture 10 - Privacy Nudges
- Lecture 11 - Cookies
- Lecture 12 - Ethics about studying Online Privacy
- Lecture 13 - Anonymization techniques and Differential Privacy
- Lecture 14 - Conducting (user, lab, online) studies
- Lecture 15 - Research paper reading
- Lecture 16 - Voter and Browser Privacy Leaks, Profiling form PII - Part I
- Lecture 17 - Voter and Browser Privacy Leaks, Profiling form PII - Part II
- Lecture 18 - Online Privacy Tools (Hands-on) - Part I
- Lecture 19 - Online Privacy Tools (Hands-on) - Part II
- Lecture 20 - Mobile numbers, home location, Location-based social networks
- Lecture 21 - Location-based social networks
- Lecture 22 - Privacy laws and regulations - Part I
- Lecture 23 - Privacy laws and regulations - Part II
- Lecture 24 - Privacy standards
- Lecture 25 - Look back

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Machine Learning (Tamil)

Subject Co-ordinator - Prof. Arun Rajkumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Paradigms of Machine Learning  
Lecture 2 - Few more examples  
Lecture 3 - Types of Learning  
Lecture 4 - Types of supervised learning  
Lecture 5 - Mathematical tools  
Lecture 6 - Three Fundamental spaces  
Lecture 7 - Conditional Probability  
Lecture 8 - Bayes Theorem  
Lecture 9 - Continuous Probability  
Lecture 10 - Introduction to vectors  
Lecture 11 - Span of vectors  
Lecture 12 - Linear Independence  
Lecture 13 - Basis of vector space  
Lecture 14 - Orthogonality and Projection  
Lecture 15 - Introduction to Regression  
Lecture 16 - Linear regression  
Lecture 17 - Geometrical Interpretation  
Lecture 18 - Visual Guide to Orthogonal Projection  
Lecture 19 - Iterative solution: Gradient descent  
Lecture 20 - Gradient Descent  
Lecture 21 - Choosing Step size  
Lecture 22 - Taylor Series  
Lecture 23 - Stochastic Gradient Descent and basis functions  
Lecture 24 - Regularization Techniques  
Lecture 25 - Binary Classification  
Lecture 26 - K-Nearest Neighbour Classification  
Lecture 27 - Distance metric and Cross-Validation  
Lecture 28 - Computational efficiency of KNN  
Lecture 29 - Introduction to Decision Trees

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- Lecture 30 - Level splitting
- Lecture 31 - Measure of Impurity
- Lecture 32 - Entropy and Information Gain
- Lecture 33 - Generative vs Discriminative models
- Lecture 34 - Naive Bayes classifier
- Lecture 35 - Conditional Independence
- Lecture 36 - Classifying the test point and summary
- Lecture 37 - Discriminative models
- Lecture 38 - Logistic Regression
- Lecture 39 - Summary and big picture
- Lecture 40 - Maximum likelihood estimation
- Lecture 41 - Linear separability
- Lecture 42 - Perceptron and its learning algorithm
- Lecture 43 - Perceptron : A thing of past
- Lecture 44 - Support Vector Machine
- Lecture 45 - Optimizing weights
- Lecture 46 - Handling Outliers
- Lecture 47 - Dual Formulation
- Lecture 48 - Kernel formulation
- Lecture 49 - Introduction to Ensemble methods
- Lecture 50 - Bagging
- Lecture 51 - Bootstrapping
- Lecture 52 - Limitations of bagging
- Lecture 53 - Introduction to boosting
- Lecture 54 - Ada boost
- Lecture 55 - Unsupervised learning
- Lecture 56 - K-means Clustering
- Lecture 57 - Lloyd's Algorithms
- Lecture 58 - Convergence and Initialization
- Lecture 59 - Representation Learning
- Lecture 60 - Orthogonal Projection
- Lecture 61 - Covariance Matrix and Eigen direction
- Lecture 62 - PCA and mean centering

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Compiler Design (Prof. Rupesh Nasre)

Subject Co-ordinator - Prof. Rupesh Nasre

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Part 1, Programming languages and compilers  
Lecture 2 - Introduction - Part 2, Language translators  
Lecture 3 - Introduction - Part 3, Phases of a compiler  
Lecture 4 - Introduction - Part 4, Static vs Dynamic contexts, Parameter passing  
Lecture 5 - Lexing - Part 1, Terminology, Regex, flex tool- Part 1  
Lecture 6 - Lexing - Part 2, Lexical errors, Input buffering  
Lecture 7 - flex tool- Part 2  
Lecture 8 - Lexing - Part 3, Lookahead, KMP string matching  
Lecture 9 - Lexing - Part 4, Regex to DFA conversion - Part 1  
Lecture 10 - Lexing - Part 5, Regex to DFA conversion - Part 2, Prasing - Part 1  
Lecture 11 - Parsing - Part 2, CFG, Parse tree, Precedence, Ambiguity  
Lecture 12 - flex tool - Part 3  
Lecture 13 - Parsing - Part 3, Sentinel forms, Error recovery, if-else ambiguity  
Lecture 14 - Parsing - Part 4, Left recursion, Recursive descent parsing  
Lecture 15 - Parsing - Part 5, First and Follow, Predictive parsing table  
Lecture 16 - Parsing - Part 6, Predictive parsing table, LL(1) grammars  
Lecture 17 - Discussions and doubts clarification - Part 1  
Lecture 18 - Parsing - Part 6, Bottom-up, Shift-reduce parsing, SLR parsing  
Lecture 19 - Parsing - Part 6, LR(0) automaton, SLR parsing using automaton  
Lecture 20 - Parsing - Part 7, SLR(1) parsing table, SLR(1) parsing algorithm  
Lecture 21 - Parsing - Part 8, Viable prefixes, LR(1) parsing, LR(1) automaton  
Lecture 22 - Parsing - Part 9, LALR parsing, SDT- Part 1, attributes  
Lecture 23 - Syntax Directed Translation - Part 2, S- and L-attributed SDD  
Lecture 24 - Syntax Directed Translation - Part 3, L-attributed SDD, Applications  
Lecture 25 - Syntax Directed Translation - Part 4, Actions within productions  
Lecture 26 - Discussions and doubts clarification - Part 2  
Lecture 27 - Quiz-1 discussion, SDT - Part 5, Code generation for while loop  
Lecture 28 - Intermediate Code Generation - Part 1, Syntax trees and DAGs  
Lecture 29 - Intermediate Code Generation - Part 2, Three-address code

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Discussions and doubts clarification Part 3
- Lecture 31 - Intermediate Code Generation - Part 3, Static single assignment
- Lecture 32 - Intermediate Code Generation - Part 4, IR for type expressions
- Lecture 33 - Intermediate Code Generation - Part 4, IR for array expressions
- Lecture 34 - Intermediate Code Generation - Part 4, IR for boolean expressions
- Lecture 35 - Intermediate Code Generation - Part 4, IR for break, continue, switch
- Lecture 36 - Code Generator - Part 1, Introduction, IR and target code
- Lecture 37 - Code Generator - Part 2, Instruction selection, ordering
- Lecture 38 - Code Generator - Part 2, Basic blocks and CFG
- Lecture 39 - x86 assembly code
- Lecture 40 - Code optimizer - Part 1, Local optimizations within a basic block
- Lecture 41 - Code optimizer - Part 2, Array references, Peephole optimization
- Lecture 42 - Discussions and doubts clarification - Part 4
- Lecture 43 - Code optimizer - Part 3, Register allocation, Liveness
- Lecture 44 - Code optimizer - Part 4, Register allocation as graph coloring
- Lecture 45 - Discussions and doubts clarification - Part 5
- Lecture 46 - Code optimizer - Part 5, Data flow analysis, Reaching definitions
- Lecture 47 - Discussions and doubts clarification - Part 6
- Lecture 48 - Code optimizer - Part 6, DFA for reaching definitions, Live variables

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Applied Accelerated Artificial Intelligence

Subject Co-ordinator - Prof. Satyadhyan Chickerur, Prof. Bharatkumar Sharma, Prof. Adesuyi Tosin, Prof. Satya

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to AI Systems Hardware - Part 1
- Lecture 2 - Introduction to AI Systems Hardware - Part 2
- Lecture 3 - Introduction to AI Accelerators, GPUs
- Lecture 4 - Introduction to Operating Systems, Virtualization, Cloud - Part 1
- Lecture 5 - Introduction to Operating Systems, Virtualization, Cloud - Part 2
- Lecture 6 - Introduction to Containers and IDE Dockers - Part 1
- Lecture 7 - Introduction to Containers and IDE Dockers - Part 2
- Lecture 8 - Scheduling and Resource Management - Part 1
- Lecture 9 - Scheduling and Resource Management - Part 2
- Lecture 10 - DeepOps: Deep Dive into Kubernetes with deployment of various AI based Services - Part 1
- Lecture 11 - DeepOps: Deep Dive into Kubernetes with deployment of various AI based Services - Part 2
- Lecture 12 - DeepOps: Deep Dive into Kubernetes with deployment of various AI based Services Session II - Part 1
- Lecture 13 - DeepOps: Deep Dive into Kubernetes with deployment of various AI based Services Session II - Part 2
- Lecture 14 - Design principles for Building High Performance Clusters - Part 1
- Lecture 15 - Design principles for Building High Performance Clusters - Part 2
- Lecture 16 - Design principles for Building High Performance Clusters - Part 3
- Lecture 17 - Design principles for Building High Performance Clusters - Part 4
- Lecture 18 - Introduction to Pytorch - Part 1
- Lecture 19 - Introduction to Pytorch - Part 2
- Lecture 20 - Introduction to Pytorch - Part 3
- Lecture 21 - Introduction to Pytorch - Part 4
- Lecture 22 - Profiling with DLProf Pytorch Catalyst - Part 1
- Lecture 23 - Profiling with DLProf Pytorch Catalyst - Part 2
- Lecture 24 - Introduction to TensorFlow - Part 1
- Lecture 25 - Introduction to TensorFlow - Part 2
- Lecture 26 - Accelerated TensorFlow - Part 1
- Lecture 27 - Accelerated TensorFlow - Part 2
- Lecture 28 - Accelerated TensorFlow - XLA Approach - Part 1
- Lecture 29 - Accelerated TensorFlow - XLA Approach - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Optimizing Deep learning Training: Automatic Mixed Precision - Part 1
- Lecture 31 - Optimizing Deep learning Training: Automatic Mixed Precision - Part 2
- Lecture 32 - Optimizing Deep learning Training: Transfer Learning - Part 1
- Lecture 33 - Optimizing Deep learning Training: Transfer Learning - Part 2
- Lecture 34 - Fundamentals of Distributed AI Computing Session 1 - Part 1
- Lecture 35 - Fundamentals of Distributed AI Computing Session 1 - Part 2
- Lecture 36 - Fundamentals of Distributed AI Computing Session 2 - Part 1
- Lecture 37 - Fundamentals of Distributed AI Computing Session 2 - Part 2
- Lecture 38 - Distributed Deep Learning using Tensorflow and Horovod
- Lecture 39 - Challenges with Distributed Deep Learning Training Convergence
- Lecture 40 - Fundamentals of Accelerating Deployment - Part 1
- Lecture 41 - Fundamentals of Accelerating Deployment - Part 2
- Lecture 42 - Accelerating neural network inference in PyTorch and TensorFlow - Part 1
- Lecture 43 - Accelerating neural network inference in PyTorch and TensorFlow - Part 2
- Lecture 44 - Accelerated Data Analytics - Part 1
- Lecture 45 - Accelerated Data Analytics - Part 2
- Lecture 46 - Accelerated Data Analytics - Part 3
- Lecture 47 - Accelerated Data Analytics - Part 4
- Lecture 48 - Accelerated Machine Learning
- Lecture 49 - Scale Out with DASK
- Lecture 50 - Web visualizations to GPU accelerated crossfiltering - Part 1
- Lecture 51 - Web visualizations to GPU accelerated crossfiltering - Part 2
- Lecture 52 - Accelerated ETL Pipeline with SPARK - Part 1
- Lecture 53 - Accelerated ETL Pipeline with SPARK - Part 2
- Lecture 54 - Applied AI: Smart City (Intelligent Video Analytics) Session 1 - Part 1
- Lecture 55 - Applied AI: Smart City (Intelligent Video Analytics) Session 1 - Part 2
- Lecture 56 - Applied AI: Smart City (Intelligent Video Analytics) Session 2 Deepstream - Part 1
- Lecture 57 - Applied AI: Smart City (Intelligent Video Analytics) Session 2 Deepstream - Part 2
- Lecture 58 - Applied AI: Health care Session I - Part 1
- Lecture 59 - Applied AI: Health care Session I - Part 2
- Lecture 60 - Applied AI: Health care Session II - Part 1
- Lecture 61 - Applied AI: Health care Session II - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Social Network Analysis

Subject Co-ordinator - Prof. Tanmoy Chakraborty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Chapter 1 Lectuer 1  
Lecture 2 - Chapter 1 Lectuer 2  
Lecture 3 - Chapter 1 Lectuer 3  
Lecture 4 - Tutorial 1: Introduction to Python/Colab  
Lecture 5 - Tutorial 2: Introduction to NetworkX - Part I  
Lecture 6 - Chapter 2 Lectuer 1  
Lecture 7 - Chapter 2 Lectuer 2  
Lecture 8 - Chapter 2 Lectuer 3  
Lecture 9 - Chapter 2 Lectuer 4  
Lecture 10 - Chapter 2 Lectuer 5  
Lecture 11 - Chapter 2 Lectuer 6  
Lecture 12 - Tutorial 3: Introduction to NetworkX - Part II  
Lecture 13 - Chapter 3 Lectuer 1  
Lecture 14 - Chapter 3 Lectuer 2  
Lecture 15 - Chapter 3 Lectuer 3  
Lecture 16 - Chapter 3 Lectuer 4  
Lecture 17 - Chapter 3 Lectuer 5  
Lecture 18 - Chapter 3 Lectuer 6  
Lecture 19 - Chapter 3 Lectuer 7  
Lecture 20 - Chapter 4 Lectuer 1  
Lecture 21 - Chapter 4 Lectuer 2  
Lecture 22 - Chapter 4 Lectuer 3  
Lecture 23 - Chapter 4 Lectuer 4  
Lecture 24 - Chapter 4 Lectuer 5  
Lecture 25 - Chapter 4 Lectuer 6  
Lecture 26 - Tutorial 4  
Lecture 27 - Chapter 5 Lectuer 1  
Lecture 28 - Chapter 5 Lectuer 2  
Lecture 29 - Chapter 5 Lectuer 3

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Lecture 30 - Chapter 5 Lectuer 4  
Lecture 31 - Chapter 5 Lectuer 5  
Lecture 32 - Chapter 5 Lectuer 6  
Lecture 33 - Chapter 5 Lectuer 7  
Lecture 34 - Chapter 5 Lectuer 8  
Lecture 35 - Chapter 5 Lectuer 9  
Lecture 36 - Chapter 5 Lectuer 10  
Lecture 37 - Chapter 6 Lectuer 1  
Lecture 38 - Chapter 6 Lectuer 2  
Lecture 39 - Chapter 6 Lectuer 3  
Lecture 40 - Chapter 6 Lectuer 4  
Lecture 41 - Chapter 6 Lectuer 5  
Lecture 42 - Chapter 7 Lectuer 1  
Lecture 43 - Chapter 7 Lectuer 2  
Lecture 44 - Chapter 7 Lectuer 3  
Lecture 45 - Chapter 7 Lectuer 4  
Lecture 46 - Chapter 7 Lectuer 5  
Lecture 47 - Chapter 7 Lectuer 6  
Lecture 48 - Chapter 7 Lectuer 7  
Lecture 49 - Chapter 7 Lectuer 8  
Lecture 50 - chapter 8 Lectuer 1  
Lecture 51 - chapter 8 Lectuer 2  
Lecture 52 - Chapter 8 Lectuer 3  
Lecture 53 - Chapter 8 Lectuer 4  
Lecture 54 - Chapter 8 Lectuer 5  
Lecture 55 - Chapter 8 Lectuer 6  
Lecture 56 - Chapter 9 Lectuer 1  
Lecture 57 - Chapter 9 Lectuer 2  
Lecture 58 - Chapter 9 Lectuer 3  
Lecture 59 - Chapter 9 Lectuer 4  
Lecture 60 - Chapter 9 Lectuer 5  
Lecture 61 - Chapter 9 Lectuer 6  
Lecture 62 - Chapter 9 Lectuer 7  
Lecture 63 - Chapter 9 Lectuer 8  
Lecture 64 - Chapter 9 Lectuer 9  
Lecture 65 - Chapter 9 Lectuer 10  
Lecture 66 - Chapter 9 Lectuer 11  
Lecture 67 - Tutorial 5  
Lecture 68 - Chapter 10 Lectuer 1

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Lecture 69 - Chapter 10 Lectuer 2  
Lecture 70 - Chapter 10 Lectuer 3  
Lecture 71 - Chapter 10 Lectuer 4  
Lecture 72 - Chapter 10 Lectuer 5  
Lecture 73 - Conclusion - Panel discussion  
Lecture 74 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Quantum Algorithms and Cryptography

Subject Co-ordinator - Prof. Shweta Agrawal

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Quantum Algorithms and Cryptography  
Lecture 2 - Basics of Quantum Information - Part 1  
Lecture 3 - Basics of Quantum Information - Part 2  
Lecture 4 - Computation and No-Cloning - Part 1  
Lecture 5 - Computation and No-Cloning - Part 2  
Lecture 6 - Computation and No-Cloning - Part 3  
Lecture 7 - Going beyond classical - Part 1  
Lecture 8 - Going beyond classical - Part 2  
Lecture 9 - Going beyond classical - Part 3  
Lecture 10 - Going beyond classical- Deutsch and Deutsch-Jozsa - Part 1  
Lecture 11 - Going beyond classical- Deutsch and Deutsch-Jozsa - Part 2  
Lecture 12 - Simon's and Bernstein's Vazirani Algorithm - Part 1  
Lecture 13 - Simon's and Bernstein's Vazirani Algorithm - Part 2  
Lecture 14 - Introduction to Cryptography - Part 1  
Lecture 15 - Introduction to Cryptography - Part 2  
Lecture 16 - Introduction to Cryptography - Part 3  
Lecture 17 - Building Cryptography - Part 1  
Lecture 18 - Building Cryptography - Part 2  
Lecture 19 - Building Cryptography - Part 3  
Lecture 20 - Building Cryptography - Part 4  
Lecture 21 - Building Cryptography - Part 5  
Lecture 22 - Building Public Key Encryption - Part 1  
Lecture 23 - Building Public Key Encryption - Part 2  
Lecture 24 - RSA Encryption - Part 1  
Lecture 25 - RSA Encryption - Part 2  
Lecture 26 - Finishing RSA, Fourier Transform - Part 1  
Lecture 27 - Finishing RSA, Fourier Transform - Part 2  
Lecture 28 - Finishing RSA, Fourier Transform - Part 3  
Lecture 29 - Grover's Algorithm - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Grover's Algorithm - Part 2
- Lecture 31 - Grover's Algorithm - Part 3
- Lecture 32 - Simon's Algorithm over  $Z_n$  - Part 1
- Lecture 33 - Simon's Algorithm over  $Z_n$  - Part 2
- Lecture 34 - Simon's Algorithm over  $Z_n$  - Part 3
- Lecture 35 - Simon's Algorithm over  $Z_n$  - Part 4
- Lecture 36 - Simon's Algorithm over  $Z_n$  - Part 5
- Lecture 37 - Simon's Algorithm over  $Z_n$  - Part 6
- Lecture 38 - Shor's Algorithm - Part 1
- Lecture 39 - Shor's Algorithm - Part 2
- Lecture 40 - Hidden Subgroup Problem - Part 1
- Lecture 41 - Hidden Subgroup Problem - Part 2
- Lecture 42 - Introduction to Lattices - Part 1
- Lecture 43 - Introduction to Lattices - Part 2
- Lecture 44 - Public Key Encryption from LWE - Part 1
- Lecture 45 - Public Key Encryption from LWE - Part 2
- Lecture 46 - Public Key Encryption from LWE - Part 3
- Lecture 47 - Fully Homomorphic Encryption - Part 1
- Lecture 48 - Fully Homomorphic Encryption - Part 2
- Lecture 49 - Fully Homomorphic Encryption - Part 3
- Lecture 50 - Quantum Cryptography - Part 1
- Lecture 51 - Quantum Cryptography - Part 2
- Lecture 52 - Quantum Cryptography - Part 3
- Lecture 53 - Quantum Cryptography - Part 4
- Lecture 54 - Quantum Cryptography - Part 5
- Lecture 55 - Quantum PKE and FHE - Part 1
- Lecture 56 - Quantum PKE and FHE - Part 2
- Lecture 57 - Quantum PKE and FHE - Part 3
- Lecture 58 - Quantum PKE and FHE - Part 4
- Lecture 59 - Quantum PKE and FHE - Part 5

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Theory of Computation (2023)

Subject Co-ordinator - Prof. Subrahmanyam Kalyanasundaram

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Introduction to The Theory of Computation
- Lecture 2 - Notations and Terminology in Theory of Computation
- Lecture 3 - An Introduction to Finite Automata and Regular Languages - Part 1
- Lecture 4 - An Introduction to Finite Automata and Regular Languages - Part 2
- Lecture 5 - Significance of Regular Languages and Regular Operations
- Lecture 6 - Closure Properties of Regular Languages Under Union, Concatenation and Kleene Star Operation - Part 1
- Lecture 7 - Closure Properties of Regular Languages Under Union, Concatenation and Kleene Star Operation - Part 2
- Lecture 8 - An Introduction to Non-Deterministic Finite Automata (NFA)
- Lecture 9 - Formal Definitions and Examples of Non-Deterministic Finite Automata (NFA)
- Lecture 10 - Equivalence of NFA and DFA
- Lecture 11 - Closure of Regular Languages Under Regular Operations (Using NFA)
- Lecture 12 - Regular Expressions - Part 1
- Lecture 13 - Regular Expressions - Part 2
- Lecture 14 - Proving Equivalence of Regular Expression and DFA Through a GNFA
- Lecture 15 - Pumping Lemma for Regular Languages - Part 1
- Lecture 16 - Pumping Lemma for Regular Languages - Part 2
- Lecture 17 - Distinguishability of Strings and Myhill-Nerode Theorem
- Lecture 18 - Proving the Myhill-Nerode Theorem
- Lecture 19 - An Introduction to Context-Free Languages - Part 1
- Lecture 20 - An Introduction to Context-Free Languages - Part 2
- Lecture 21 - Chomsky Normal Form
- Lecture 22 - CYK Algorithm - Part 1
- Lecture 23 - CYK Algorithm - Part 2 (Example)
- Lecture 24 - Closure Properties of Context Free Languages
- Lecture 25 - An Introduction to Push Down Automata
- Lecture 26 - Normalizations in PDA and Intersection of Regular Language and CFL
- Lecture 27 - Equivalence of Context Free Grammars and Push Down Automata - Part 1
- Lecture 28 - Equivalence of Context Free Grammars and Push Down Automata - Part 2
- Lecture 29 - Equivalence of Context Free Grammars and Push Down Automata - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pumping Lemma for Context Free Languages
- Lecture 31 - Examples of Pumping Lemma Usage for Context Free Languages
- Lecture 32 - Formal Definition of a Turing Machine
- Lecture 33 - Turing Recognizable and Decidable Languages and TM Examples
- Lecture 34 - Multitape Turing Machine
- Lecture 35 - Non-Deterministic Turing Machines
- Lecture 36 - Equivalence of Deterministic and Nondeterministic TM
- Lecture 37 - Church-Turing Thesis
- Lecture 38 - Decidable Problems Concerning Regular Languages
- Lecture 39 - Decidable Problems Concerning Context Free Languages
- Lecture 40 - Countability of Sets
- Lecture 41 - Proof of Existence of Undecidable Languages
- Lecture 42 - Halting Problem
- Lecture 43 - Co-Turing Recognizability
- Lecture 44 - An Introduction to Mapping Reducibility
- Lecture 45 - Examples of Proving Undecidability Using Reductions
- Lecture 46 - Rice Theorem
- Lecture 47 - Computation Histories
- Lecture 48 - The Post Correspondence Problem
- Lecture 49 - Checking Ambiguity in CFG is Undecidable
- Lecture 50 - Time Complexity - Part 1
- Lecture 51 - Time Complexity - Part 2
- Lecture 52 - Non-Deterministic Polynomial Time - Part 1
- Lecture 53 - Non-Deterministic Polynomial Time - Part 2
- Lecture 54 - Verifiability and NP
- Lecture 55 - Polynomial Time Reductions - Part 1
- Lecture 56 - Polynomial Time Reductions - Part 2
- Lecture 57 - NP-Completeness
- Lecture 58 - Cook-Levin Theorem
- Lecture 59 - Cook-Levin Theorem - Proof and Implications
- Lecture 60 - CLIQUE and VERTEX-COVER is NP-Complete
- Lecture 61 - HAM-PATH is NP-Complete
- Lecture 62 - SUBSET-SUM is NP-Complete
- Lecture 63 - Knapsack Problem
- Lecture 64 - Integer Linear Program is NP-Complete
- Lecture 65 - Space Complexity and its Complexity Classes
- Lecture 66 - Logspace Reductions and NL-Completeness
- Lecture 67 - Savitch's theorem
- Lecture 68 - Results in Space Complexity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Summary and Concluding Remarks

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Advanced Computer Networks

Subject Co-ordinator - Prof. Neminath Hubballi, Prof. Sameer Kulkarni

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - An Introduction to High Performance Switching and Routing - Part 1  
Lecture 2 - An Introduction to High Performance Switching and Routing - Part 2  
Lecture 3 - IP Table Lookup - Part 1  
Lecture 4 - IP Table Lookup - Part 2  
Lecture 5 - IP Table Lookup: Trie Based Data Structures - Part 1  
Lecture 6 - IP Table Lookup: Trie Based Data Structures - Part 2  
Lecture 7 - IP Table Lookup: Optimized Trie based Data Structures - Part 1  
Lecture 8 - IP Table Lookup: Optimized Trie based Data Structures - Part 2  
Lecture 9 - Packet Classification - Part 1  
Lecture 10 - Packet Classification - Part 2  
Lecture 11 - Packet Classification - Part 3  
Lecture 12 - Packet Classification Implementation - Part 1  
Lecture 13 - Packet Classification Implementation - Part 2  
Lecture 14 - Traffic Management - Part 1  
Lecture 15 - Traffic Management - Part 2  
Lecture 16 - Traffic Management - Part 3  
Lecture 17 - Traffic Management - Part 4  
Lecture 18 - Traffic Management - Part 5  
Lecture 19 - Traffic Management - Part 6  
Lecture 20 - Traffic Management - Part 7  
Lecture 21 - Packet Switching Fabric Design - Part 1  
Lecture 22 - Packet Switching Fabric Design - Part 2  
Lecture 23 - Introduction to Network Softwarization  
Lecture 24 - Internet Impasse and Network Ossification  
Lecture 25 - Network Ossification  
Lecture 26 - Network Virtualization - Part 1  
Lecture 27 - Network Virtualization - Part 2  
Lecture 28 - Road to SDN  
Lecture 29 - Active Networks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Data and Control Plane Separation
- Lecture 31 - Control Plane Abstractions
- Lecture 32 - Software Defined Networking - I
- Lecture 33 - Software Defined Networking - II
- Lecture 34 - Software Defined Networking - III
- Lecture 35 - OpenFlow
- Lecture 36 - SND Prospects and Challenges
- Lecture 37 - Introduction to Network Function Virtualization - I
- Lecture 38 - Introduction to Network Function Virtualization - II
- Lecture 39 - Network Function Virtualization - Concepts, Framework and Architecture - I
- Lecture 40 - Network Function Virtualization - Concepts, Framework and Architecture - II
- Lecture 41 - Network Function Virtualization - Road ahead and Key challenges
- Lecture 42 - High Performance Network Packet Processing
- Lecture 43 - Summary and Comparison of NFV and SDN
- Lecture 44 - Programmable Networks - Data Plane Programmability - Overview I
- Lecture 45 - Programmable Networks - Data Plane Programmability - Overview II
- Lecture 46 - Reconfigurable Match Action Tables
- Lecture 47 - P4 Programming
- Lecture 48 - Data Center Networking - Introduction - Part 1
- Lecture 49 - Data Center Networking - Introduction - Part 2
- Lecture 50 - Data Center Networking - Characteristics and Challenges
- Lecture 51 - Data Center Networking - Topologies and Architecture - Part 1
- Lecture 52 - Data Center Networking - Topologies and Architecture - Part 2
- Lecture 53 - Data Center Networking - Protocol Innovations - Part 1
- Lecture 54 - Data Center Networking - Protocol Innovations - Part 2
- Lecture 55 - Network Telemetry
- Lecture 56 - Serverless Computing - Part 1
- Lecture 57 - Serverless Computing - Part 2
- Lecture 58 - SmartNICs and In-band Network Telemetry, Future of Network Softwarization, SDN 3.0
- Lecture 59 - QUIC
- Lecture 60 - Green and Sustainable Data Centers
- Lecture 61 - Content Distribution in IP Networks - Part 1
- Lecture 62 - Content Distribution in IP Networks - Part 2
- Lecture 63 - Information Centric Networking - Part 1
- Lecture 64 - Information Centric Networking - Part 2
- Lecture 65 - Information Centric Networking - Part 3
- Lecture 66 - Named Data Networking - Part 1
- Lecture 67 - Named Data Networking - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Affective Computing

Subject Co-ordinator - Prof. Jainendra Shukla, Prof. Abhinav Dhal

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Fundamentals of Affective computing  
Lecture 2 - Fundamentals of Affective computing Applications  
Lecture 3 - Emotion Psychology  
Lecture 4 - Emotion Theory  
Lecture 5 - Brain and Asymmetry  
Lecture 6 - Emotional Design  
Lecture 7 - Affect Elicitation  
Lecture 8 - Experimental Methodology  
Lecture 9 - Tutorial  
Lecture 10 - Introduction to Facial Expression Recognition  
Lecture 11 - Facial Feature Extraction  
Lecture 12 - Group Level Emotion  
Lecture 13 - Applications of Facial Expression Recognition  
Lecture 14 - Tutorial  
Lecture 15 - Tutorial  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20 - Tutorial  
Lecture 21 - Emotions in Physiological Signals  
Lecture 22 - Tutorial  
Lecture 23 - Emotions via Skin Conductance  
Lecture 24 - Emotions Via EEG  
Lecture 25 - Multimodal Affect Recognition  
Lecture 26 - Multimodal Analysis  
Lecture 27 - MM Tutorial  
Lecture 28 - Tutorial  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30
- Lecture 31
- Lecture 32 - Emotionally Intelligent Machines - Part 1
- Lecture 33 - Emotionally Intelligent Machines - Part 2
- Lecture 34 - Case Study
- Lecture 35
- Lecture 36
- Lecture 37 - Ethics in Affective Computing - 1
- Lecture 38 - Ethics in Affective Computing - 2
- Lecture 39 - Course Finale

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Optimisation for Machine Learning: Theory and Imp

Subject Co-ordinator - Prof. Pravesh Biyani

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basics of Linear Algebra: Linear Independence

Lecture 2 - Linear Algebra: Rank of a matrix

Lecture 3 - Linear Algebra - Subspaces of a matrix - 1

Lecture 4 - Linear Algebra - Subspaces of a matrix - 2

Lecture 5 - Linear Algebra - Null space

Lecture 6 - Linear Algebra - Eigen Vectors/Values of a matrix - 1

Lecture 7 - Linear Algebra - Eigen Vectors/Values of a matrix - 2

Lecture 8 - Programming Eigen Decomposition using Python

Lecture 9 - Singular Value Decomposition - 1

Lecture 10 - Singular Value Decomposition - 2

Lecture 11 - Principal Component Analysis - 1

Lecture 12 - Principal Component Analysis - 2

Lecture 13 - Principal Component Analysis - 3

Lecture 14 - Principal Component Analysis - Coding

Lecture 15 - Machine Learning - Overview

Lecture 16 - Optimisation Problems

Lecture 17 - Gradient of a Vector Valued Function - 1

Lecture 18 - Gradient of a Vector Valued Function - 2

Lecture 19 - Neural Netowrks - Overview

Lecture 20 - Neural Netowrks - Backpropagation

Lecture 21 - Optimisation - Introduction to optimisation problems

Lecture 22 - Optimisation - Relaxation and approximate convergence

Lecture 23 - Optimisation - First Order Optimality Condition

Lecture 24 - Optimisation - Second Order Optimality Condition

Lecture 25 - Proof of Second Order Optimality Condition, Gradient Methods

Lecture 26 - Gradient Descent - 2

Lecture 27 - Variants of Gradient Descent - 1

Lecture 28 - Variants of Gradient Descent - 2

Lecture 29 - Variants of Gradient Descent - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Convex Sets
- Lecture 31 - Convex Functions
- Lecture 32 - Duality and Lagrangian - Part 1
- Lecture 33 - Duality and Lagrangian - Part 2
- Lecture 34 - Duality and Lagrangian - Part 3
- Lecture 35 - Coding: Introduction to Pytorch
- Lecture 36 - Guest Lectuer: Support Vector Machine

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - ACM India - RBCDSAI Summer School on DS-AI-ML

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to AI/ML/DS
- Lecture 2 - Introduction to Probability; Introduction to machine learning - Part 1
- Lecture 3 - Introduction to Probability; Introduction to machine learning - Part 2
- Lecture 4 - Introduction to Probability; Introduction to machine learning - Part 3
- Lecture 5 - Introduction to Probability; Introduction to machine learning - Part 4
- Lecture 6 - Python for AI/ML/DS - Part 1
- Lecture 7 - Python for AI/ML/DS - Part 2
- Lecture 8 - Descriptive statistics and Inferential statistics - Part 1
- Lecture 9 - Descriptive statistics and Inferential statistics - Part 2
- Lecture 10 - Descriptive statistics and Inferential statistics - Part 3
- Lecture 11 - Descriptive statistics and Inferential statistics - Part 4
- Lecture 12 - Descriptive statistics and Inferential statistics - Part 5
- Lecture 13 - Distribution, Data visualization, Plotting libraries - Part 1
- Lecture 14 - Distribution, Data visualization, Plotting libraries - Part 2
- Lecture 15 - Distribution, Data visualization, Plotting libraries - Part 3
- Lecture 16 - Linear Algebra for Data science
- Lecture 17 - Identification of linear relationship among attributes
- Lecture 18 - Solving Linear Equations - 1
- Lecture 19 - Solving Linear Equations - 2
- Lecture 20 - Linear Algebra - Distance, Hyperplanes and Halfspaces, Eigenvalues, Eigenvectors - Part 1
- Lecture 21 - Linear Algebra - Distance, Hyperplanes and Halfspaces, Eigenvalues, Eigenvectors - Part 2
- Lecture 22 - Linear Algebra - Part 1
- Lecture 23 - Linear Algebra - Part 2
- Lecture 24 - Linear Algebra - Part 3
- Lecture 25 - Regression Models, Models Selection and Evaluation - Part 1
- Lecture 26 - Regression Models, Models Selection and Evaluation - Part 2
- Lecture 27 - Regression Models, Models Selection and Evaluation - Part 3
- Lecture 28 - Regression Models, Models Selection and Evaluation - Part 4
- Lecture 29 - Regression - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Regression - Part 2
- Lecture 31 - Regression - Part 3
- Lecture 32 - Classification Naive Bayes, Logistic Regression, K-NN - Part 1
- Lecture 33 - Classification Naive Bayes, Logistic Regression, K-NN - Part 2
- Lecture 34 - Classification Naive Bayes, Logistic Regression, K-NN - Part 3
- Lecture 35 - Classification Naive Bayes, Logistic Regression, K-NN - Part 4
- Lecture 36 - Classification - Part 1
- Lecture 37 - Classification - Part 2
- Lecture 38 - Classification - Part 3
- Lecture 39 - Linear Models for Classification - Part 1
- Lecture 40 - Linear Models for Classification - Part 2
- Lecture 41 - Kernel Machines
- Lecture 42 - Solving Langrange Dual in SVM
- Lecture 43 - Classification and SVM - Part 1
- Lecture 44 - Classification and SVM - Part 2
- Lecture 45 - Tree - Based methods, Boosting bagging - Part 1
- Lecture 46 - Tree - Based methods, Boosting bagging - Part 2
- Lecture 47 - Tree - Based methods, Boosting bagging - Part 3
- Lecture 48 - Tree - Based methods, Boosting bagging - Part 4
- Lecture 49 - Tree-based approaches for regression and classification - Part 1
- Lecture 50 - Tree-based approaches for regression and classification - Part 2
- Lecture 51 - Supervised Learning Using K Nearest Neighbors - Part 1
- Lecture 52 - Supervised Learning Using K Nearest Neighbors - Part 2
- Lecture 53 - Supervised Learning Using K Nearest Neighbors - Part 3
- Lecture 54 - Supervised Learning Using K Nearest Neighbors - Part 4
- Lecture 55 - Clustering methods - Part 1
- Lecture 56 - Clustering methods - Part 2
- Lecture 57 - Induction to Neural Networks, Perceptrons, Multilayer Perceptrons, Feedforward Neural Networks -
- Lecture 58 - Induction to Neural Networks, Perceptrons, Multilayer Perceptrons, Feedforward Neural Networks -
- Lecture 59 - Induction to Neural Networks, Perceptrons, Multilayer Perceptrons, Feedforward Neural Networks -
- Lecture 60 - Induction to Neural Networks, Perceptrons, Multilayer Perceptrons, Feedforward Neural Networks -
- Lecture 61 - Neural Networks and Feedforward NN - Part 1
- Lecture 62 - Neural Networks and Feedforward NN - Part 2
- Lecture 63 - Neural Networks and Feedforward NN - Part 3
- Lecture 64 - Backpropagation (Intuition)
- Lecture 65 - Backpropagation: Computing Cradients w.r.t the Output Units
- Lecture 66 - Learning Parameters: Gradient Descent
- Lecture 67 - Contours
- Lecture 68 - Nesterov Accelerated Gradient Descent

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Stochastic and Mini-Batch Gradient Descent
- Lecture 70 - Tips for Adjusting learning Rate and Momentum
- Lecture 71 - Line Search
- Lecture 72 - The convolution operation
- Lecture 73 - Convolutional Neural Networks
- Lecture 74 - CNN and DL models - Part 1
- Lecture 75 - CNN and DL models - Part 2
- Lecture 76 - CNN and DL models - Part 3
- Lecture 77 - CNN and DL models - Part 4
- Lecture 78 - AI/ML/DS Industry Use Cases - Part 1
- Lecture 79 - AI/ML/DS Industry Use Cases - Part 2
- Lecture 80 - AI/ML - Case Studies in Industry - Part 1
- Lecture 81 - AI/ML - Case Studies in Industry - Part 2
- Lecture 82 - Q and A on career in research a woman faculty representative from PSGTech and RBCDSAI



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Machine Learning (ML) in Hindi

Subject Co-ordinator - Prof. Anubha Gupta

Co-ordinating Institute - IIIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Machine Learning  
Lecture 2 - Linear Algebra: Review (Vector Spaces)  
Lecture 3 - Linear Algebra: Review (Matrices)  
Lecture 4 - Probability Theory: Review (Basics of Probability)  
Lecture 5 - Probability Theory: Review (Random Variables)  
Lecture 6 - Linear Regression  
Lecture 7 - Linear Regression  
Lecture 8 - Tutorial: Linear Regression  
Lecture 9 - Linear Regression  
Lecture 10 - Linear Kernel Regression  
Lecture 11 - k-Nearest Neighbour (k-NN) Regression  
Lecture 12 - Tutorial: k-NN Regression  
Lecture 13 - Tutorial: Kernel Regression  
Lecture 14 - Logistic Regression: Classification Evaluation Metrics  
Lecture 15 - Logistic Regression  
Lecture 16 - Logistic Regression: Examples  
Lecture 17 - Tutorial: Logistic Regression  
Lecture 18 - Neural Networks  
Lecture 19 - Neural Networks  
Lecture 20 - Neural Networks: Examples  
Lecture 21 - Tutorial: Neural Networks  
Lecture 22 - Practical Machine Learning - Part 1  
Lecture 23 - Practical Machine Learning - Part 2  
Lecture 24 - Practical Machine Learning - Part 3  
Lecture 25 - Practical Machine Learning - Part 4  
Lecture 26 - Support Vector Machines (SVM)  
Lecture 27 - Tutorial: Support Vector Machines (SVM)  
Lecture 28 - Kernel Support Vector Machines (k-SVM)  
Lecture 29 - Naïve Bayes Classification

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Decision Trees - Part 1
- Lecture 31 - Decision Trees - Part 2
- Lecture 32 - Tutorial: Naive Bayes Classification
- Lecture 33 - Tutorial: Decision Trees
- Lecture 34 - k-NN Classifier
- Lecture 35 - Ensemble Learning
- Lecture 36 - Random Forests
- Lecture 37 - Bagging (Bootstrap AGGregatING)
- Lecture 38 - Tutorial: Random Forests
- Lecture 39 - Tutorial: k-NN Classifier and Bootstrap AGGregatING (Bagging)
- Lecture 40 - Boosting
- Lecture 41 - Clustering
- Lecture 42 - k-means Clustering
- Lecture 43 - Tutorial: Boosting
- Lecture 44 - Spectral Clustering
- Lecture 45 - Mixture of Models (Gaussian Mixture Models-GMM)
- Lecture 46 - Dimensionality Reduction: Principal Component Analysis (PCA) and kernel PCA
- Lecture 47 - Tutorial: k-means and Spectral Clustering
- Lecture 48 - Tutorial: Principal Component Analysis (PCA) and Gaussian Mixture Models (GMM)
- Lecture 49 - Introduction to Deep Learning (DL)
- Lecture 50 - Convolutional Neural Networks (CNN) - Part A
- Lecture 51 - Convolutional Neural Networks (CNN) - Part B
- Lecture 52 - Autoencoders
- Lecture 53 - Applications of ML in Healthcare Problems - Part 1
- Lecture 54 - Applications of ML in Healthcare Problems - Part 2
- Lecture 55 - Tutorial: CNN and Autoencoder

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC: Cyber Security and Privacy

Subject Co-ordinator - Prof. Saji K Mathew

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Part 1  
Lecture 2 - Introduction - Part 2  
Lecture 3 - Introduction - Part 3  
Lecture 4 - Foundations - Part 1  
Lecture 5 - Foundations - Part 2  
Lecture 6 - Foundations - Part 3  
Lecture 7 - Security management, GRC - Part 1  
Lecture 8 - Security management, GRC - Part 2  
Lecture 9 - Security management, GRC - Part 3  
Lecture 10 - Contingency planning - Part 1  
Lecture 11 - Contingency Planning - Part 2  
Lecture 12 - Contingency Planning - Part 3  
Lecture 13 - Cybersecurity policy - Part 1  
Lecture 14 - Cybersecurity policy - Part 2  
Lecture 15 - Cybersecurity policy - Part 3  
Lecture 16 - Risk Management - Part 1  
Lecture 17 - Risk Management - Part 2  
Lecture 18 - Risk Management - Part 3  
Lecture 19 - Cybersecurity: Industry perspective - Part 1  
Lecture 20 - Cybersecurity: Industry perspective - Part 2  
Lecture 21 - Cybersecurity: Industry perspective - Part 3  
Lecture 22 - Cyber security technologies - Part 1  
Lecture 23 - Cyber security technologies - Part 2  
Lecture 24 - Cyber security technologies - Part 3  
Lecture 25 - Foundations of privacy - Part 1  
Lecture 26 - Foundations of privacy - Part 2  
Lecture 27 - Foundations of privacy - Part 3  
Lecture 28 - Privacy regulation - Part 1  
Lecture 29 - Privacy regulation - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Privacy regulation - Part 3
- Lecture 31 - Privacy regulation in Europe - Part 1
- Lecture 32 - Privacy regulation in Europe - Part 2
- Lecture 33 - Privacy regulation in Europe - Part 3
- Lecture 34 - Privacy: The Indian Way - Part 1
- Lecture 35 - Privacy: The Indian Way - Part 2
- Lecture 36 - Privacy: The Indian Way - Part 3
- Lecture 37 - Information privacy: Economics and strategy - Part 1
- Lecture 38 - Information privacy: Economics and strategy - Part 2
- Lecture 39 - Information privacy: Economics and strategy - Part 3
- Lecture 40 - Privacy: Strategy and safety - Part 1
- Lecture 41 - Privacy: Strategy and safety - Part 2
- Lecture 42 - Privacy: Strategy and safety - Part 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Business Intelligence and Analytics

Subject Co-ordinator - Prof. Saji K Mathew

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Business Intelligence and Analytics
- Lecture 2 - Patterns in Data
- Lecture 3 - Vocabulary of Business Analytics
- Lecture 4 - Course Overview
- Lecture 5 - Case: Bizocity Scoring at AT&T
- Lecture 6 - Business Intelligence Architecture
- Lecture 7 - Data Management
- Lecture 8 - Online Transaction Processing
- Lecture 9 - Introduction To SQL
- Lecture 10 - Normalisation
- Lecture 11 - Shopsense Case in MySQL Workbench
- Lecture 12 - Online Analytical Processing
- Lecture 13 - Descriptive Data Analytics
- Lecture 14 - Churn Analysis
- Lecture 15 - Customer Lifetime Value
- Lecture 16 - NPV-CLV Spreadsheet Analysis
- Lecture 17 - Analytics Process
- Lecture 18 - Introduction to Statistical Learning and Data Pre-Processing
- Lecture 19 - Data Mining Process
- Lecture 20 - Overview of Data Mining Techniques
- Lecture 21 - Analytics Process Case
- Lecture 22 - Introduction to Classification
- Lecture 23 - Scoring Models
- Lecture 24 - Classifier Performance
- Lecture 25 - Decision Trees
- Lecture 26 - Attribute Selection
- Lecture 27 - Growing a Decision Tree
- Lecture 28 - Decision Tree Application - Part 1
- Lecture 29 - Decision Tree Application - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Classification Demo - 1
- Lecture 31 - Classification Demo - 2
- Lecture 32 - Cluster Analysis
- Lecture 33 - Clustering Techniques - Part 1
- Lecture 34 - Clustering Techniques - Part 2
- Lecture 35 - K-Means Clustering
- Lecture 36 - Implementation in Python: Clustering for segmentation and profiling
- Lecture 37 - RFM Analysis
- Lecture 38 - Trendhub Case on RFM
- Lecture 39 - RFM and Clustering
- Lecture 40 - Artificial Neural Network
- Lecture 41 - ANN Training
- Lecture 42 - ANN for Financial Time Series Modelling
- Lecture 43 - Implementation in Python: ANN
- Lecture 44 - Introduction Text Mining
- Lecture 45 - Text Mining Process
- Lecture 46 - Text mining Using R - The Case of a Movie Discussion Forum

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Introduction to Cryptology

Subject Co-ordinator - Dr. Sugata Gangopadhyay

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction Caesar cipher
- Lecture 2 - Modular arithmetic, shift cipher
- Lecture 3 - Affine Cipher, Vigenere Cipher
- Lecture 4 - Perfect secrecy, Application of Shift Cipher
- Lecture 5 - Problem Discussion on Affine cipher and Perfect Secrecy
- Lecture 6 - Product Cipher, Block Cipher, Modes of Operation for Block Cipher
- Lecture 7 - Substitution Permutation network, Feistel Cipher
- Lecture 8 - S-Box Theory
- Lecture 9 - Cryptanalysis and its Variants, Linear Attack
- Lecture 10 - Problem Discussion
- Lecture 11 - Public Key Cryptology Introduction RSA Cryptosystem
- Lecture 12 - Complexity analysis of Euclidian Algorithm and RSA Cryptosystem square and multiply algorithm
- Lecture 13 - Primality testing
- Lecture 14 - Efficient Computation of Jacobi Symbol Primality Testing
- Lecture 15 - Problem Discussion on Jacobi Symbol Calculation and RSA Cryptosystem
- Lecture 16 - Cryptographic hash function
- Lecture 17 - Random Oracle model, Security of hash functions
- Lecture 18 - Randomized Algorithm and its application on Preimage resistance and collision resistance
- Lecture 19 - Iterated Hash Functions
- Lecture 20 - Problem Discussion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Data Analytics with Python

Subject Co-ordinator - Prof. A. Ramesh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to data analytics  
Lecture 2 - Python Fundamentals - I  
Lecture 3 - Python Fundamentals - II  
Lecture 4 - Central Tendency and Dispersion - I  
Lecture 5 - Central Tendency and Dispersion - II  
Lecture 6 - Introduction to Probability - I  
Lecture 7 - Introduction to Probability - II  
Lecture 8 - Probability Distributions - I  
Lecture 9 - Probability Distributions - II  
Lecture 10 - Probability Distributions - III  
Lecture 11 - Python Demo for Distributions  
Lecture 12 - Sampling and Sampling Distribution  
Lecture 13 - Distribution of Sample Means, population, and variance  
Lecture 14 - Confidence interval estimation  
Lecture 15 - Confidence interval estimation  
Lecture 16 - Hypothesis Testing - I  
Lecture 17 - Hypothesis Testing - II  
Lecture 18 - Hypothesis Testing - III  
Lecture 19 - Errors in Hypothesis Testing  
Lecture 20 - Hypothesis Testing  
Lecture 21 - Hypothesis Testing  
Lecture 22 - Hypothesis Testing  
Lecture 23 - ANOVA - I  
Lecture 24 - ANOVA - II  
Lecture 25 - Post Hoc Analysis (Tukey's test)  
Lecture 26 - Randomize block design (RBD)  
Lecture 27 - Two Way ANOVA  
Lecture 28 - Linear Regression - I  
Lecture 29 - Linear Regression - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear Regression - III
- Lecture 31 - Estimation, Prediction of Regression Model Residual Analysis - I
- Lecture 32 - Estimation, Prediction of Regression Model Residual Analysis - II
- Lecture 33 - Multiple Regression Model - I
- Lecture 34 - Multiple Regression Model - II
- Lecture 35 - Categorical variable regression
- Lecture 36 - Maximum Likelihood Estimation - I
- Lecture 37 - Maximum Likelihood Estimation - II
- Lecture 38 - Logistic Regression - I
- Lecture 39 - Logistic Regression - II
- Lecture 40 - Linear Regression Model Vs Logistic Regression Model
- Lecture 41 - Confusion matrix and ROC - I
- Lecture 42 - Confusion Matrix and ROC - II
- Lecture 43 - Performance of Logistic Model - III
- Lecture 44 - Regression Analysis Model Building - I
- Lecture 45 - Regression Analysis Model Building (Interaction) - II
- Lecture 46 - Chi - Square Test of Independence - I
- Lecture 47 - Chi-Square Test of Independence - II
- Lecture 48 - Chi-Square Goodness of Fit Test
- Lecture 49 - Cluster analysis
- Lecture 50 - Clustering analysis - Part II
- Lecture 51 - Clustering analysis - Part III
- Lecture 52 - Cluster analysis - Part IV
- Lecture 53 - Cluster analysis - Part V
- Lecture 54 - K- Means Clustering
- Lecture 55 - Hierarchical method of clustering - I
- Lecture 56 - Hierarchical method of clustering - II
- Lecture 57 - Classification and Regression Trees (CART) - I
- Lecture 58 - Measures of attribute selection
- Lecture 59 - Attribute selection Measures in (CART) - II
- Lecture 60 - Classification and Regression Trees (CART) - III

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Combinatorics

Subject Co-ordinator - Dr. L. Sunil Chandran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Pigeon hole principle - (Part 1)
- Lecture 2 - Pigeon hole principle - (Part 2)
- Lecture 3 - Pigeon hole principle - (Part 3)
- Lecture 4 - Pigeon hole principle - (Part 4)
- Lecture 5 - Elementary concepts and basic counting principles
- Lecture 6 - Elementary concepts; Binomial theorem; Bijective proofs - Part (1)
- Lecture 7 - Bijective proofs - Part (2)
- Lecture 8 - Bijective proofs - Part (3); Properties of binomial coefficients; Combinatorial identities - Part (1)
- Lecture 9 - Combinatorial identities - Part (2); Permutations of multisets - Part (1)
- Lecture 10 - Permutations of multisets - Part (2)
- Lecture 11 - Multinomial Theorem, Combinations of Multisets - Part (1)
- Lecture 12 - Combinations of Multisets - Part (2)
- Lecture 13 - Combinations of Multisets - Part (3), Bounds for binomial coefficients
- Lecture 14 - Sterling's Formula, Generalization of Binomial coefficients - Part (1)
- Lecture 15 - Generalization of Binomial coefficients - Part (2)
- Lecture 16 - Generalization of Binomial coefficients - Part (3); Double counting - Part (1)
- Lecture 17 - Double counting - Part (2)
- Lecture 18 - Hall's Theorem for regular bipartite graphs; Inclusion exclusion principle - Part (1)
- Lecture 19 - Inclusion exclusion principle - Part (2)
- Lecture 20 - Inclusion exclusion principle - Part (3)
- Lecture 21 - Inclusion exclusion principle - Part (4)
- Lecture 22 - Inclusion exclusion principle - Part (5)
- Lecture 23 - Recurrence Relations - Part (1)
- Lecture 24 - Recurrence Relations - Part (2)
- Lecture 25 - Recurrence Relations - Part (3)
- Lecture 26 - Recurrence Relations - Part (4)
- Lecture 27 - Recurrence Relations - Part (5)
- Lecture 28 - Generating functions - Part (1)
- Lecture 29 - Generating functions - Part (2)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Solving recurrence relations using generating functions - Part (1)
- Lecture 31 - Solving recurrence relations using generating functions - Part (2)
- Lecture 32 - Exponential generating functions - Part (1)
- Lecture 33 - Exponential generating functions - Part (2), Partition Number - Part (1)
- Lecture 34 - Partition Number - Part (2)
- Lecture 35 - Partition Number - Part (3)
- Lecture 36 - Partition Number - Part (4); Catalan Numbers - Part (1)
- Lecture 37 - Catalans Numbers - Part (2)
- Lecture 38 - Catalan Numbers - Part (3), Sterling numbers of the 2nd kind
- Lecture 39 - Difference Sequences
- Lecture 40 - Sterling Numbers
- Lecture 41 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Compiler Design (Prof. Y.N. Srikanth)

Subject Co-ordinator - Prof. Y.N. Srikanth

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - An Overview of a Compiler - Part 1

Lecture 2 - An Overview of a Compiler - Part 2 and Run-Time Environments - Part 1

Lecture 3 - An Overview of a Compiler - Part 2 and Run-Time Environments - Part 1

Lecture 4 - Run-Time Environments - Part 2

Lecture 5 - Run-Time Environments - Part 3 and Local Optimizations - Part 1

Lecture 6 - Run-Time Environments - Part 3 and Local Optimizations - Part 1

Lecture 7 - Local Optimizations - Part 2 and Code Generation - Part 1

Lecture 8 - Local Optimizations - Part 2 and Code Generation - Part 1

Lecture 9 - Code Generation - Part 1

Lecture 10 - Code Generation - Part 2

Lecture 11 - Code Generation - Part 3 and Global Register Allocation - Part 1

Lecture 12 - Code Generation - Part 3 and Global Register Allocation - Part 1

Lecture 13 - Global Register Allocation - Part 2

Lecture 14 - Global Register Allocation - Part 3 and Implementing Object-Oriented Languages - Part 1

Lecture 15 - Global Register Allocation - Part 3 and Implementing Object-Oriented Languages - Part 1

Lecture 16 - Implementing Object-Oriented Languages - Part 2 and Introduction to Machine-Independent Optimizations

Lecture 17 - Implementing Object-Oriented Languages - Part 2 and Introduction to Machine-Independent Optimizations

Lecture 18 - Introduction to Machine-Independent Optimizations - Part 2 and Data-Flow Analysis - Part 1

Lecture 19 - Introduction to Machine-Independent Optimizations - Part 2 and Data-Flow Analysis - Part 1

Lecture 20 - Data-Flow Analysis - Part 2

Lecture 21 - Data-Flow Analysis - Part 3 and Control-Flow Analysis - Part 1

Lecture 22 - Data-Flow Analysis - Part 3 and Control-Flow Analysis - Part 1

Lecture 23 - Control-Flow Analysis - Part 2

Lecture 24 - Machine-Independent Optimizations - Part 1

Lecture 25 - Machine-Independent Optimizations - Part 2

Lecture 26 - Machine-Independent Optimizations - Part 3 and Data-Flow Analysis

Lecture 27 - Machine-Independent Optimizations - Part 3 and Data-Flow Analysis

Lecture 28 - Data-Flow Analysis

Lecture 29 - Data-Flow Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Partial Redundancy Elimination - Part 2
- Lecture 31 - The Static Single Assignment Form
- Lecture 32 - The Static Single Assignment Form
- Lecture 33 - The Static Single Assignment Form
- Lecture 34 - Automatic Parallelization - Part 1
- Lecture 35 - Automatic Parallelization - Part 2
- Lecture 36 - Automatic Parallelization - Part 3
- Lecture 37 - Automatic Parallelization - Part 4
- Lecture 38 - Instruction Scheduling - Part 1
- Lecture 39 - Instruction Scheduling - Part 2
- Lecture 40 - Instruction Scheduling - Part 3
- Lecture 41 - Software Pipelining
- Lecture 42 - Energy-Aware Software Systems - Part 1
- Lecture 43 - Energy-Aware Software Systems - Part 2
- Lecture 44 - Energy-Aware Software Systems - Part 3
- Lecture 45 - Energy-Aware Software Systems - Part 4
- Lecture 46 - Just-In-Time Compilation and Optimizations for .NET CLR
- Lecture 47 - Garbage Collection
- Lecture 48 - Interprocedural Data-Flow Analysis
- Lecture 49 - Worst Case Execution Time - Part 1
- Lecture 50 - Worst Case Execution Time - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Graph Theory

Subject Co-ordinator - Dr. L. Sunil Chandran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Matchings
- Lecture 3 - More on Hall's theorem and some applications
- Lecture 4 - Tutte's theorem on existence of a perfect matching
- Lecture 5 - More on Tutte's theorem
- Lecture 6 - More on Matchings
- Lecture 7 - Dominating set, path cover
- Lecture 8 - Gallai's Millgram theorem, Dilworth's theorem
- Lecture 9 - Connectivity
- Lecture 10 - Menger's theorem
- Lecture 11 - More on connectivity
- Lecture 12 - Minors, topological minors and more on k-linkedness
- Lecture 13 - Vertex coloring
- Lecture 14 - More on vertex coloring
- Lecture 15 - Edge coloring
- Lecture 16 - Proof of Vizing's theorem, Introduction to planarity
- Lecture 17 - 5-coloring planar graphs, Kuratowski's theorem
- Lecture 18 - Proof of Kuratowski's theorem, List coloring
- Lecture 19 - List chromatic index
- Lecture 20 - Adjacency polynomial of a graph and combinatorial Nullstellensatz
- Lecture 21 - Chromatic polynomial, k-critical graphs
- Lecture 22 - Gallai-Roy theorem, Acyclic coloring, Hadwiger's conjecture
- Lecture 23 - Perfect graphs
- Lecture 24 - Interval graphs, chordal graphs
- Lecture 25 - Proof of weak perfect graph theorem (WPGT)
- Lecture 26 - Second proof of WPGT, Some non-perfect graph classes
- Lecture 27 - More special classes of graphs
- Lecture 28 - Boxicity, Sphericity, Hamiltonian circuits
- Lecture 29 - More on Hamiltonicity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Chvatal's theorem, toughness, Hamiltonicity and 4-color conjecture
- Lecture 31 - Network flows
- Lecture 32 - More on network flows
- Lecture 33 - Circulations and tensions
- Lecture 34 - More on circulations and tensions, flow number and Tutte's flow conjectures
- Lecture 35 - Random graphs and probabilistic method
- Lecture 36 - Probabilistic method
- Lecture 37 - Probabilistic method
- Lecture 38 - Probabilistic method
- Lecture 39 - Graph minors and Hadwiger's conjecture
- Lecture 40 - More on graph minors, tree decompositions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - High Performance Computing

Subject Co-ordinator - Prof. Mathew Jacob

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Programs and Data  
Lecture 2 - Data Representation  
Lecture 3 - Registers and Memory  
Lecture 4 - Instructions, Addressing Modes  
Lecture 5 - A RISC Instruction Set  
Lecture 6 - A RISC Instruction Set (Continued...)  
Lecture 7 - Function Call and Return  
Lecture 8 - Function Call and Return (Continued...)  
Lecture 9 - Instruction Execution  
Lecture 10 - Instruction Execution (Continued...)  
Lecture 11 - Software organization  
Lecture 12 - System Calls  
Lecture 13 - Virtual memory  
Lecture 14 - Virtual memory (Continued...)  
Lecture 15 - Virtual Memory (Continued...)  
Lecture 16 - Process  
Lecture 17 - Process scheduling  
Lecture 18 - Process lifetime  
Lecture 19 - Interprocess communication  
Lecture 20 - Concurrent programming  
Lecture 21 - Pipelining  
Lecture 22 - Pipeline hazards  
Lecture 23 - Pipeline hazards (Continued...)  
Lecture 24 - Pipeline hazards (Continued...)  
Lecture 25 - Cache memory  
Lecture 26 - Memory hierarchy  
Lecture 27 - Cache operation  
Lecture 28 - Cache operation (Continued)  
Lecture 29 - Cache aware programming

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cache aware programming (Continued...)
- Lecture 31 - More on cache
- Lecture 32 - Measuring time
- Lecture 33 - Program Profiling
- Lecture 34 - Secondary storage
- Lecture 35 - Files and disks
- Lecture 36 - Directories
- Lecture 37 - Protection and Performance
- Lecture 38 - Parallel architecture
- Lecture 39 - Cache coherence
- Lecture 40 - MPI programming
- Lecture 41 - MPI programming (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Numerical Optimization

Subject Co-ordinator - Dr. Shirish K. Shevade

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Mathematical Background
- Lecture 3 - Mathematical Background (Continued...)
- Lecture 4 - One Dimensional Optimization - Optimality Conditions
- Lecture 5 - One Dimensional Optimization (Continued...)
- Lecture 6 - Convex Sets
- Lecture 7 - Convex Sets (Continued...)
- Lecture 8 - Convex Functions
- Lecture 9 - Convex Functions (Continued...)
- Lecture 10 - Multi Dimensional Optimization - Optimality Conditions, Conceptual Algorithm
- Lecture 11 - Line Search Techniques
- Lecture 12 - Global Convergence Theorem
- Lecture 13 - Steepest Descent Method
- Lecture 14 - Classical Newton Method
- Lecture 15 - Trust Region and Quasi-Newton Methods
- Lecture 16 - Quasi-Newton Methods - Rank One Correction, DFP Method
- Lecture 17 - i) Quasi-Newton Methods - Broyden Family ii) Coordinate Descent Method
- Lecture 18 - Conjugate Directions
- Lecture 19 - Conjugate Gradient Method
- Lecture 20 - Constrained Optimization - Local and Global Solutions, Conceptual Algorithm
- Lecture 21 - Feasible and Descent Directions
- Lecture 22 - First Order KKT Conditions
- Lecture 23 - Constraint Qualifications
- Lecture 24 - Convex Programming Problem
- Lecture 25 - Second Order KKT Conditions
- Lecture 26 - Second Order KKT Conditions (Continued...)
- Lecture 27 - Weak and Strong Duality
- Lecture 28 - Geometric Interpretation
- Lecture 29 - Lagrangian Saddle Point and Wolfe Dual

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear Programming Problem
- Lecture 31 - Geometric Solution
- Lecture 32 - Basic Feasible Solution
- Lecture 33 - Optimality Conditions and Simplex Tableau
- Lecture 34 - Simplex Algorithm and Two-Phase Method
- Lecture 35 - Duality in Linear Programming
- Lecture 36 - Interior Point Methods - Affine Scaling Method
- Lecture 37 - Karmarkar's Method
- Lecture 38 - Lagrange Methods, Active Set Method
- Lecture 39 - Active Set Method (Continued...)
- Lecture 40 - Barrier and Penalty Methods, Augmented Lagrangian Method and Cutting Plane Method
- Lecture 41 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Storage Systems

Subject Co-ordinator - Dr. K. Gopinath

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview
- Lecture 2 - Storage, Processing, Networking
- Lecture 3 - Naming and Storing
- Lecture 4 - Storage Filesystems
- Lecture 5 - Access Architecture, Hard Disks
- Lecture 6 - SCSI
- Lecture 7 - Fibre Channel Protocol (FCP)
- Lecture 8 - FCP, 10Gb Ethernet, iSCSI, TCP
- Lecture 9 - NFS, NFSv2
- Lecture 10 - NFSv2, NFSv3, NFSv4, CIFS
- Lecture 11 - USB Storage
- Lecture 12 - Tiering
- Lecture 13 - Mobile/Personal/Organizational - type Storage
- Lecture 14 - Parallel/Cloud/Web-scale Storage
- Lecture 15 - Long-term Storage
- Lecture 16 - Storage interfaces
- Lecture 17 - User-Memory-CPU interactions
- Lecture 18 - Spinlock, Concurrency
- Lecture 19 - Block Layer design
- Lecture 20 - FAT, TFAT, F2FS, LFS, FTL
- Lecture 21 - Data Structures
- Lecture 22 - Abstractions
- Lecture 23 - Link & Write Operations
- Lecture 24 - ZFS
- Lecture 25 - RAID in Filesystems
- Lecture 26 - RAID-Z, NetApp RAID4, Flash Filesystems
- Lecture 27 - Reliability
- Lecture 28 - Performance
- Lecture 29 - Security

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - CAP Theorem
- Lecture 31 - POSIX/NFS/S3/Zookeeper, ACID Vs. BASE
- Lecture 32 - Consistency & Commit problems
- Lecture 33 - Paxos
- Lecture 34 - Group Communication problem
- Lecture 35 - Message Ordering
- Lecture 36 - Ordering Models
- Lecture 37 - Orderings in Filesystems
- Lecture 38 - Semantics of highly scalable filesystems
- Lecture 39 - GFS
- Lecture 40 - GFS Model
- Lecture 41 - GFS functions and operations
- Lecture 42 - GFS problems, BigTable
- Lecture 43 - Lessons to learn

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - System Analysis and Design

Subject Co-ordinator - Prof. V. Rajaraman

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture - 1  
Lecture - 2  
Lecture - 3  
Lecture - 4  
Lecture - 5  
Lecture - 6  
Lecture - 7  
Lecture - 8  
Lecture - 9  
Lecture - 10  
Lecture - 11  
Lecture - 12  
Lecture - 13  
Lecture - 14  
Lecture - 15  
Lecture - 16  
Lecture - 17  
Lecture - 18  
Lecture - 19  
Lecture - 20  
Lecture - 21  
Lecture - 22  
Lecture - 23  
Lecture - 24  
Lecture - 25  
Lecture - 26  
Lecture - 27  
Lecture - 28  
Lecture - 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture - 30  
Lecture - 31  
Lecture - 32  
Lecture - 33  
Lecture - 34  
Lecture - 35  
Lecture - 36  
Lecture - 37  
Lecture - 38  
Lecture - 39  
Lecture - 40

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - Principles of Compiler Design

Subject Co-ordinator - Prof. Y.N. Srikanth

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - An Overview of a Compiler  
Lecture 2 - Lexical Analysis - Part 1  
Lecture 3 - Lexical Analysis - Part 2  
Lecture 4 - Lexical Analysis - Part 3  
Lecture 5 - Syntax Analysis  
Lecture 6 - Syntax Analysis  
Lecture 7 - Syntax Analysis  
Lecture 8 - Syntax Analysis  
Lecture 9 - Syntax Analysis  
Lecture 10 - Syntax Analysis  
Lecture 11 - Syntax Analysis  
Lecture 12 - Semantic Analysis with Attribute Grammars Part - 1  
Lecture 13 - Semantic Analysis with Attribute Grammars Part - 2  
Lecture 14 - Semantic Analysis with Attribute Grammars Part - 3  
Lecture 15 - Semantic Analysis with Attribute Grammars Part - 4  
Lecture 16 - Semantic Analysis with Attribute Grammars Part - 5  
Lecture 17 - Intermediate code generation Part - 1  
Lecture 18 - Intermediate code generation Part - 2  
Lecture 19 - Intermediate code generation Part - 3  
Lecture 20 - Intermediate code generation Part - 4 (first half of lecture)  
Lecture 21 - Run-time environments - 1 (second half of lecture)  
Lecture 22 - Run-time environments - 2  
Lecture 23 - Run-time environments - 3  
Lecture 24 - Run-time environments - 4 (first half of lecture)  
Lecture 25 - Control-Flow Graph and Local Optimizations - Part 1 (second half of lecture)  
Lecture 26 - Control-Flow Graph and Local Optimizations - Part 2 (first half of lecture)  
Lecture 27 - Machine code generation - 1 (second half of lecture)  
Lecture 28 - Machine code generation - 2  
Lecture 29 - Machine code generation - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Machine code generation - 4 (first half of lecture), Implementing object-oriented languages 1 (s
- Lecture 31 - Implementing object-oriented languages 2 (first half of lecture)
- Lecture 32 - Global register allocation - 1 (second half of lecture)
- Lecture 33 - Global register allocation - 2
- Lecture 34 - Global register allocation - 3
- Lecture 35 - Introduction to Machine-Independent Optimizations - 1
- Lecture 36 - Introduction to Machine-Independent Optimizations - 2
- Lecture 37 - Introduction to Machine-Independent Optimizations - 3
- Lecture 38 - Introduction to Machine-Independent Optimizations - 4
- Lecture 39 - Introduction to Machine-Independent Optimizations - 5
- Lecture 40 - Introduction to Machine-Independent Optimizations - 6
- Lecture 41 - Introduction to Machine-Independent Optimizations - 7 (first half of lecture)
- Lecture 42 - Instruction Scheduling and Software Pipelining - 1 (second half of lecture)
- Lecture 43 - Instruction Scheduling and Software Pipelining - 2
- Lecture 44 - Instruction Scheduling and Software Pipelining - 3 (first part of lecture)
- Lecture 45 - Automatic parallelization - 1 (second half of lecture)
- Lecture 46 - Automatic parallelization - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Discrete Mathematics (IIITB)

Subject Co-ordinator - Prof. Ashish Choudhury

Co-ordinating Institute - IIIT - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Mathematical Logic  
Lecture 2 - Logical Equivalence  
Lecture 3 - SAT Problem  
Lecture 4 - Rules of Inference  
Lecture 5 - Resolution  
Lecture 6 - Tutorial 1 - Part I  
Lecture 7 - Tutorial 1 - Part II  
Lecture 8 - Predicate Logic  
Lecture 9 - Rules of Inferences in Predicate Logic  
Lecture 10 - Proof Strategies - I  
Lecture 11 - Proof Strategies - II  
Lecture 12 - Induction  
Lecture 13 - Tutorial 2 - Part I  
Lecture 14 - Tutorial 2 - Part II  
Lecture 15 - Sets  
Lecture 16 - Relations  
Lecture 17 - Operations on Relations  
Lecture 18 - Transitive Closure of Relations  
Lecture 19 - Warshall's Algorithm for Computing Transitive Closure  
Lecture 20 - Tutorial - 3  
Lecture 21 - Equivalence Relation  
Lecture 22 - Equivalence Relations and Partitions  
Lecture 23 - Partial Ordering  
Lecture 24 - Functions  
Lecture 25 - Tutorial 4 - Part I  
Lecture 26 - Tutorial 4 - Part II  
Lecture 27 - Countable and Uncountable Sets  
Lecture 28 - Examples of Countably Infinite Sets  
Lecture 29 - Cantor's Diagonalization Argument

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Uncomputable Functions
- Lecture 31 - Tutorial - 5
- Lecture 32 - Basic Rules of Counting
- Lecture 33 - Permutation and Combination
- Lecture 34 - Counting Using Recurrence Equations
- Lecture 35 - Solving Linear Homogeneous Recurrence Equations - Part I
- Lecture 36 - Solving Linear Homogeneous Recurrence Equations - Part II
- Lecture 37 - Tutorial 6 - Part I
- Lecture 38 - Tutorial 6 - Part II
- Lecture 39 - Solving Linear Non-Homogeneous Recurrence Equations
- Lecture 40 - Catalan Numbers
- Lecture 41 - Catalan Numbers - Derivation of Closed Form Formula
- Lecture 42 - Counting Using Principle of Inclusion-Exclusion
- Lecture 43 - Tutorial - 7
- Lecture 44 - Graph Theory Basics
- Lecture 45 - Matching
- Lecture 46 - Proof of Hall's Marriage Theorem
- Lecture 47 - Various Operations on Graphs
- Lecture 48 - Vertex and Edge Connectivity
- Lecture 49 - Tutorial - 8
- Lecture 50 - Euler Path and Euler Circuit
- Lecture 51 - Hamiltonian Circuit
- Lecture 52 - Vertex and Edge Coloring
- Lecture 53 - Tutorial 9 - Part I
- Lecture 54 - Tutorial 9 - Part II
- Lecture 55 - Modular Arithmetic
- Lecture 56 - Prime Numbers and GCD
- Lecture 57 - Properties of GCD and Bézout's Theorem
- Lecture 58 - Linear Congruence Equations and Chinese Remainder Theorem
- Lecture 59 - Uniqueness Proof of the CRT
- Lecture 60 - Fermat's Little Theorem, Primality Testing and Carmichael Numbers
- Lecture 61 - Group Theory
- Lecture 62 - Cyclic Groups
- Lecture 63 - Subgroups
- Lecture 64 - Discrete Logarithm and Cryptographic Applications
- Lecture 65 - More Applications of Groups
- Lecture 66 - Rings, Fields and Polynomials
- Lecture 67 - Polynomials Over Fields and Properties
- Lecture 68 - Finite Fields and Properties - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Finite Fields and Properties - II
- Lecture 70 - Primitive Element of a Finite Field
- Lecture 71 - Applications of Finite Fields
- Lecture 72 - Goodbye and Farewell

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Secure Computation: Part I

Subject Co-ordinator - Prof. Ashish Choudhury

Co-ordinating Institute - IIITB

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Secure MPC
- Lecture 2 - Real-World Examples of Secure MPC
- Lecture 3 - Various Dimensions to Study Secure MPC
- Lecture 4 - Recap of Basic Concepts from Abstract Algebra
- Lecture 5 - Recap of Basic Concepts from Abstract Algebra (Continued...)
- Lecture 6 - Recap of Basic Concepts from Cryptography
- Lecture 7 - Secret sharing
- Lecture 8 - Additive Secret Sharing
- Lecture 9 - Inefficient Threshold Secret Sharing
- Lecture 10 - Polynomials Over Fields
- Lecture 11 - Shamir Secret-Sharing
- Lecture 12 - Linear secret-sharing
- Lecture 13 - Linear Secret Sharing (Continued...)
- Lecture 14 - General Secret Sharing
- Lecture 15 - Perfectly-Secure Message Transmission
- Lecture 16 - A Toy MPC Protocol
- Lecture 17 - A Toy MPC Protocol (Continued...)
- Lecture 18 - A Toy MPC Protocol (Continued...)
- Lecture 19 - The BGW MPC Protocol
- Lecture 20 - The BGW MPC Protocol for Linear Functions
- Lecture 21 - The BGW MPC Protocol for Linear Functions: Security Analysis
- Lecture 22 - The BGW MPC Protocol: The Case of Non-Linear Gates
- Lecture 23 - The Degree-Reduction Problem
- Lecture 24 - The Gennaro-Rabin-Rabin (GRR) Degree-Reduction Method
- Lecture 25 - Analysis of the GRR, Degree-Reduction Method
- Lecture 26 - Shared Circuit-Evaluation via GRR Degree-Reduction Method
- Lecture 27 - Shared Circuit-Evaluation in the Pre-processing Model
- Lecture 28 - Optimality of Corruption Bound for Perfectly-Secure MPC
- Lecture 29 - Perfectly-Secure MPC Tolerating General (Non-Threshold) Adversaries

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Perfectly-Secure MPC Tolerating General (Non-Threshold) Adversaries with  $Q^{(2)}$  Condition
- Lecture 31 - Perfectly-Secure MPC for Small Number of Parties
- Lecture 32 - Perfectly-Secure 3PC (Continued...)
- Lecture 33 - More Efficient Perfectly-Secure 3PC
- Lecture 34 - More Efficient Perfectly-Secure 3PC (Continued...)
- Lecture 35 - Towards Cryptographically-Secure MPC
- Lecture 36 - GMW MPC protocol
- Lecture 37 - Oblivious Transfer (OT)
- Lecture 38 - RSA Assumption and RSA Hard-Core Predicate
- Lecture 39 - Bit OT Based on RSA Assumption and Hard-Core Predicate
- Lecture 40 - Discrete Logarithm and DDH Assumption
- Lecture 41 - OT Based on the DDH Assumption
- Lecture 42 - Pre-Processing Phase for the GMW Protocol
- Lecture 43 - Pre-Processing Phase for the GMW Protocol: The n-Party Case
- Lecture 44 - Pre-Processing Phase for the GMW Protocol (Continued...)
- Lecture 45 - Pre-Processing of OT
- Lecture 46 - OT Extension
- Lecture 47 - Analysis of IKNP OT Extension
- Lecture 48 - Yao's Protocol for Secure 2PC
- Lecture 49 - Yao's Garbling Scheme
- Lecture 50 - Yao's Protocol for Secure 2PC
- Lecture 51 - Optimizations for Yao's Garbling
- Lecture 52 - Interpreting Yao's Secure 2PC Protocol as a Secret-Sharing Based Protocol
- Lecture 53 - Mixed Protocols for Secure 2PC
- Lecture 54 - The Arithmetic, Boolean and Yao Sharing for Secure 2PC
- Lecture 55 - The ABY Conversions
- Lecture 56 - The ABY Conversions (Continued...)
- Lecture 57 - The ABY Conversions (Continued...)
- Lecture 58 - ABY Computations : Example
- Lecture 59 - Goodbye and Farewell

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Secure Computation - Part II

Subject Co-ordinator - Prof. Ashish Choudhury

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Secure Multi-Party Computation (MPC)?
- Lecture 2 - Reliable Broadcast and Byzantine Agreement
- Lecture 3 - EIG Protocol for Perfectly-Secure Byzantine Agreement
- Lecture 4 - EIG Protocol for Perfectly-Secure Byzantine Agreement: Illustration
- Lecture 5 - EIG Protocol for Perfectly-Secure Byzantine Agreement: Analysis - Part I
- Lecture 6 - EIG Protocol for Perfectly-Secure Byzantine Agreement: Analysis - Part II
- Lecture 7 - Efficient Protocols for Perfectly-Secure Byzantine Agreement - Part I
- Lecture 8 - Efficient Protocols for Perfectly-Secure Byzantine Agreement - Part II
- Lecture 9 - Domain Extension for Perfectly-Secure Byzantine Agreement
- Lecture 10 - Cryptographically/Statistically-Secure Reliable Broadcast
- Lecture 11 - Dolev-Strong Reliable Broadcast Protocol: Analysis
- Lecture 12 - Randomized Protocol for Byzantine Agreement - Part I
- Lecture 13 - Randomized Protocol for Byzantine Agreement - Part II
- Lecture 14 - Randomized Protocol for Byzantine Agreement - Part III
- Lecture 15 - Lower Bound for Number of Parties for Byzantine Agreement - Part I
- Lecture 16 - Lower Bound for Number of Parties for Byzantine Agreement - Part II
- Lecture 17 - Lower Bound for Number of Parties for Byzantine Agreement - Part III
- Lecture 18 - Recap of Basic Concepts from Abstract Algebra
- Lecture 19 - Reed-Solomon Error-Correcting Codes
- Lecture 20 - Perfectly-Secure Message Transmission
- Lecture 21 - Properties of Polynomials Over a Field - I
- Lecture 22 - Properties of Polynomials Over a Field - II
- Lecture 23 - One Round PSMT Protocol
- Lecture 24 - Multi-Round PSMT Protocol - I
- Lecture 25 - Multi-Round PSMT Protocol - II
- Lecture 26 - Domain Extension for Perfectly-Secure Broadcast Based on RS Error-Correcting Codes - I
- Lecture 27 - Domain Extension for Perfectly-Secure Broadcast Based on RS Error-Correcting Codes - II
- Lecture 28 - Domain Extension for Perfectly-Secure Broadcast Based on RS Error-Correcting Codes - III
- Lecture 29 -  $(n, t)$  - Star Structure

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Domain Extension for Perfectly-Secure Broadcast Based on RS Error-Correcting Codes - IV
- Lecture 31 - The BGW MPC Protocol for Passive Corruptions: Recap
- Lecture 32 - The BGW MPC Protocol for Byzantine Corruptions: Challenges
- Lecture 33 - Perfectly-Secure VSS: Necessary Condition
- Lecture 34 - Bivariate Polynomials Over Finite Fields - I
- Lecture 35 - Bivariate Polynomials Over Finite Fields - II
- Lecture 36 - Bivariate Polynomials Over Finite Fields - III
- Lecture 37 - Bivariate Polynomials Over Finite Fields - IV
- Lecture 38 - Perfectly-Secure VSS with  $n$  greater than  $3t$  - Part I
- Lecture 39 - Perfectly-Secure VSS with  $n$  greater than  $3t$  - Part II
- Lecture 40 - Perfectly-Secure VSS with  $n$  greater than  $3t$  - Part III
- Lecture 41 - Perfectly-Secure VSS with  $n$  greater than  $3t$  - A Round-Reducing Technique
- Lecture 42 - Perfectly-Secure VSS with  $n$  greater than  $4t$  - Part I
- Lecture 43 - Perfectly-Secure VSS with  $n$  greater than  $4t$  - Part II
- Lecture 44 - The BGW MPC Protocol for Linear Functions
- Lecture 45 - The BGW MPC Protocol for Linear Functions: Security Analysis
- Lecture 46 - The BGW MPC Protocol: The Case of Non-Linear Gates
- Lecture 47 - The Degree-Reduction Problem
- Lecture 48 - Generating Random Multiplication-Triples - I
- Lecture 49 - Generating Random Multiplication-Triples - II
- Lecture 50 - Generating Random Multiplication-Triples - III
- Lecture 51 - Perfectly-Secure Protocol for Verifying Multiplicative Relationship
- Lecture 52 - Perfectly-Secure Verifiable Triple-Sharing Protocol
- Lecture 53 - Perfectly-Secure Triple-Extraction Protocol
- Lecture 54 - Towards Secure MPC with an Honest Majority
- Lecture 55 - ICP from Information-Theoretic MAC - I
- Lecture 56 - ICP from Information-Theoretic MAC - II
- Lecture 57 - Ingredients for Statistically-Secure MPC
- Lecture 58 - Statistically-Secure VSS
- Lecture 59 - Cyclic Groups and Discrete Logarithm
- Lecture 60 - Pedersen Commitment Scheme
- Lecture 61 - Cryptographically-secure VSS and MPC
- Lecture 62 - Goodbye and Farewell



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Economics - NOC:Microfoundations of Macroeconomics

Subject Co-ordinator - Prof. Wasim Ahmad

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - One Period Model - I
- Lecture 2 - One Period Model - II
- Lecture 3 - One Period Model - III
- Lecture 4 - One Period Model - IV
- Lecture 5 - One Period Model - V
- Lecture 6 - Two Period Model - I
- Lecture 7 - Two Period Model - II
- Lecture 8 - Two Period Model - III
- Lecture 9 - Two Period Model - IV
- Lecture 10 - Two Period Model - V
- Lecture 11 - Two Period Model - VI
- Lecture 12 - Ricardian Equivalence - I
- Lecture 13 - Ricardian Equivalence - II
- Lecture 14 - Credit Market Imperfection - I
- Lecture 15 - Credit Market Imperfection - II
- Lecture 16 - Search and Unemployment - I
- Lecture 17 - Search and Unemployment - II
- Lecture 18 - Search and Unemployment - III
- Lecture 19 - Schools of Macroeconomic Thought
- Lecture 20 - Rational Expectations and Economic Policy I
- Lecture 21 - Sticky Prices - I
- Lecture 22 - Sticky Prices - II
- Lecture 23 - Sticky Prices - III
- Lecture 24 - Flexible Prices - I
- Lecture 25 - Flexible Prices - II
- Lecture 26 - Keynesian Coordination Failure Model
- Lecture 27 - New Keynesian Sticky Prices - I
- Lecture 28 - New Keynesian Sticky Prices - II
- Lecture 29 - New Keynesian Sticky Prices - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - New Keynesian Sticky Prices - IV
- Lecture 31 - Monetary Policy - I
- Lecture 32 - Monetary Policy - II
- Lecture 33 - Monetary Policy - III
- Lecture 34 - Monetary Policy - IV
- Lecture 35 - Monetary Policy - V
- Lecture 36 - Monetary Policy - VI
- Lecture 37 - Financial Crisis and Economy - I
- Lecture 38 - Financial Crisis and Economy - II
- Lecture 39 - Open Economy Macroeconomics - I
- Lecture 40 - Open Economy Macroeconomics - II
- Lecture 41 - Course Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Economics - NOC:Introduction to Microeconomics in Hindi and without Calculus

Subject Co-ordinator - Prof. Vimal Kumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction
- Lecture 2 - Definition and Basic Concepts - I
- Lecture 3 - Definition and Basic Concepts - II
- Lecture 4 - Definition and Basic Concepts - III
- Lecture 5 - Graph
- Lecture 6 - Optimization
- Lecture 7 - Economic Models - I
- Lecture 8 - Economic Models - II
- Lecture 9 - Example
- Lecture 10 - Branches of Economics
- Lecture 11 - Introduction to Demand, Supply and Equilibrium
- Lecture 12 - Concept of Marginal Change
- Lecture 13 - Demand - I
- Lecture 14 - Demand - II
- Lecture 15 - Factors Affecting Demand
- Lecture 16 - Market Demand
- Lecture 17 - Supply
- Lecture 18 - Market Supply An Example
- Lecture 19 - Factors Affecting Supply
- Lecture 20 - Market Equilibrium
- Lecture 21 - Changes in Market Equilibrium
- Lecture 22 - Consumers Surplus and Producers Surplus
- Lecture 23 - Total Surplus
- Lecture 24 - Market Interventions
- Lecture 25 - Elasticity - I
- Lecture 26 - Elasticity - II
- Lecture 27 - Elasticity - III
- Lecture 28 - Other Elasticities
- Lecture 29 - Elasticity One more Example

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tax I and Incidence of Tax
- Lecture 31 - Incidence of Tax - I
- Lecture 32 - Incidence of Tax - II
- Lecture 33 - Theory of Consumer Behaviour An Introduction
- Lecture 34 - Budget Line
- Lecture 35 - Budget Line and Budget Set Some Examples
- Lecture 36 - Rationality
- Lecture 37 - Utility Function
- Lecture 38 - Continuity
- Lecture 39 - Nonsatiation
- Lecture 40 - Convexity
- Lecture 41 - Indifference Curve and MRS
- Lecture 42 - Indifference Curve and Example
- Lecture 43 - Utility More Examples
- Lecture 44 - Consumer Optimization
- Lecture 45 - Optimization Some Examples - I
- Lecture 46 - Optimization Some Examples - II
- Lecture 47 - Optimization Precaution
- Lecture 48 - Optimization Economic Interpretation
- Lecture 49 - Optimization Summary
- Lecture 50 - Income and Price Expansion Path
- Lecture 51 - Income and Substitution Effect
- Lecture 52 - Income Effect and Substitution Effect (Continued...)
- Lecture 53 - Expenditure Minimization
- Lecture 54 - Duality
- Lecture 55 - Compensated and Uncompensated Demand
- Lecture 56 - DBT vs Subsidy
- Lecture 57 - Producer Theory An Introduction
- Lecture 58 - Types of Firm
- Lecture 59 - Technology and Its Representation
- Lecture 60 - Average Product and Marginal Product
- Lecture 61 - An Example to Demonstrate the Relationship between AP, MP and TP
- Lecture 62 - Examples of Production Function
- Lecture 63 - Time Constraint and Production Function
- Lecture 64 - Returns to Scale
- Lecture 65 - Profit Maximization An Introduction
- Lecture 66 - Profit Maximization II
- Lecture 67 - Profit Maximization Short Run and Long Run
- Lecture 68 - Profit Maximization (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Cost Minimization
- Lecture 70 - Cost Minimization Some Examples
- Lecture 71 - Returns to Scale and Cost Minimization
- Lecture 72 - Cost Minimization Long Run vs Short Run
- Lecture 73 - Fixed Cost Quasi Fixed Cost and Variable Cost
- Lecture 74 - Cost Curve - I
- Lecture 75 - Cost Curve - II
- Lecture 76 - Cost Curve - III
- Lecture 77 - Cost Curve - IV
- Lecture 78 - Market Structure An Introduction
- Lecture 79 - Perfect Competition An Introduction
- Lecture 80 - Demand Curve Facing the Firm
- Lecture 81 - Supply From a Competitive Firm
- Lecture 82 - Obtaining Supply Function
- Lecture 83 - Profit Function And Producer's Surplus
- Lecture 84 - Free Entry and Exit In Perfectly Competitive Market
- Lecture 85 - Conditions for Profitability and Production in a Perfectly Competitive Market
- Lecture 86 - Long Run Supply Function in a Perfectly Competitive Market
- Lecture 87 - A Solved Example: Long Run Supply Function
- Lecture 88 - Upward Sloping Supply Function in Long Run
- Lecture 89 - Introduction to Monopoly
- Lecture 90 - Reasons for Monopoly
- Lecture 91 - Profit Maximization by the Monopolist
- Lecture 92 - Equilibrium in Monopoly Market
- Lecture 93 - A Monopolist doesn't have a supply curve
- Lecture 94 - Monopoly Power
- Lecture 95 - The Impact of Taxes on a Monopolist
- Lecture 96 - A Monopolist with Multiplant
- Lecture 97 - A Monopolist in Multimarket
- Lecture 98 - Price Discrimination
- Lecture 99 - First Degree Price Discrimination
- Lecture 100 - Second Degree Price Discrimination
- Lecture 101 - Third Degree Price Discrimination
- Lecture 102 - Public Policy Towards Monopoly
- Lecture 103 - Monopolistic Competition : An Introduction
- Lecture 104 - Monopolistic Competition in Short Run and Long Run
- Lecture 105 - Monopolistic Competition Vs Perfect Competition in Long Run
- Lecture 106 - Product Differentiation
- Lecture 107 - Game Theory : An Introduction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Nash Equilibrium
- Lecture 109 - Matching Pennies
- Lecture 110 - Extensive form Game
- Lecture 111 - Game Theory Summary
- Lecture 112 - Oligopoly An Introduction
- Lecture 113 - Duopoly
- Lecture 114 - Equilibrium in Cournot Competition
- Lecture 115 - Equilibrium in Bertrand Competition
- Lecture 116 - Stackelberg Competition
- Lecture 117 - Collusion and Cartel
- Lecture 118 - Comparison of Different Market Structures

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Economics - NOC:Economics of Banking and Finance Markets

Subject Co-ordinator - Prof. Sukumar Vellakkal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

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Lecture 29

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Lecture 60



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Economics - NOC:Introduction to Econometrics

Subject Co-ordinator - Prof. Sabuj Kumar Mandal

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to econometrics and econometric analysis - Part 1  
Lecture 2 - Introduction to econometrics and econometric analysis - Part 2  
Lecture 3 - Different steps in econometric analysis - Part 1  
Lecture 4 - Different steps in econometric analysis - Part 2  
Lecture 5 - Desirable properties of the estimates of the population parameters - Part 1  
Lecture 6 - Desirable properties of the estimates of the population parameters - Part 2  
Lecture 7 - Classical Linear Regression Model - Part 1  
Lecture 8 - Classical Linear Regression Model - Part 2  
Lecture 9 - Classical Linear Regression Model - Part 3  
Lecture 10 - Classical Linear Regression Model - Part 4  
Lecture 11 - Classical Linear Regression Model - Part 5  
Lecture 12 - Goodness of fit measure, Anova and hypothesis testing - Part 1  
Lecture 13 - Goodness of fit measure, Anova and hypothesis testing - Part 2  
Lecture 14 - Goodness of fit measure, Anova and hypothesis testing - Part 3  
Lecture 15 - Goodness of fit measure, Anova and hypothesis testing - Part 4  
Lecture 16 - Goodness of fit measure, Anova and hypothesis testing - Part 5  
Lecture 17 - Application of STATA for hypothesis testing and introduction to multiple linear regression model  
Lecture 18 - Application of STATA for hypothesis testing and introduction to multiple linear regression model  
Lecture 19 - Application of STATA for hypothesis testing and introduction to multiple linear regression model  
Lecture 20 - Application of STATA for hypothesis testing and introduction to multiple linear regression model  
Lecture 21 - Application of STATA for hypothesis testing and introduction to multiple linear regression model  
Lecture 22 - Multiple linear regression model and application of F statistics - Part 1  
Lecture 23 - Multiple linear regression model and application of F statistics - Part 2  
Lecture 24 - Multiple linear regression model and application of F statistics - Part 3  
Lecture 25 - Multiple linear regression model and application of F statistics - Part 4  
Lecture 26 - Multiple linear regression model and application of F statistics - Part 5  
Lecture 27 - Multiple linear regression model and application of F statistics - Part 6  
Lecture 28 - Structural break analysis using Chow test - Part 1  
Lecture 29 - Structural break analysis using Chow test - Part 2

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- Lecture 30 - Structural break analysis using Chow test - Part 3
- Lecture 31 - Structural break analysis using Chow test - Part 4
- Lecture 32 - Structural break analysis using Chow test - Part 5
- Lecture 33 - Dummy Variable analysis and Application of Difference-inDifference for impact evaluation - Part 1
- Lecture 34 - Dummy Variable analysis and Application of Difference-inDifference for impact evaluation - Part 2
- Lecture 35 - Dummy Variable analysis and Application of Difference-inDifference for impact evaluation - Part 3
- Lecture 36 - Dummy Variable analysis and Application of Difference-inDifference for impact evaluation - Part 4
- Lecture 37 - Dummy Variable analysis and Application of Difference-inDifference for impact evaluation - Part 5
- Lecture 38 - Statistical analysis of Dummy Variable models and Testing for seasonal fluctuations - Part 1
- Lecture 39 - Statistical analysis of Dummy Variable models and Testing for seasonal fluctuations - Part 2
- Lecture 40 - Statistical analysis of Dummy Variable models and Testing for seasonal fluctuations - Part 3
- Lecture 41 - Statistical analysis of Dummy Variable models and Testing for seasonal fluctuations - Part 4
- Lecture 42 - Statistical analysis of Dummy Variable models and Testing for seasonal fluctuations - Part 5
- Lecture 43 - Statistical analysis of Dummy Variable models and Testing for seasonal fluctuations - Part 6
- Lecture 44 - Relaxing the assumptions of CLRM - Multicollinearity and Autocorrelation - Part 1
- Lecture 45 - Relaxing the assumptions of CLRM - Multicollinearity and Autocorrelation - Part 2
- Lecture 46 - Relaxing the assumptions of CLRM - Multicollinearity and Autocorrelation - Part 3
- Lecture 47 - Relaxing the assumptions of CLRM - Multicollinearity and Autocorrelation - Part 4
- Lecture 48 - Relaxing the assumptions of CLRM - Multicollinearity and Autocorrelation - Part 5
- Lecture 49 - Relaxing the assumptions of CLRM - Multicollinearity and Autocorrelation - Part 6
- Lecture 50 - Relaxing the assumptions of CLRM - Autocorrelation and Heteroscedasticity - Part 1
- Lecture 51 - Relaxing the assumptions of CLRM - Autocorrelation and Heteroscedasticity - Part 2
- Lecture 52 - Relaxing the assumptions of CLRM - Autocorrelation and Heteroscedasticity - Part 3
- Lecture 53 - Relaxing the assumptions of CLRM - Autocorrelation and Heteroscedasticity - Part 4
- Lecture 54 - Relaxing the assumptions of CLRM - Autocorrelation and Heteroscedasticity - Part 5
- Lecture 55 - Relaxing the assumptions of CLRM - Autocorrelation and Heteroscedasticity - Part 6
- Lecture 56 - Qualitative Response Models - Linear Probability Model, Logit and Probit Models - Part 1
- Lecture 57 - Qualitative Response Models - Linear Probability Model, Logit and Probit Models - Part 2
- Lecture 58 - Qualitative Response Models - Linear Probability Model, Logit and Probit Models - Part 3
- Lecture 59 - Qualitative Response Models - Linear Probability Model, Logit and Probit Models - Part 4
- Lecture 60 - Qualitative Response Models - Linear Probability Model, Logit and Probit Models - Part 5
- Lecture 61 - Qualitative Response Models - Probit and Tobit Models - Part 1
- Lecture 62 - Qualitative Response Models - Probit and Tobit Models - Part 2
- Lecture 63 - Qualitative Response Models - Probit and Tobit Models - Part 3
- Lecture 64 - Qualitative Response Models - Probit and Tobit Models - Part 4
- Lecture 65 - Qualitative Response Models - Probit and Tobit Models - Part 5

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Economics - NOC:Environmental and Resource Economics

Subject Co-ordinator - Prof. Sabuj Kumar Mandal

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Environmental Economics and Environmental Kuznets Curve Hypothesis Part - 1  
Lecture 2 - Introduction to Environmental Economics and Environmental Kuznets Curve Hypothesis Part - 2  
Lecture 3 - Introduction to Environmental Economics and Environmental Kuznets Curve Hypothesis Part - 3  
Lecture 4 - Introduction to Environmental Economics and Environmental Kuznets Curve Hypothesis Part - 4  
Lecture 5 - Introduction to Environmental Economics and Environmental Kuznets Curve Hypothesis Part - 5  
Lecture 6 - Introduction to Environmental Economics and Environmental Kuznets Curve Hypothesis Part - 6  
Lecture 7 - Policy implications of Environmental Kuznets curve and Economics of sustainable development Part  
Lecture 8 - Policy implications of Environmental Kuznets curve and Economics of sustainable development Part  
Lecture 9 - Policy implications of Environmental Kuznets curve and Economics of sustainable development Part  
Lecture 10 - Policy implications of Environmental Kuznets curve and Economics of sustainable development Part  
Lecture 11 - Policy implications of Environmental Kuznets curve and Economics of sustainable development Part  
Lecture 12 - Policy implications of Environmental Kuznets curve and Economics of sustainable development Part  
Lecture 13 - Daly's Operational Principle of Sustainable Development Part - 1  
Lecture 14 - Daly's Operational Principle of Sustainable Development Part - 2  
Lecture 15 - Daly's Operational Principle of Sustainable Development Part - 3  
Lecture 16 - Daly's Operational Principle of Sustainable Development Part - 4  
Lecture 17 - Daly's Operational Principle of Sustainable Development Part - 5  
Lecture 18 - Market Failure and Coase Theorem Part - 1  
Lecture 19 - Market Failure and Coase Theorem Part - 2  
Lecture 20 - Market Failure and Coase Theorem Part - 3  
Lecture 21 - Market Failure and Coase Theorem Part - 4  
Lecture 22 - Coase Theorem and Incentive Design Part - 1  
Lecture 23 - Coase Theorem and Incentive Design Part - 2  
Lecture 24 - Coase Theorem and Incentive Design Part - 3  
Lecture 25 - Incentive Design Under Uncertainty and Effectiveness Part - 1  
Lecture 26 - Incentive Design Under Uncertainty and Effectiveness Part - 2  
Lecture 27 - Incentive Design Under Uncertainty and Effectiveness Part - 3  
Lecture 28 - Incentive Design Under Uncertainty and Effectiveness Part - 4  
Lecture 29 - Incentive Design Under Uncertainty and Effectiveness Part - 5

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Effectiveness of Incentive design and Economic valuation of Environmental goods and service Part
- Lecture 31 - Effectiveness of Incentive design and Economic valuation of Environmental goods and service Part
- Lecture 32 - Effectiveness of Incentive design and Economic valuation of Environmental goods and service Part
- Lecture 33 - Effectiveness of Incentive design and Economic valuation of Environmental goods and service Part
- Lecture 34 - Effectiveness of Incentive design and Economic valuation of Environmental goods and service Part
- Lecture 35 - Effectiveness of Incentive design and Economic valuation of Environmental goods and service Part
- Lecture 36 - Effectiveness of Incentive design and Economic valuation of Environmental goods and service Part
- Lecture 37 - Economic Valuation of Environmental Goods and Services - Different Valuation Approaches Part - 1
- Lecture 38 - Economic Valuation of Environmental Goods and Services - Different Valuation Approaches Part - 2
- Lecture 39 - Economic Valuation of Environmental Goods and Services - Different Valuation Approaches Part - 3
- Lecture 40 - Qualitative Response Models- Linear Probability Model, Logit and Probit Models Part - 1
- Lecture 41 - Qualitative Response Models- Linear Probability Model, Logit and Probit Models Part - 2
- Lecture 42 - Qualitative Response Models- Linear Probability Model, Logit and Probit Models Part - 3
- Lecture 43 - Qualitative Response Models- Linear Probability Model, Logit and Probit Models Part - 4
- Lecture 44 - Economic Valuation of Environmental Goods and Services - Different Valuation Approaches Part - 4
- Lecture 45 - Economic Valuation of Environmental Goods and Services - Different Valuation Approaches Part - 5
- Lecture 46 - Economic Valuation of Environmental Goods and Services - Different Valuation Approaches Part - 6
- Lecture 47 - Economic Valuation of Environmental Goods and Services - Different Valuation Approaches Part - 7
- Lecture 48 - Economic Valuation of Environmental Goods and Services - Different Valuation Approaches Part - 8
- Lecture 49 - Economic Valuation of Environmental Goods and Services - Different Valuation Approaches Part - 9
- Lecture 50 - Economic Valuation of Environmental Goods and Services - Different Valuation Approaches Part - 1
- Lecture 51 - Economic Valuation of Environmental Goods and Services - Different Valuation Approaches Part - 1
- Lecture 52 - Economic Valuation of Environmental Goods and Services - Different Valuation Approaches Part - 1
- Lecture 53 - Economic Valuation of Environmental Goods and Services - Different Valuation Approaches Part - 1
- Lecture 54 - Economic Valuation of Environmental Goods and Services - Different Valuation Approaches Part - 1
- Lecture 55 - Natural Resources Economics and Dynamic optimization Part - 1
- Lecture 56 - Natural Resources Economics and Dynamic optimization Part - 2
- Lecture 57 - Natural Resources Economics and Dynamic optimization Part - 3
- Lecture 58 - Natural Resources Economics and Dynamic optimization Part - 4
- Lecture 59 - Natural Resources Economics and Dynamic optimization Part - 5
- Lecture 60 - Natural Resources Economics and Dynamic optimization Part - 6
- Lecture 61 - Dynamic Optimization and Renewable Resources Part - 1
- Lecture 62 - Dynamic Optimization and Renewable Resources Part - 2
- Lecture 63 - Dynamic Optimization and Renewable Resources Part - 3
- Lecture 64 - Dynamic Optimization and Renewable Resources Part - 4
- Lecture 65 - Dynamic Optimization and Renewable Resources Part - 5
- Lecture 66 - Optimum extraction of renewable resources and Tragedy of Commons Part - 1
- Lecture 67 - Optimum extraction of renewable resources and Tragedy of Commons Part - 2
- Lecture 68 - Optimum extraction of renewable resources and Tragedy of Commons Part - 3

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Lecture 69	- Optimum extraction of renewable resources and Tragedy of Commons Part	- 4
Lecture 70	- Optimum extraction of renewable resources and Tragedy of Commons Part	- 5
Lecture 71	- Optimum extraction of renewable resources and Tragedy of Commons Part	- 6
Lecture 72	- Optimum extraction of renewable resources and Tragedy of Commons Part	- 7

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Economics - NOC:Spatial Statistics and Spatial Econometrics

Subject Co-ordinator - Prof. Gaurav Arora

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Spatial Data Analysis
- Lecture 2 - Spatial Patters and Data Generating Process
- Lecture 3 - Spatial Data Structures
- Lecture 4 - A short exercise: Land Use Land Cover Analysis
- Lecture 5 - A general spatial data model
- Lecture 6 - Spatial Statistics: measures of variation; spatial random function
- Lecture 7 - Entropy - I
- Lecture 8 - Entropy - II
- Lecture 9 - Spatial Entropy - I
- Lecture 10 - Spatial Entropy - II
- Lecture 11 - Introduction to Spatial Aucorrelation
- Lecture 12 - Spatial Autocorrelation Implications for Inference - II
- Lecture 13 - Spatial Autocorrelation Implications for Inference - II
- Lecture 14 - Spatial Autocorrelation Implications for Inference - 2-D Example
- Lecture 15 - Spatial Autocorrelation Implications for Inference - Monte Carlo Simulations
- Lecture 16 - Exploratory Spatial Data Analysis
- Lecture 17 - Exploratory Spatial Data Analysis: Example of Groundwater Data
- Lecture 18 - Stationarity in Spatial Statistics
- Lecture 19 - Stationarity in Spatial Statistics: Example of Groundwater Data
- Lecture 20 - Spatial Dependence
- Lecture 21 - Variogram and Semivariogram
- Lecture 22 - Covariogram and Correlogram
- Lecture 23 - The experimental variogram
- Lecture 24 - The experimental variogram on an irregular lattice
- Lecture 25 - Variogram estimation
- Lecture 26 - Variogram model fitting
- Lecture 27 - Variogram model fitting
- Lecture 28 - Non-stationary spatial domains
- Lecture 29 - Spatial interpolation and Kriging

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Spatial Regression Analysis
- Lecture 31 - Spatial Regression Analysis
- Lecture 32 - Spatial dependence in a regression model
- Lecture 33 - Spatial dependence in a regression model
- Lecture 34 - Generalized least squares estimation in the presence of spatial dependence
- Lecture 35 - Spatial weights matrix
- Lecture 36 - Causal Inference in spatial regression models
- Lecture 37 - Endogenous effects in a spatial regression model
- Lecture 38 - Spatially lagged variables in regression models
- Lecture 39 - Spatially lagged variables in regression models
- Lecture 40 - LISA statistics
- Lecture 41 - Lagrange Multiplier Test for Spatial Regression Model
- Lecture 42 - Exploratory Analysis of Groundwater Level Data in ArcGIS Pro
- Lecture 43 - Raster data in ArcGIS Pro
- Lecture 44 - Computing experimental variograms in R - I
- Lecture 45 - Computing experimental variograms in R - II
- Lecture 46 - Fitting model variograms in R
- Lecture 47 - Kriging and cross-validation in R
- Lecture 48 - Spatial linear regression in R - I
- Lecture 49 - Spatial linear regression in R - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Economics - NOC:Economics of Innovation

Subject Co-ordinator - Prof. Ruchi Sharma

Co-ordinating Institute - IIT - Indore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Stylized facts of Innovation
- Lecture 3 - Innovation in the History of Economic Thought
- Lecture 4 - Types of Innovation - I
- Lecture 5 - Types of Innovation - II
- Lecture 6 - Types of Innovation - III
- Lecture 7 - Revisiting Some Key Concepts
- Lecture 8 - Innovation Models
- Lecture 9 - An Innovative Firm
- Lecture 10 - An Innovative Firm in History
- Lecture 11 - Market Structure: An Introduction
- Lecture 12 - Innovation and Market Structure - I
- Lecture 13 - Innovation and Market Structure - II
- Lecture 14 - Innovation and Market Structure - III
- Lecture 15 - Innovation and Firm Size
- Lecture 16 - R&D in Indian Industry
- Lecture 17 - National Innovation System - I
- Lecture 18 - Basics of IPRs
- Lecture 19 - Internationalization of Patents
- Lecture 20 - Economics of Patents
- Lecture 21 - Universities in the NIS
- Lecture 22 - Foreign Direct Investment (FDI): Concept and Definition
- Lecture 23 - Theories explaining FDI
- Lecture 24 - Market for Technology - I
- Lecture 25 - Market for Technology - II
- Lecture 26 - Innovation and Employment - I
- Lecture 27 - Innovation and Employment - II
- Lecture 28 - Innovation and Development - I
- Lecture 29 - Innovation and Development - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diffusion of innovation - 1
- Lecture 31 - Diffusion of innovation - 2
- Lecture 32 - Innovation in Service Sector - I
- Lecture 33 - Innovation in Service Sector - II
- Lecture 34 - Science, Technology, and Innovation Policy - I
- Lecture 35 - Science, Technology, and Innovation Policy - II
- Lecture 36 - Science, Technology, and Innovation Policy - III

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Economics - NOC:Principles of Economics

Subject Co-ordinator - Prof. Sabuj Kumar Mandal

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Ten Principles of Economics - Part 1
- Lecture 2 - Ten Principles of Economics - Part 2
- Lecture 3 - Ten Principles of Economics - Part 3
- Lecture 4 - Ten Principles of Economics - Part 4
- Lecture 5 - Thinking like an Economist; Interdependence and the gains from Trade - Part 1
- Lecture 6 - Thinking like an Economist; Interdependence and the gains from Trade - Part 2
- Lecture 7 - Thinking like an Economist; Interdependence and the gains from Trade - Part 3
- Lecture 8 - Thinking like an Economist; Interdependence and the gains from Trade - Part 4
- Lecture 9 - Market forces of Supply and Elasticity - Part 1
- Lecture 10 - Market forces of Supply and Elasticity - Part 2
- Lecture 11 - Market forces of Supply and Elasticity - Part 3
- Lecture 12 - Market forces of Supply and Elasticity - Part 4
- Lecture 13 - Market forces of Supply and Elasticity - Part 5
- Lecture 14 - Application of elasticity:Supply, Demand and Government policies - Part 1
- Lecture 15 - Application of elasticity:Supply, Demand and Government policies - Part 2
- Lecture 16 - Consumer and producer surplus; cost of taxation and international trade - Part 1
- Lecture 17 - Consumer and producer surplus; cost of taxation and international trade - Part 2
- Lecture 18 - Consumer and producer surplus; cost of taxation and international trade - Part 3
- Lecture 19 - Consumer and producer surplus; cost of taxation and international trade - Part 4
- Lecture 20 - Consumer and producer surplus; cost of taxation and international trade - Part 5
- Lecture 21 - Externalities and cost of production - Part 1
- Lecture 22 - Externalities and cost of production - Part 2
- Lecture 23 - Externalities and cost of production - Part 3
- Lecture 24 - Externalities and cost of production - Part 4
- Lecture 25 - Externalities and cost of production - Part 5
- Lecture 26 - Externalities and cost of production - Part 6
- Lecture 27 - Competitive market and Monopoly market - Part 1
- Lecture 28 - Competitive market and Monopoly market - Part 2
- Lecture 29 - Competitive market and Monopoly market - Part 3

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- Lecture 30 - Competitive market and Monopoly market - Part 4
- Lecture 31 - Game theory and oligopoly, Measures national income, measuring cost of living - Part 1
- Lecture 32 - Game theory and oligopoly, Measures national income, measuring cost of living - Part 2
- Lecture 33 - Game theory and oligopoly, Measures national income, measuring cost of living - Part 3
- Lecture 34 - Game theory and oligopoly, Measures national income, measuring cost of living - Part 4
- Lecture 35 - Production and growth; Saving, Investment and the financial system - Part 1
- Lecture 36 - Production and growth; Saving, Investment and the financial system - Part 2
- Lecture 37 - Production and growth; Saving, Investment and the financial system - Part 3
- Lecture 38 - The monetary system - Part 1
- Lecture 39 - The monetary system - Part 2
- Lecture 40 - Money Growth and inflation - Part 1
- Lecture 41 - Money Growth and inflation - Part 2
- Lecture 42 - Application of theory - Part 1
- Lecture 43 - Application of theory - Part 2
- Lecture 44 - Application of theory - Part 3
- Lecture 45 - Application of theory - Part 4
- Lecture 46 - Application of theory - Part 5
- Lecture 47 - Application of theory - Part 6

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Economics - NOC:Health Economics

Subject Co-ordinator - Prof. Pratap C. Mohanty

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Health Economics: Overview, Structure, and Beneficiaries
- Lecture 2 - Concepts and Terminologies in Health Economics
- Lecture 3 - Health as an Economic Good
- Lecture 4 - Economics of Health v/s Economics of Healthcare
- Lecture 5 - Arrow's Perspective of Healthcare
- Lecture 6 - Utility and Health
- Lecture 7 - Demand for Health care
- Lecture 8 - Demand for Health: Grossman model - I
- Lecture 9 - Demand for Health: Grossman model - II
- Lecture 10 - Grossman model and Health disparities
- Lecture 11 - Physicians as Health Provider - I
- Lecture 12 - Physicians as Health Provider - II
- Lecture 13 - Hospitals as Health Provider
- Lecture 14 - Production and Costs of Health Care
- Lecture 15 - Profit and Non-profit Maximization Models in Health care
- Lecture 16 - Equity in Healthcare
- Lecture 17 - Equity and Redistribution: Theory
- Lecture 18 - Equity in Health Financing
- Lecture 19 - Equity in Distribution
- Lecture 20 - Equity Measurement: A Practical
- Lecture 21 - Health Care Financing
- Lecture 22 - Uncertainty and Risk: Health Insurance - I
- Lecture 23 - Uncertainty and Risk: Health Insurance - II
- Lecture 24 - Information Economics in Health: Moral Hazard
- Lecture 25 - Information Economics in Health: Adverse Selection
- Lecture 26 - Introduction of Behavioral Economics
- Lecture 27 - Expected Utility Theory
- Lecture 28 - Prospect Theory
- Lecture 29 - Nudge Theory

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Time Inconsistency and Health: Discounting
- Lecture 31 - Health Systems
- Lecture 32 - Tax and Social Health Insurance Mechanism - I
- Lecture 33 - Tax and Social Health Insurance Mechanism - II
- Lecture 34 - Private Financing Mechanisms
- Lecture 35 - Health Systems Around the World
- Lecture 36 - Theoretical Foundations of Economic Evaluation - I
- Lecture 37 - Theoretical Foundations of Economic Evaluation - II
- Lecture 38 - Principles of Economic Evaluation: Introduction
- Lecture 39 - Principles of Economic Evaluation: CMA, CCA, Cost-Benefit Analysis (CBA)
- Lecture 40 - Principles of Economic Evaluation: Cost-Effectiveness Analysis (CEA)
- Lecture 41 - Principles of Economic Evaluation: Cost-Utility Analysis (CUA)
- Lecture 42 - Monetary Valuation of Health
- Lecture 43 - Non-monetary Valuation of Health: QALY
- Lecture 44 - Non-monetary Valuation of Health: DALY and HLYE
- Lecture 45 - Costing, Discounting and Evaluation under Uncertainty
- Lecture 46 - Markov modelling and Sensitivity analysis in Healthcare
- Lecture 47 - Concepts of Productivity and Efficiency
- Lecture 48 - Data Envelopment Analysis: Introduction
- Lecture 49 - Data Envelopment Analysis: CCR Model
- Lecture 50 - Data Envelopment Analysis: BCC Model
- Lecture 51 - Introduction to DEAP Software
- Lecture 52 - Application of DEA in Healthcare Using DEAP
- Lecture 53 - Data in Health: Sources and Indicators - I
- Lecture 54 - Data in Health: Sources and Indicators - II
- Lecture 55 - Econometric Modelling in Health
- Lecture 56 - Health Data Handling Packages: Open Source
- Lecture 57 - Health Data Handling Packages: Licensed
- Lecture 58 - Introduction to Public Health
- Lecture 59 - Healthcare Provisioning and Responsiveness
- Lecture 60 - Indian Health System and Challenges

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Nonlinear Dynamical Systems

Subject Co-ordinator - Prof. Harish K. Pillai, Prof. Madhu N. Belur

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - First Order systems

Lecture 3 - Classification of Equilibrium points

Lecture 4 - Lipschitz Functions

Lecture 5 - Existence/uniqueness theorems

Lecture 6 - Existence/uniqueness of solutions to differential equations

Lecture 7 - Lyapunov theorem on stability

Lecture 8 - Extension of Lyapunov's Theorem in different contexts

Lecture 9 - LaSalle's Invariance principle, Barbashin and Krasovski theorems, periodic orbits

Lecture 10 - Bendixson criterion and Poincare-Bendixson criterion. Example

Lecture 11 - Bendixson and Poincare-Bendixson criteria van-der-Pol Oscillator

Lecture 12 - Scilab simulation of Lotka Volterra predator prey model, van-der-Pol Oscillator Review of linear

Lecture 13 - Signals, operators

Lecture 14 - Norms of signals, systems (operators), Finite gain L2 stable

Lecture 15 - Nyquist plots and Nyquist criterion for stability

Lecture 16 - Interconnection between linear system & non-linearity, passive filters

Lecture 17 - Passive filters, Dissipation equality, positive real lemma

Lecture 18 - Positive real lemma proof

Lecture 19 - Definition for positive realness and Kalman Yakubovich-Popov Theorem

Lecture 20 - Kalman-Yakubovich-Popov Lemma/theorem and memoryless nonlinearities

Lecture 21 - Loop transformations and circle criterion

Lecture 22 - Nonlinearities based on circle criterion

Lecture 23 - Limit cycles

Lecture 24 - Popov criterion continuous, frequency-domain theorem

Lecture 25 - Popov criterion continuous, frequency-domain theorem

Lecture 26 - Describing function method

Lecture 27 - Describing Function

Lecture 28 - Describing

Lecture 29 - Describing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Describing functions
- Lecture 31 - Describing functions
- Lecture 32 - Describing functions for nonlinearities
- Lecture 33 - Ideal relay with Hysteresis and dead zone
- Lecture 34 - Dynamical systems on manifolds-1
- Lecture 35 - Dynamical systems on manifolds-2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Power System Dynamics and Control

Subject Co-ordinator - Dr. A.M. Kulkarni

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Introduction

Lecture 3 - Analysis of Dynamical Systems

Lecture 4 - Analysis of Dynamical Systems (Continued.)

Lecture 5 - Analysis of LINEAR Time Invariant Dynamical Systems

Lecture 6 - Analysis of LINEAR Time Invariant Dynamical Systems (Continued.)

Lecture 7 - Stiff Systems, Multi Time Scale Modeling

Lecture 8 - Numerical Integration

Lecture 9 - Numerical Integration (Continued.)

Lecture 10 - Numerical Integration (Continued.)

Lecture 11 - Modeling of Synchronous Machines

Lecture 12 - Modeling of Synchronous Machines (Continued.)

Lecture 13 - Modeling of Synchronous Machines (Continued.)

Lecture 14 - Modeling of Synchronous Machines. dq0 transformation (Continued.)

Lecture 15 - Modeling of Synchronous Machines. Standard Parameters

Lecture 16 - Modeling of Synchronous Machines. Standard Parameters

Lecture 17 - Synchronous Generator Models using Standard Parameters

Lecture 18 - Synchronous Generator Models using Standard Parameters. PER UNIT REPRESENTATION

Lecture 19 - Open Circuit Response of a Synchronous Generator

Lecture 20 - Synchronous Machine Modeling. Short Circuit Analysis (Continued.)

Lecture 21 - Synchronous Machine Modeling. Short Circuit Analysis (Continued.) Synchronization of a Synchronous Machine

Lecture 22 - Synchronization of a Synchronous Machine (Continued.)

Lecture 23 - Simplified Synchronous Machine Models

Lecture 24 - Excitation Systems

Lecture 25 - Excitation System Modeling

Lecture 26 - Excitation System Modeling. Automatic Voltage Regulator

Lecture 27 - Excitation System Modeling. Automatic Voltage Regulator (Continued.)

Lecture 28 - Excitation System Modeling. Automatic Voltage Regulator (Simulation)

Lecture 29 - Excitation System Modeling. Automatic Voltage Regulator (Simulation) â (Continued.)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Excitation System Modeling. Automatic Voltage Regulator. Linearized Analysis
- Lecture 31 - Load Modeling
- Lecture 32 - Induction Machines, Transmission Lines
- Lecture 33 - Transmission Lines. Prime Mover Systems
- Lecture 34 - Transmission Lines (Continued.) Prime Mover Systems
- Lecture 35 - Prime Mover Systems. Stability in Integrated Power System
- Lecture 36 - Stability in Integrated Power System
- Lecture 37 - Two Machine System (Continued.)
- Lecture 38 - Stability in Integrated Power System
- Lecture 39 - Frequency/Angular Stability Programs. Stability Phenomena
- Lecture 40 - Voltage Stability Example (Continued.). Fast Transients
- Lecture 41 - Torsional Transients
- Lecture 42 - Sub-Synchronous Resonance. Stability Improvement
- Lecture 43 - Stability Improvement
- Lecture 44 - Stability Improvement. Power System Stabilizers
- Lecture 45 - Stability Improvement (Large Disturbance Stability)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Control Engineering (Prof. S.D. Agashe)

Subject Co-ordinator - Prof. S.D. Agashe

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The Control Problem
- Lecture 2 - Some More Examples
- Lecture 3 - Different Kinds of Control Systems
- Lecture 4 - History of Feedback
- Lecture 5 - Modern Control Problems
- Lecture 6 - DC Motor Speed Control
- Lecture 7 - System Modelling, Analogy
- Lecture 8 - Causes of System Error
- Lecture 9 - Calculation of Error
- Lecture 10 - Control System Sensitivity
- Lecture 11 - Automatic Control of DC Motor
- Lecture 12 - Proportional Control
- Lecture 13 - Non-Unity Feedback
- Lecture 14 - Signal-Flow Graph
- Lecture 15 - Mason's Gain Formula
- Lecture 16 - Signal-Flow Graph for DC Motor Control
- Lecture 17 - Steady-State Calculations
- Lecture 18 - Differential Equation Model and Laplace Transformation Model
- Lecture 19 - D-Operator Method
- Lecture 20 - Second-Order System Response
- Lecture 21 - Frequency Response
- Lecture 22 - Laplace Transformation Theorems
- Lecture 23 - Final Value Theorem
- Lecture 24 - Transfer Function and Pole-Zero Diagram
- Lecture 25 - 'Good' Poles and 'Bad' Poles
- Lecture 26 - Signal Flow Graph with Transfer Functions
- Lecture 27 - s-Domain and t-Domain
- Lecture 28 - Second-Order System Response in s-Domain
- Lecture 29 - Integral Feedback

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Root-Locus Method
- Lecture 31 - Root-Locus Rules
- Lecture 32 - Asymptotes of Root Locus
- Lecture 33 - Routh Array
- Lecture 34 - Singular Cases
- Lecture 35 - Closed Loop Poles
- Lecture 36 - Controller in the Forwarded Path
- Lecture 37 - Mapping of Control in the Complex-Plane
- Lecture 38 - Encirclement by a Curve
- Lecture 39 - Nyquist Criterion
- Lecture 40 - Application of the Nyquist Criterion
- Lecture 41 - Polar Plot and Bode Plots
- Lecture 42 - Logarithmic Scale for Frequency
- Lecture 43 - 'Asymptotic' DB Gain
- Lecture 44 - Compensating Network
- Lecture 45 - Nichols' Chart
- Lecture 46 - Time Domain Methods of Analysis and Design
- Lecture 47 - State-Variable Equations

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Power Electronics

Subject Co-ordinator - Prof. Kishore Chatterjee, Prof. B.G. Fernandes

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Power Electronics  
Lecture 2 - Power Electronics  
Lecture 3 - Power Electronics  
Lecture 4 - Power Electronics  
Lecture 5 - Power Electronics  
Lecture 6 - Power Electronics  
Lecture 7 - Power Electronics  
Lecture 8 - Power Electronics  
Lecture 9 - Power Electronics  
Lecture 10 - Power Electronics  
Lecture 11 - Power Electronics  
Lecture 12 - Power Electronics  
Lecture 13 - Power Electronics  
Lecture 14 - Power Electronics  
Lecture 15 - Power Electronics  
Lecture 16 - Power Electronics  
Lecture 17 - Power Electronics  
Lecture 18 - Power Electronics  
Lecture 19 - Power Electronics  
Lecture 20 - Power Electronics  
Lecture 21 - Power Electronics  
Lecture 22 - Power Electronics  
Lecture 23 - Power Electronics  
Lecture 24 - Power Electronics  
Lecture 25 - Power Electronics  
Lecture 26 - Power Electronics  
Lecture 27 - Power Electronics  
Lecture 28 - Power Electronics  
Lecture 29 - Power Electronics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Power Electronics  
Lecture 31 - Power Electronics  
Lecture 32 - Power Electronics  
Lecture 33 - Power Electronics  
Lecture 34 - Power Electronics  
Lecture 35 - Power Electronics  
Lecture 36 - Power Electronics  
Lecture 37 - Power Electronics  
Lecture 38 - Power Electronics  
Lecture 39 - Power Electronics  
Lecture 40 - Power Electronics  
Lecture 41 - Power Electronics  
Lecture 42 - Power Electronics  
Lecture 43 - Power Electronics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Fabrication of Silicon VLSI Circuits using the MOS technology

Subject Co-ordinator - Prof. A.N. Chandorkar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction Micro to Nano A Journey into Intergrated Circuit Technology
- Lecture 2 - Introduction Micro to Nano A Journey into Intergrated Circuit Technology
- Lecture 3 - Crystal Properties and Silico Growth
- Lecture 4 - Crystal Properties and Silico Growth (Continued...)
- Lecture 5 - IC Fab Labs and Fabrication of IC
- Lecture 6 - Diffusion
- Lecture 7 - Diffusion (Continued...)
- Lecture 8 - Solid State Diffusion
- Lecture 9 - Solid State Diffusion (Continued...)
- Lecture 10 - Solid State Diffusion (Continued...)
- Lecture 11 - Thermal Oxidation of Silicons
- Lecture 12 - Thermal Oxidation of Silicons
- Lecture 13 - Thermal Oxidation of Silicons
- Lecture 14 - Thermal Oxidation of Silicons (Continued...)
- Lecture 15 - Thermal Oxidation of Silicons (Continued...)
- Lecture 16 - Lithography
- Lecture 17 - Lithography
- Lecture 18 - Lithography
- Lecture 19 - ION Implantation
- Lecture 20 - ION Implantation
- Lecture 21 - ION Implantation and Silicon IC Processing Flow for CMOS Technology
- Lecture 22 - ION Implantation and Silicon IC Processing Flow for CMOS Technology
- Lecture 23 - Silicon IC Processing Flow for CMOS Technology
- Lecture 24 - Thin Film Deposition
- Lecture 25 - Thin Film Deposition
- Lecture 26 - Thin Film Deposition
- Lecture 27 - Thin Film Deposition and Etching in VLSI Processing
- Lecture 28 - Etching in VLSI Processing and Back -End Technology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Computational Electromagnetics and Applications

Subject Co-ordinator - Prof.Krish Sankaran

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1  
Lecture 2 - Lecture 2  
Lecture 3 - Lecture 3  
Lecture 4 - Exercise 1  
Lecture 5 - Exercise 2  
Lecture 6 - Exercise 3  
Lecture 7 - Lab Tour 1  
Lecture 8 - Summary week 1  
Lecture 9 - Lecture 4  
Lecture 10 - Lecture 5  
Lecture 11 - Exercise 4  
Lecture 12 - Exercise 5  
Lecture 13 - Exercise 6  
Lecture 14 - Summary Week 2  
Lecture 15 - Lecture 6  
Lecture 16 - Lecture 7  
Lecture 17 - Lecture 8  
Lecture 18 - Exercise 7  
Lecture 19 - Exercise 8  
Lecture 20 - Summary Week 3  
Lecture 21 - Lecture 9  
Lecture 22 - Lecture 10  
Lecture 23 - Lecture 11  
Lecture 24 - Lecture 12  
Lecture 25 - Lecture 13  
Lecture 26 - Lecture 14  
Lecture 27 - Exercise 9  
Lecture 28 - Lab Tour - 2  
Lecture 29 - Summary Week 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Lecture 15  
Lecture 31 - Lecture 16  
Lecture 32 - Lecture 17  
Lecture 33 - Lecture 18  
Lecture 34 - Exercise 10  
Lecture 35 - Summary week 5  
Lecture 36 - Lecture 19  
Lecture 37 - Lecture 20  
Lecture 38 - Lecture 21  
Lecture 39 - Lecture 22  
Lecture 40 - Exercise 11  
Lecture 41 - Summary week 6  
Lecture 42 - Exercise 12  
Lecture 43 - Exercise 13  
Lecture 44 - Exercise 14  
Lecture 45 - Exercise 15  
Lecture 46 - Exercise 16  
Lecture 47 - Exercise 17  
Lecture 48 - Summary week 7  
Lecture 49 - Lecture 23  
Lecture 50 - Lecture 24  
Lecture 51 - Lecture 25  
Lecture 52 - Exercise 18  
Lecture 53 - Exercise 19  
Lecture 54 - Lab tour 3  
Lecture 55 - Summary week 8  
Lecture 56 - Lecture 26  
Lecture 57 - Lecture 27  
Lecture 58 - Lecture 28  
Lecture 59 - Lecture 29  
Lecture 60 - Lecture 30  
Lecture 61 - Lecture 31  
Lecture 62 - Lab tour 4  
Lecture 63 - Summary week 9  
Lecture 64 - Lecture 32  
Lecture 65 - Lecture 33  
Lecture 66 - Lecture 34  
Lecture 67 - Lecture 35  
Lecture 68 - Exercise 20

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Lab tour 5  
Lecture 70 - Summary week 10  
Lecture 71 - Lecture 36  
Lecture 72 - Lecture 37  
Lecture 73 - Lecture 38  
Lecture 74 - Lecture 39  
Lecture 75 - Lecture 40  
Lecture 76 - Summary week 11  
Lecture 77 - Lecture 41  
Lecture 78 - Lecture 42  
Lecture 79 - Lecture 43  
Lecture 80 - Lecture 44  
Lecture 81 - Exercise 21  
Lecture 82 - Exercise 22  
Lecture 83 - Summary week 12

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Basic Electronics

Subject Co-ordinator - Prof. Mahesh B. Patil

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - A brief history of electronics  
Lecture 2 - Superposition  
Lecture 3 - Useful circuit techniques - 1  
Lecture 4 - Useful circuit techniques - 2  
Lecture 5 - Phasors - 1  
Lecture 6 - Phasors - 2  
Lecture 7 - RC/RL circuits in time domain - 1  
Lecture 8 - RC/RL circuits in time domain - 2  
Lecture 9 - RC/RL circuits in time domain - 3  
Lecture 10 - RC/RL circuits in time domain - 4  
Lecture 11 - RC/RL circuits in time domain - 5  
Lecture 12 - Simulation of RC circuit  
Lecture 13 - Diode circuits - 1  
Lecture 14 - Diode circuits - 2  
Lecture 15 - Diode circuits - 3  
Lecture 16 - Diode circuits - 4  
Lecture 17 - Diode circuits - 5  
Lecture 18 - Diode circuits - 6  
Lecture 19 - Diode rectifiers - 1  
Lecture 20 - Diode rectifiers - 2  
Lecture 21 - Diode rectifiers - 3  
Lecture 22 - Bipolar Junction Transistor - 1  
Lecture 23 - Bipolar Junction Transistor - 2  
Lecture 24 - Bipolar Junction Transistor - 3  
Lecture 25 - BJT amplifier - 1  
Lecture 26 - BJT amplifier - 2  
Lecture 27 - BJT amplifier - 3  
Lecture 28 - BJT amplifier - 4  
Lecture 29 - BJT amplifier - 5

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - BJT amplifier - 6
- Lecture 31 - BJT amplifier - 7
- Lecture 32 - Introduction to op-amps
- Lecture 33 - Op-amp circuits - 1
- Lecture 34 - Op-amp circuits - 2
- Lecture 35 - Op-amp circuits - 3
- Lecture 36 - Difference amplifier
- Lecture 37 - Instrumentation amplifier - 1
- Lecture 38 - Instrumentation amplifier - 2
- Lecture 39 - Op-amp nonidealities - 1
- Lecture 40 - Op-amp nonidealities - 2
- Lecture 41 - Bode plots - 1
- Lecture 42 - Bode plots - 2
- Lecture 43 - Bode plots - 3
- Lecture 44 - Op-amp filters
- Lecture 45 - Simulation of op-amp filter
- Lecture 46 - Precision rectifiers - 1
- Lecture 47 - Precision rectifiers - 2
- Lecture 48 - Precision rectifiers - 3
- Lecture 49 - Simulation of triangle-to-sine converter
- Lecture 50 - Schmitt triggers - 1
- Lecture 51 - Schmitt triggers - 2
- Lecture 52 - Schmitt triggers - 3
- Lecture 53 - Sinusoidal oscillators - 1
- Lecture 54 - Sinusoidal oscillators - 2
- Lecture 55 - Introduction to digital circuits
- Lecture 56 - Boolean algebra
- Lecture 57 - Karnaugh maps
- Lecture 58 - Combinatorial circuits - 1
- Lecture 59 - Combinatorial circuits - 2
- Lecture 60 - Combinatorial circuits - 3
- Lecture 61 - Introduction to sequential circuits
- Lecture 62 - Latch and flip-flop
- Lecture 63 - JK flip-flop
- Lecture 64 - D flip-flop
- Lecture 65 - Shift registers
- Lecture 66 - Counters - 1
- Lecture 67 - Counters - 2
- Lecture 68 - Simulation of a synchronous counter

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- Lecture 69 - 555 timer
- Lecture 70 - Digital-to-analog conversion - 1
- Lecture 71 - Digital-to-analog conversion - 2
- Lecture 72 - Analog-to-digital conversion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Antennas

Subject Co-ordinator - Prof. Girish Kumar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Antenna Introduction - I  
Lecture 2 - Antenna Introduction - II  
Lecture 3 - Antenna Introduction - III  
Lecture 4 - Antenna Fundamentals - I  
Lecture 5 - Antenna Fundamentals - II  
Lecture 6 - Antenna Radiation Hazards - I  
Lecture 7 - Antenna Radiation Hazards - II  
Lecture 8 - Dipole Antennas - I  
Lecture 9 - Dipole Antennas - II  
Lecture 10 - Dipole Antennas - III  
Lecture 11 - Monopole Antennas - I  
Lecture 12 - Monopole Antennas - II  
Lecture 13 - Loop Antennas  
Lecture 14 - Slot Antennas  
Lecture 15 - Linear Arrays - I  
Lecture 16 - Linear Arrays - II  
Lecture 17 - Linear Arrays - III  
Lecture 18 - Planar Arrays  
Lecture 19 - Microstrip Antennas (MSA)  
Lecture 20 - Rectangular MSA  
Lecture 21 - MSA Parametric Analysis - I  
Lecture 22 - MSA Parametric Analysis - II  
Lecture 23 - Circular MSA  
Lecture 24 - Broadband MSA - I  
Lecture 25 - Broadband MSA - II  
Lecture 26 - Broadband MSA - III  
Lecture 27 - Broadband MSA - IV  
Lecture 28 - Broadband MSA - V  
Lecture 29 - Compact MSA - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Compact MSA - II
- Lecture 31 - Compact MSA - III
- Lecture 32 - Tunable MSA - I
- Lecture 33 - Tunable MSA - II
- Lecture 34 - Circularly Polarized MSA - I
- Lecture 35 - Circularly Polarized MSA - II
- Lecture 36 - Circularly Polarized MSA - III
- Lecture 37 - MSA Arrays - I
- Lecture 38 - MSA Arrays - II
- Lecture 39 - MSA Arrays - III
- Lecture 40 - Helical Antennas - I
- Lecture 41 - Helical Antennas - II
- Lecture 42 - Helical Antennas - III
- Lecture 43 - Helical Antennas - IV
- Lecture 44 - Helical Antennas - V
- Lecture 45 - Horn Antennas - I
- Lecture 46 - Horn Antennas - II
- Lecture 47 - Horn Antennas - III
- Lecture 48 - Horn Antennas - IV
- Lecture 49 - Horn Antennas - V
- Lecture 50 - Yagi-Uda and Log-Periodic Antennas - I
- Lecture 51 - Yagi-Uda and Log-Periodic Antennas - II
- Lecture 52 - Yagi-Uda and Log-Periodic Antennas - III
- Lecture 53 - IE3D Session TA - I
- Lecture 54 - IE3D Session TA - II
- Lecture 55 - IE3D Session TA - III
- Lecture 56 - Reflector Antennas - I
- Lecture 57 - Reflector Antennas - II
- Lecture 58 - Reflector Antennas - III
- Lecture 59 - Reflector Antennas - IV
- Lecture 60 - Lab Session

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Wavelets, Filter Banks and Time Frequency Analysis

Subject Co-ordinator - Prof. V.M. Gadre

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1 - Lecture 1 - Introduction  
Lecture 2 - Module 1 - Lecture 2 - Origin of Wavelets  
Lecture 3 - Module 1 - Lecture 3 - Haar Wavelet  
Lecture 4 - Module 2 - Lecture 1 - Dyadic Wavelet  
Lecture 5 - Module 2 - Lecture 2 - Dilates and Translates of Haar Wavelets  
Lecture 6 - Module 2 - Lecture 3 - L2 Norm of a Function  
Lecture 7 - Module 3 - Lecture 1 - Piecewise Constant Representation of a Function  
Lecture 8 - Module 3 - Lecture 2 - Ladder of Subspaces  
Lecture 9 - Module 3 - Lecture 3 - Scaling Function for Haar Wavelet Demo  
Lecture 10 - Demonstration 1  
Lecture 11 - Module 4 - Lecture 1 - Vector Representation of Sequences  
Lecture 12 - Module 4 - Lecture 2 - Properties of Norm  
Lecture 13 - Module 4 - Lecture 3 - Parseval's Theorem  
Lecture 14 - Module 5 - Lecture 1 - Equivalence of sequences and functions  
Lecture 15 - Module 5 - Lecture 2 - Angle between Functions and their Decomposition  
Lecture 16 - Demonstration 2  
Lecture 17 - Module 6 - Lecture 1 - Introduction to filter banks  
Lecture 18 - Module 6 - Lecture 2 - Haar Analysis Filter Bank in Z-domain  
Lecture 19 - Module 6 - Lecture 3 - Haar Synthesis Filter Bank in Z-domain  
Lecture 20 - Module 7 - Lecture 1 - Moving from Z-domain to frequency domain  
Lecture 21 - Module 7 - Lecture 2 - Frequency Response of Haar Analysis Low pass Filter bank  
Lecture 22 - Module 7 - Lecture 3 - Frequency Response of Haar Analysis High pass Filter bank  
Lecture 23 - Module 8 - Lecture 1 - Ideal two-band filter bank  
Lecture 24 - Module 8 - Lecture 2 - Disqualification of Ideal filter bank  
Lecture 25 - Module 8 - Lecture 3 - Realizable two-band filter bank  
Lecture 26 - Demonstration 3  
Lecture 27 - Module 9 - Lecture 1 - Relating Fourier transform of scaling function to filter bank  
Lecture 28 - Module 9 - Lecture 2 - Fourier transform of scaling function  
Lecture 29 - Module 9 - Lecture 3 - Construction of scaling and wavelet functions from filter bank

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Demonstration 4
- Lecture 31 - Module 10 - Lecture 1 - Introduction to upsampling and down sampling as Multirate operations
- Lecture 32 - Module 10 - Lecture 2 - Up sampling by a general factor M- a Z-domain analysis.
- Lecture 33 - Module 10 - Lecture 3 - Down sampling by a general factor M- a Z-domain analysis
- Lecture 34 - Module 11 - Lecture 1 - Z domain analysis of 2 channel filter bank.
- Lecture 35 - Module 11 - Lecture 2 - Effect of X (-Z) in time domain and aliasing
- Lecture 36 - Module 11 - Lecture 3 - Consequences of aliasing and simple approach to avoid it
- Lecture 37 - Module 12 - Lecture 1 - Revisiting aliasing and the Idea of perfect reconstruction
- Lecture 38 - Module 12 - Lecture 2 - Applying perfect reconstruction and alias cancellation on Haar MRA
- Lecture 39 - Module 12 - Lecture 3 - Introduction to Daubechies family of MRA
- Lecture 40 - Module 13 - Lecture 1 - Power Complementarity of low pass filter
- Lecture 41 - Module 13 - Lecture 2 - Applying perfect reconstruction condition to obtain filter coefficient
- Lecture 42 - Module 14 - Lecture 1 - Effect of minimum phase requirement on filter coefficients
- Lecture 43 - Module 14 - Lecture 2 - Building compactly supported scaling functions
- Lecture 44 - Module 14 - Lecture 3 - Second member of Daubechies family
- Lecture 45 - Module 15 - Lecture 1 - Fourier transform analysis of Haar scaling and Wavelet functions
- Lecture 46 - Module 15 - Lecture 2 - Revisiting Fourier Transform and Parseval's theorem
- Lecture 47 - Module 15 - Lecture 3 - Transform Analysis of Haar Wavelet function
- Lecture 48 - Module 16 - Lecture 1 - Nature of Haar scaling and Wavelet functions in frequency domain
- Lecture 49 - Module 16 - Lecture 2 - The Idea of Time-Frequency Resolution
- Lecture 50 - Module 16 - Lecture 3 - Some thoughts on Ideal time- frequency domain behavior
- Lecture 51 - Module 17 - Lecture 1 - Defining Probability Density function
- Lecture 52 - Module 17 - Lecture 2 - Defining Mean, Variance and  $\hat{\Delta}$  containment in a given domain
- Lecture 53 - Module 17 - Lecture 3 - Example
- Lecture 54 - Module 17 - Lecture 4 - Variance from a slightly different perspective
- Lecture 55 - Module 18 - Lecture 1 - Signal transformations
- Lecture 56 - Module 18 - Lecture 2 - Time-Bandwidth product and its properties
- Lecture 57 - Module 18 - Lecture 3 - Simplification of Time-Bandwidth formulae
- Lecture 58 - Module 19 - Lecture 1 - Introduction
- Lecture 59 - Module 19 - Lecture 2 - Evaluation of Time-Bandwidth product
- Lecture 60 - Module 19 - Lecture 3 - Optimal function in the sense of Time-Bandwidth product
- Lecture 61 - Module 20 - Lecture 1 - Discontent with the  $\hat{\Delta}$  Optimal function .
- Lecture 62 - Module 20 - Lecture 2 - Journey from infinite to finite Time-Bandwidth product of Haar scaling f
- Lecture 63 - Module 20 - Lecture 3 - More insights about Time-Bandwidth product
- Lecture 64 - Module 20 - Lecture 4 - Time-frequency plane
- Lecture 65 - Module 20 - Lecture 5 - Tiling the Time-frequency plane
- Lecture 66 - Module 21 - Lecture 1 - STFT
- Lecture 67 - Module 21 - Lecture 2 - STFT
- Lecture 68 - Module 21 - Lecture 3 - STFT

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Module 21 - Lecture 4 - Continuous Wavelet Transform (CWT)
- Lecture 70 - Demonstration 5
- Lecture 71 - Student's Presentation

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Analog Circuits (2017)

Subject Co-ordinator - Prof. Jayanta Mukherjee

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1 - Introduction  
Lecture 2 - Module 2 - Poles and zeros  
Lecture 3 - Module 3 - OP-AMPS  
Lecture 4 - Module 4 - Application of Op-Amps  
Lecture 5 - Module 5 - Inverting amplifier and Non Inverting amplifier  
Lecture 6 - Module 1 - Non Idealities in Op-AMP (Finite Gain, Finite Bandwidth and Slew Rate)  
Lecture 7 - Module 2 - Non Idealities in Op-AMP (Offset Voltage and Bias Current)  
Lecture 8 - Module 3 - Bode Plot  
Lecture 9 - Module 4 - Frequency Response  
Lecture 10 - Module 1 - Frequency Response (High Frequency Response)  
Lecture 11 - Module 2 - Frequency Response example  
Lecture 12 - Module 3 - Feedback  
Lecture 13 - Module 4 - Effects of Feedback  
Lecture 14 - Tutorial 1 and 2  
Lecture 15 - Module 1 - Effect of feedback and stability  
Lecture 16 - Module 2 - Stability  
Lecture 17 - Module 3 - Stability and pole location  
Lecture 18 - Module 4 - Stability and Pole location continuation  
Lecture 19 - Tutorial 3  
Lecture 20 - Module 1 - Gain Margin  $\hat{A}$  An example  
Lecture 21 - Module 2 - Frequency Compensation  
Lecture 22 - Module 3 - Filters  
Lecture 23 - Module 4 - Filter prototypes  
Lecture 24 - Tutorial 4  
Lecture 25 - Tutorial 5  
Lecture 26 - Tutorial 6  
Lecture 27 - Module 1 - Chebyshev Prototype, Filter transformation  
Lecture 28 - Module 2 - Filter Transformations (Continued....)  
Lecture 29 - Module 3 - Active Filters

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Module 4 - Non Linear Applications of OPAMPS
- Lecture 31 - Module 5 - Limiter, Diodes
- Lecture 32 - Module 1 - Oscillators
- Lecture 33 - Module 2 - Oscillator Amplitude Control , Quadrature Oscillator
- Lecture 34 - Module 3 - Multivibrators
- Lecture 35 - Module 4 - Multivibrators (Continued...)
- Lecture 36 - Module 5 - Monostable Multivibrator
- Lecture 37 - Module 1 - Zener Effect, Rectifiers
- Lecture 38 - Module 2 - Rectifiers
- Lecture 39 - Module 3 - Clamper, Peak Rectifier, Super diodes
- Lecture 40 - Module 4 - BJT DC Circuits
- Lecture 41 - Module 5 - Current Mirror

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC: Microwave Theory and Techniques

Subject Co-ordinator - Prof. Girish Kumar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Microwave Theory and Techniques Introduction - I  
Lecture 2 - Microwave Theory and Techniques Introduction - II  
Lecture 3 - Microwave Theory and Techniques Introduction - III  
Lecture 4 - Effects of Microwaves on Human Body - I  
Lecture 5 - Effects of Microwaves on Human Body - II  
Lecture 6 - Waveguides - I  
Lecture 7 - Waveguides - II  
Lecture 8 - Waveguides - III  
Lecture 9 - Transmission Lines - I  
Lecture 10 - Transmission Lines - II  
Lecture 11 - Smith Chart and Impedance Matching - I  
Lecture 12 - Smith Chart and Impedance Matching - II  
Lecture 13 - Smith Chart and Impedance Matching - III  
Lecture 14 - ABCD - Parameters  
Lecture 15 - S - Parameters  
Lecture 16 - Power Dividers - I  
Lecture 17 - Power Dividers - II  
Lecture 18 - Microwave Couplers - I  
Lecture 19 - Microwave Couplers - II  
Lecture 20 - Microwave Couplers - III  
Lecture 21 - Microwave Filters - I  
Lecture 22 - Microwave Filters - II  
Lecture 23 - Microwave Filters - III  
Lecture 24 - Microwave Filters - IV  
Lecture 25 - Microwave Filters - V  
Lecture 26 - Microwave Diodes  
Lecture 27 - Microwave Attenuators  
Lecture 28 - Microwave RF Switches  
Lecture 29 - Series and Shunt SPDT Switches and Introduction to Phase Shifters

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Microwave Phase Shifters
- Lecture 31 - Microwave Transistors
- Lecture 32 - Microwave Amplifiers - I
- Lecture 33 - Microwave Amplifiers - II
- Lecture 34 - Microwave Amplifiers - III
- Lecture 35 - Low Noise Amplifiers - I
- Lecture 36 - Low Noise Amplifiers - II
- Lecture 37 - Power Amplifiers
- Lecture 38 - Microwave Tubes - I
- Lecture 39 - Microwave Tubes - II
- Lecture 40 - Microwave Tubes - III
- Lecture 41 - Microwave Oscillators - I
- Lecture 42 - Microwave Oscillators - II
- Lecture 43 - Microwave Mixers - I
- Lecture 44 - Microwave Mixers - II
- Lecture 45 - Microwave Mixers - III
- Lecture 46 - Fundamentals of Antennas
- Lecture 47 - Dipole, Monopole, loop and Slot Antennas
- Lecture 48 - Linear and Planar Arrays
- Lecture 49 - Microstrip Antennas
- Lecture 50 - Horn and Helical Antennas
- Lecture 51 - Yagi - Uda, Log-Periodic and Reflector Antennas
- Lecture 52 - RF MEMS and Microwave Imaging
- Lecture 53 - Microwave Systems
- Lecture 54 - Microwave Measurements and Lab Demonstration
- Lecture 55 - CST Software Introduction with Filter Design
- Lecture 56 - Power Divider and Combiner Design in CST
- Lecture 57 - Hybrid Coupler Design
- Lecture 58 - Antenna Design and Amplifier Simulation in CST
- Lecture 59 - Mixer Design in NI AWR Software - I
- Lecture 60 - Mixer Design in NI AWR Software - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Principles of Digital Communications

Subject Co-ordinator - Prof. S.N. Merchant

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Overview
- Lecture 2 - Introduction to Information Theory
- Lecture 3 - Entropy and its properties
- Lecture 4 - Lossless Source Coding Theorem
- Lecture 5 - Prefix Codes and Kraft's Inequality
- Lecture 6 - Huffman Coding
- Lecture 7 - Discrete Memory-less Channels
- Lecture 8 - Channel Capacity - I
- Lecture 9 - Channel Capacity - II
- Lecture 10 - Channel Coding Theorem
- Lecture 11 - Differential Entropy - I
- Lecture 12 - Differential Entropy - II
- Lecture 13 - Channel Capacity - III
- Lecture 14 - Channel Capacity - IV
- Lecture 15 - Summary of Information Theory
- Lecture 16 - Signal Space Representations - I
- Lecture 17 - Signal Space Representations - II
- Lecture 18 - Vector Representation of a Random Process
- Lecture 19 - AWGN Vector Channel
- Lecture 20 - Basics of Signal Detection
- Lecture 21 - ML,MAP Detectors for AWGN Channel
- Lecture 22 - Optimal Receiver
- Lecture 23 - Probability of error for Optimal Receiver
- Lecture 24 - Probability of Error for M-ary Scheme
- Lecture 25 - Pulse Code Modulation
- Lecture 26 - Uniform Quantizer
- Lecture 27 - Step Size and Quantization Noise
- Lecture 28 - Non-uniform Quantizer (Lloyd-Max Quantizer)
- Lecture 29 - Companded Quantization - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Companded Quantization - II
- Lecture 31 - Differential Pulse Code Modulation DPCM - I
- Lecture 32 - DPCM-II (Linear Prediction)
- Lecture 33 - Delta Modulation
- Lecture 34 - M-ary PCM/PAM - I
- Lecture 35 - M-ary PCM/PAM - II
- Lecture 36 - Line Coding - I
- Lecture 37 - Line Coding - II
- Lecture 38 - Line Coding - III
- Lecture 39 - Pulse Shaping for Zero ISI - I
- Lecture 40 - Pulse Shaping for Zero ISI - II
- Lecture 41 - Pulse Shaping for Zero ISI - III
- Lecture 42 - Partial Response Signaling - I
- Lecture 43 - Partial Response Signaling - II
- Lecture 44 - Principle of Invariance of Probability of Error
- Lecture 45 - Binary ASK and PSK
- Lecture 46 - Binary Frequency Shift Keying - I
- Lecture 47 - Binary Frequency Shift Keying - II
- Lecture 48 - Quadrature Phase Shift Keying - I
- Lecture 49 - Quadrature Phase Shift Keying - II
- Lecture 50 - Quadrature Phase Shift Keying - III
- Lecture 51 - Continuous Phase Frequency Shift Keying
- Lecture 52 - Minimum Shift Keying - I
- Lecture 53 - Minimum Shift Keying - II
- Lecture 54 - M-ary Coherent ASK (M-ASK)
- Lecture 55 - M-ary PSK
- Lecture 56 - M-ary Quadrature Amplitude Modulation (M-QAM)
- Lecture 57 - M-ary FSK
- Lecture 58 - Comparison of M-ary Schemes
- Lecture 59 - Non-coherent BFSK
- Lecture 60 - Differential Phase Shift Keying
- Lecture 61 - Channel Coding - I
- Lecture 62 - Channel Coding - II
- Lecture 63 - Channel Coding - III
- Lecture 64 - Channel Coding
- Lecture 65 - Channel Coding

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fundamental of Power Electronics

Subject Co-ordinator - Prof. Vivek Agarwal

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Familiarization with Power Electronic Systems
- Lecture 2 - Overview of Basic Power Electronic Circuits from Laymans Point of View
- Lecture 3 - Applications, Definitions, and Nature of Power Electronic Circuits
- Lecture 4 - Components of a Power Electronic System
- Lecture 5 - Analysis of Switched Networks
- Lecture 6 - Review of engineering maths for power electronic circuit analysis
- Lecture 7 - Review of semiconductor physics
- Lecture 8 - P-N Junction
- Lecture 9 - Power Diodes
- Lecture 10 - Thyristors
- Lecture 11 - Motivation for rectifier capacitor filter
- Lecture 12 - Circuit Operation
- Lecture 13 - Designing the circuit
- Lecture 14 - Simulation setup for NgSpice and gEDA schematic capture
- Lecture 15 - Simulating the circuit
- Lecture 16 - Practicals
- Lecture 17 - Inrush current limiting - Intro
- Lecture 18 - Inrush current limiting - Resistor solution
- Lecture 19 - Inrush current limiting - Thermistor solution
- Lecture 20 - Inrush current limiting - Transformer solution
- Lecture 21 - Inrush current limiting - MOSFET solution
- Lecture 22 - Inrush current limiting - Relay, contactor
- Lecture 23 - Three phase rectifier capacitor filter
- Lecture 24 - Simulation - 3 phase rectifier capacitor filter
- Lecture 25 - Power factor - Motivation
- Lecture 26 - Power factor - Discussion
- Lecture 27 - Power factor - Sinusoidal
- Lecture 28 - Power factor for rectifier cap filter
- Lecture 29 - Passive power improvement circuit

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Simulation - power factor improvement
- Lecture 31 - Linear regulators - Intro
- Lecture 32 - Shunt regulator
- Lecture 33 - Example on shunt regulator
- Lecture 34 - Non-ideality and solution
- Lecture 35 - Applications of shunt regulator
- Lecture 36 - Series regulator
- Lecture 37 - Efficiency of series
- Lecture 38 - Negative and dual voltage regulators
- Lecture 39 - Over current limiting circuits
- Lecture 40 - Improvements to series regulator
- Lecture 41 - Regulator performance parameters
- Lecture 42 - Datasheet of few IC regulators
- Lecture 43 - Common IC regulator circuits
- Lecture 44 - Practicals 1
- Lecture 45 - Switched mode DC-DC converter intro
- Lecture 46 - Volt-sec and Amp-sec balance
- Lecture 47 - Input-output relationship
- Lecture 48 - Buck converter - operation and waveforms
- Lecture 49 - Buck converter - component selection
- Lecture 50 - Primary configurations
- Lecture 51 - Boost converter
- Lecture 52 - Buck-Boost converter
- Lecture 53 - Simulating the primary converters
- Lecture 54 - Forward converter
- Lecture 55 - Core reset in forward converter
- Lecture 56 - Simulating with lossy core reset
- Lecture 57 - Simulating with lossless core reset
- Lecture 58 - Flyback converter
- Lecture 59 - Simulating the flyback converter
- Lecture 60 - Octave mfile for design
- Lecture 61 - Magnetics design intro
- Lecture 62 - Magnetics review
- Lecture 63 - Permeance
- Lecture 64 - Inductor value and energy storage
- Lecture 65 - Inductor area product
- Lecture 66 - Inductor design
- Lecture 67 - Inductor example
- Lecture 68 - Transformer design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Transformer example
- Lecture 70 - Forward converter design mfile
- Lecture 71 - Pushpull converter
- Lecture 72 - Flux walking in pushpull
- Lecture 73 - PWM generation
- Lecture 74 - Simulation of pushpull converter
- Lecture 75 - Half bridge converter
- Lecture 76 - Simulation of halfbridge converter
- Lecture 77 - Full bridge converter
- Lecture 78 - Simulation of fullbridge converter
- Lecture 79 - Area products and mfiles
- Lecture 80 - Intro for drive circuits
- Lecture 81 - BJT base drive
- Lecture 82 - BJT base drive example
- Lecture 83 - Multi-stage base drive
- Lecture 84 - Base drive with speed-up circuit
- Lecture 85 - Base drive with isolation
- Lecture 86 - MOSFET gate drive
- Lecture 87 - MOSFET drive with isolation
- Lecture 88 - Over-current protection
- Lecture 89 - Snubber circuits
- Lecture 90 - Intro for close loop control
- Lecture 91 - Close looping dc-dc converters
- Lecture 92 - Simulation of close loop control
- Lecture 93 - Current control for battery charger application
- Lecture 94 - Instability in current control and slope compensation
- Lecture 95 - Slope compensated current control
- Lecture 96 - Simulation of current control
- Lecture 97 - Single phase inverter with sinusoidal pwm
- Lecture 98 - Simulation of sinusoidal PWM

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electrical Equipment and Machines: Finite Element Analysis

Subject Co-ordinator - Prof. Shrikrishna V. Kulkarni

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Outline and Introduction

Lecture 2 - Analytical and Numerical Methods

Lecture 3 - Revisiting EM Concepts

Lecture 4 - Revisiting EM Concepts

Lecture 5 - Revisiting EM Concepts

Lecture 6 - Revisiting EM Concepts

Lecture 7 - Revisiting EM Concepts

Lecture 8 - Revisiting EM Concepts

Lecture 9 - Revisiting EM Concepts

Lecture 10 - Revisiting EM Concepts

Lecture 11 - FEM

Lecture 12 - Finding Functional for PDEs

Lecture 13 - Whole Domain Approximation

Lecture 14 - 1D FEM

Lecture 15 - 1D FEM

Lecture 16 - 1D FEM

Lecture 17 - 2D FEM

Lecture 18 - 2D FEM

Lecture 19 - 2D FEM Scilab Code

Lecture 20 - 2D FEM Code

Lecture 21 - Computation of B and H Field and Method of Weighted Residuals

Lecture 22 - Galerkin Method

Lecture 23 - Calculation of Leakage Inductance of a Transformer

Lecture 24 - Calculation of Inductance of an Induction Motor and a Gapped-Core Shunt Reactor

Lecture 25 - Insulation Design Using FE Analysis

Lecture 26 - Quadratic Finite Elements

Lecture 27 - Time Harmonic FE Analysis

Lecture 28 - Calculation of Eddy Current Losses

Lecture 29 - Eddy Losses in Transformer Windings

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Torque Speed Characteristics of an Induction Motor and FE Analysis of Axisymmetric Problem
- Lecture 31 - Permanent Magnets
- Lecture 32 - Permanent Magnets
- Lecture 33 - Periodic and Antiperiodic Boundary Conditions in Rotating Machines
- Lecture 34 - FE Analysis of Rotating Machines
- Lecture 35 - Voltage Fed Coupled Circuit Field Analysis
- Lecture 36 - Current Fed Coupled Circuit Field Analysis
- Lecture 37 - Transient FE Analysis
- Lecture 38 - Nonlinear FE Analysis
- Lecture 39 - Computation of Forces using Maxwell Stress Tensor
- Lecture 40 - Computation of force using virtual work method

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Digital Signal Processing and its Applications

Subject Co-ordinator - Prof. V. M. Gadre

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction: Digital signal processing and its objectives
- Lecture 2 - Introduction to sampling and Fourier Transform
- Lecture 3 - Sampling of sine wave and associate complication
- Lecture 4 - Review of Sampling Theorem
- Lecture 5 - Idealized Sampling, Reconstruction
- Lecture 6 - Filters And Discrete System
- Lecture 7 - Answering questions from previous lectures
- Lecture 8 - Desired requirements for discrete system
- Lecture 9 - Introduction to phasors
- Lecture 10 - Advantages of phasors in discrete systems
- Lecture 11 - What do we want from a discrete system?
- Lecture 12 - Linearity - Homogeneity and Additivity
- Lecture 13 - Shift Invariance and Characterization of LTI systems
- Lecture 14 - Characterization of LSI system using its impulse response
- Lecture 15 - Introduction to convolution
- Lecture 16 - Convolution: Deeper ideas and understanding
- Lecture 17 - Characterisation of LSI systems, Convolution-properties
- Lecture 18 - Response of LSI Systems to Complex Sinusoids
- Lecture 19 - Convergence of Convolution and Bibo Stability
- Lecture 20 - Commutativity and Associativity
- Lecture 21 - BIBO Stability of an LSI system
- Lecture 22 - Causality and memory of an LSI system
- Lecture 23 - Frequency response of an LSI system
- Lecture 24 - Introduction and conditions of Stability
- Lecture 25 - Vectors and Inner Product
- Lecture 26 - Interpretation of Frequency Response as Dot Product
- Lecture 27 - Interpretation of Frequency Response as Eigenvalues
- Lecture 28 - Discrete time fourier transform
- Lecture 29 - DTFT in LSI System and Convolution Theorem.

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- Lecture 30 - Definitions of sequences and Properties of DTFT
- Lecture 31 - Introduction to DTFT, IDTFT
- Lecture 32 - Dual to convolution property
- Lecture 33 - Multiplication Property, Introduction to Parseval's theorem
- Lecture 34 - Introduction and Property of DTFT
- Lecture 35 - Review of Inverse DTFT
- Lecture 36 - Parseval's Theorem and energy and time spectral density
- Lecture 37 - Discussion on Unit Step
- Lecture 38 - Introduction to Z transform
- Lecture 39 - Example of Z transform
- Lecture 40 - Region of Convergence
- Lecture 41 - Properties of Z transform
- Lecture 42 - Z- Transform
- Lecture 43 - Rational System
- Lecture 44 - Introduction and Examples of Rational Z Transform and their Inverses
- Lecture 45 - Double Pole Examples and their Inverse Z Transform
- Lecture 46 - Partial Fraction Decomposition
- Lecture 47 - LSI System Examples
- Lecture 48 - Why are Rational Systems so important?
- Lecture 49 - Solving Linear constant coefficient difference equations which are valid over a finite range of
- Lecture 50 - Introduction to Resonance in Rational Systems
- Lecture 51 - Characterization of Rational LSI system
- Lecture 52 - Causality and stability of the ROC of the system function
- Lecture 53 - Recap of Rational Systems and Discrete Time Filters
- Lecture 54 - Specifications for Filter Design
- Lecture 55 - Four Ideal Piecewise Constant Filters
- Lecture 56 - Important Characteristics Of Ideal Filters
- Lecture 57 - Synthesis of Discrete Time Filters, Realizable specifications
- Lecture 58 - Realistic Specifications for low pass filter. Filter Design Process
- Lecture 59 - Introduction to Filter Design. Analog IIR Filter, FIR discrete-time filter, IIR discrete-time fil
- Lecture 60 - Analog to discrete transform
- Lecture 61 - Intuitive transforms, Bilinear Transformation
- Lecture 62 - Steps for IIR filter design
- Lecture 63 - Analog filter design using Butterworth Approximation
- Lecture 64 - Butterworth filter Derivation And Analysis of butterworth system function
- Lecture 65 - Chebychev filter Derivation
- Lecture 66 - Midsem paper review discussion
- Lecture 67 - The Chebyshev Approximation
- Lecture 68 - Next step in design: Obtain poles

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- Lecture 69 - Introduction to Frequency Transformations in the Analog Domain
- Lecture 70 - High pass transformation
- Lecture 71 - Band pass transformation
- Lecture 72 - Frequency Transformation
- Lecture 73 - Different types of filters
- Lecture 74 - Impulse invariant method and ideal impulse response
- Lecture 75 - Design of FIR of length  $(2N+1)$  by the truncation method, Plotting the function  $V(w)$
- Lecture 76 - IIR filter using rectangular window, IIR filter using triangular window
- Lecture 77 - Proof that frequency response of an fir filter using rectangular window function centred at 0 is
- Lecture 78 - Introduction to window functions
- Lecture 79 - Examples of window functions
- Lecture 80 - Explanation of Gibb's Phenomenon and its application
- Lecture 81 - Comparison of FIR And IIR Filter's
- Lecture 82 - Comparison of FIR And IIR Filter's
- Lecture 83 - Comparison of FIR And IIR Filter's
- Lecture 84 - Introduction and approach to realization (causal rational system)
- Lecture 85 - Comprehension of Signal Flow Graphs and Achievement of Pseudo Assembly Language Code
- Lecture 86 - Introduction to IIR Filter Realization and Cascade Structure
- Lecture 87 - Cascade Parallel Structure
- Lecture 88 - Lattice Structure
- Lecture 89 - Recap And Review of Lattice Structure, Realization of FIR Function
- Lecture 90 - Backward recursion, Change in the recursive equation of lattice
- Lecture 91 - Lattice structure for an arbitrary rational system
- Lecture 92 - Example realization of lattice structure for rational system
- Lecture 93 - Introductory Remarks of Discrete Fourier Transform and Frequency Domain Sampling
- Lecture 94 - Principle of Duality, The Circular Convolution

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Stochastic Control and Communication

Subject Co-ordinator - Prof. Ankur A. Kulkarni

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Decision Making under Uncertainty
- Lecture 2 - Expected Utility Theory - I
- Lecture 3 - Expected Utility Theory - II
- Lecture 4 - Expected Utility Theory - III
- Lecture 5 - Role of Information in Decision Making
- Lecture 6 - State Space Modelling of Sequential Decision Making, Example of Inventory Control
- Lecture 7 - Inventory Control Problem (Continued...)
- Lecture 8 - Policy-A Closed Loop Solution to Stochastic Control Problem
- Lecture 9 - Introduction to Markov Decision Processes (MDP)
- Lecture 10 - Types of Policy in MDP
- Lecture 11 - Interpreting randomised decision rules
- Lecture 12 - Stationary Transition Probability: State Diagram Representation and example of Markov policies
- Lecture 13 - Example of History Dependent Policies
- Lecture 14 - Complexity of the problem using brute force approach
- Lecture 15 - Principle of Optimality
- Lecture 16 - Dynamic Programming Algorithm
- Lecture 17 - DP Algo applied to Inventory Control Problem
- Lecture 18 - DP Algo applied to Inventory Control Problem (Continued...)
- Lecture 19 - DP Algo applied to Inventory Control Problem (Continued...)
- Lecture 20 - Optimal Stopping Problem
- Lecture 21 - Optimal Stopping Example: Secretary Problem
- Lecture 22 - Optimal Stopping Example: Secretary Problem (Continued...)
- Lecture 23 - Optimal Stopping Example: Secretary Problem (Continued...)
- Lecture 24 - Linear System Quadratic Cost Problem
- Lecture 25 - Linear System Quadratic Cost Problem (Continued...)
- Lecture 26 - Solving it via DP algorithm (Continued...)
- Lecture 27 - Equivalence between Optimal HR Policy and optimal Markov Deterministic Policy
- Lecture 28 - Stochastic Control under incomplete state information
- Lecture 29 - Stochastic Control under incomplete state information (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Stochastic Control under incomplete state information: Example
- Lecture 31 - Stochastic Control under incomplete state information: Example (Continued...)
- Lecture 32 - Stochastic Control under incomplete state information: Example (Continued...)
- Lecture 33 - Stochastic Control under incomplete state information: Example (Continued...)
- Lecture 34 - LQ systems with Imperfect Information - I
- Lecture 35 - LQ systems with Imperfect Information - II
- Lecture 36 - LQ systems with Imperfect Information - III
- Lecture 37 - LQ systems with Imperfect Information - IV
- Lecture 38 - Filtering - I
- Lecture 39 - Filtering - II
- Lecture 40 - Kalman Filtering - I
- Lecture 41 - Kalman Filtering - II
- Lecture 42 - Kalman Filtering - III
- Lecture 43 - Belief State Formulation - I
- Lecture 44 - Belief State Formulation - II
- Lecture 45 - Information Structures - I
- Lecture 46 - Information Structures - II
- Lecture 47 - Witsenhausen Problem - I
- Lecture 48 - Witsenhausen Problem - II
- Lecture 49 - Witsenhausen Problem - III
- Lecture 50 - Witsenhausen Problem - IV
- Lecture 51 - Witsenhausen Problem - V
- Lecture 52 - Witsenhausen Problem - VI
- Lecture 53 - Witsenhausen Problem - VII
- Lecture 54 - Team Decision Theory - I
- Lecture 55 - Team Decision Theory - II
- Lecture 56 - Team Decision Theory - III
- Lecture 57 - Team Decision Theory - IV
- Lecture 58 - Team Decision Theory - V
- Lecture 59 - Team Decision Theory - VI
- Lecture 60 - Team Decision Theory - VII
- Lecture 61 - Communication Theory - I
- Lecture 62 - Communication Theory - II
- Lecture 63 - Communication Theory - III
- Lecture 64 - Communication Theory - IV
- Lecture 65 - Communication Theory - V

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Applied Linear Algebra (2024)

Subject Co-ordinator - Prof. Dwaipayan Mukherjee

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Part A  
Lecture 2 - Introduction - Part B  
Lecture 3 - Introduction - Part C  
Lecture 4 - Equivalent Systems - Part A  
Lecture 5 - Equivalent Systems - Part B  
Lecture 6 - Equivalent Systems - Part C  
Lecture 7 - Solution of  $Ax = b$  - Part A  
Lecture 8 - Solution of  $Ax = b$  - Part B  
Lecture 9 - Solution of  $Ax = b$  - Part C  
Lecture 10 - Rings, Integral Domains and Fields - Part A  
Lecture 11 - Rings, Integral Domains and Fields - Part B  
Lecture 12 - Rings, Integral Domains and Fields - Part C  
Lecture 13 - Vector Spaces and Subspaces - Part A  
Lecture 14 - Vector Spaces and Subspaces - Part B  
Lecture 15 - Vector Spaces and Subspaces - Part C  
Lecture 16 - Unions, Intersection, Sums of Subspaces - Part A  
Lecture 17 - Unions, Intersection, Sums of Subspaces - Part B  
Lecture 18 - Generating sets, Linear independence and basis - Part A  
Lecture 19 - Generating sets, Linear independence and basis - Part B  
Lecture 20 - Generating sets, Linear independence and basis - Part C  
Lecture 21 - Ordered basis and co-ordinates - Part A  
Lecture 22 - Ordered basis and co-ordinates - Part B  
Lecture 23 - Ordered basis and co-ordinates - Part C  
Lecture 24 - Rank-Nullity Theorem (Matrices) - Part A  
Lecture 25 - Rank-Nullity Theorem (Matrices) - Part B  
Lecture 26 - Rank-Nullity Theorem (Matrices) - Part C  
Lecture 27 - Rank-Nullity Theorem (Linear Transformation) - Part A  
Lecture 28 - Rank-Nullity Theorem (Linear Transformation) - Part B  
Lecture 29 - Rank-Nullity Theorem (Linear Transformation) - Part C

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Isomorphism and Inverses - Part A
- Lecture 31 - Isomorphism and Inverses - Part B
- Lecture 32 - Isomorphism and Inverses - Part C
- Lecture 33 - Dual Basis and Annihilator - Part A
- Lecture 34 - Dual Basis and Annihilator - Part B
- Lecture 35 - Dual Basis and Annihilator - Part C
- Lecture 36 - Dual maps and double dual - Part A
- Lecture 37 - Dual maps and double dual - Part B
- Lecture 38 - Dual maps and double dual - Part C
- Lecture 39 - Quotient spaces and quotient map - Part A
- Lecture 40 - Quotient spaces and quotient map - Part B
- Lecture 41 - Quotient spaces and quotient map - Part C
- Lecture 42 - Inner Product Spaces - Part A
- Lecture 43 - Inner Product Spaces - Part B
- Lecture 44 - Inner Product Spaces - Part C
- Lecture 45 - Gram Schmidt Procedure - Part A
- Lecture 46 - Gram Schmidt Procedure - Part B
- Lecture 47 - Gram Schmidt Procedure - Part C
- Lecture 48 - Best Approximation of a Vector - Part A
- Lecture 49 - Best Approximation of a Vector - Part B
- Lecture 50 - Best Approximation of a Vector - Part C
- Lecture 51 - Projection map and summary of  $Ax = b$  - Part A
- Lecture 52 - Projection map and summary of  $Ax = b$  - Part B
- Lecture 53 - Projection map and summary of  $Ax = b$  - Part C
- Lecture 54 - Linear Differential Equations - Part A
- Lecture 55 - Linear Differential Equations - Part B
- Lecture 56 - Introduction to Eigen values and Eigen vectors - Part A
- Lecture 57 - Introduction to Eigen values and Eigen vectors - Part B
- Lecture 58 - Introduction to Eigen values and Eigen vectors - Part C
- Lecture 59 - Singular Value Decomposition - Part A
- Lecture 60 - Singular Value Decomposition - Part B
- Lecture 61 - Singular Value Decomposition - Part C
- Lecture 62 - Algebraic and geometric multiplicities - Part A
- Lecture 63 - Algebraic and geometric multiplicities - Part B
- Lecture 64 - A-Invariant Subspaces - Part A
- Lecture 65 - A-Invariant Subspaces - Part B
- Lecture 66 - A-Invariant Subspaces - Part C
- Lecture 67 - Minimal Polynomial-I - Part A
- Lecture 68 - Minimal Polynomial-I - Part B

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Minimal Polynomial-I - Part C
- Lecture 70 - Minimal Polynomial-I - Part D
- Lecture 71 - Minimal Polynomial-II - Part A
- Lecture 72 - Minimal Polynomial-II - Part B
- Lecture 73 - Minimal Polynomial-II - Part C
- Lecture 74 - Minimal Polynomial-II - Part D
- Lecture 75 - Cayley Hamilton Theorem - Part A
- Lecture 76 - Cayley Hamilton Theorem - Part B
- Lecture 77 - Cayley Hamilton Theorem - Part C
- Lecture 78 - Jordan Canonical Form - Part A
- Lecture 79 - Jordan Canonical Form - Part B
- Lecture 80 - Jordan Canonical Form - Part C
- Lecture 81 - Algebraic Graph Theory and Consensus - Part A
- Lecture 82 - Algebraic Graph Theory and Consensus - Part B
- Lecture 83 - Algebraic Graph Theory and Consensus - Part C
- Lecture 84 - Positive Matrices and Leontieff's Model - Part A
- Lecture 85 - Positive Matrices and Leontieff's Model - Part B

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Digital Communication using GNU Radio

Subject Co-ordinator - Prof. Kumar Appaiah

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Digital Communication
- Lecture 2 - Understanding GNU Radio features for Digital Communication: Basic blocks, input and output
- Lecture 3 - Understanding GNU Radio features for Digital Communication: Advanced blocks, hardware interfacing
- Lecture 4 - Fundamentals of Digital Communication: Signal Processing methods, vectors, and relevant GNU Radio
- Lecture 5 - Fundamentals of Digital Communication: Signal Processing methods, vectors, and relevant GNU Radio
- Lecture 6 - Complex Baseband Signal Representation
- Lecture 7 - Real Passband Signal Representation, Up and Down Conversion of Complex Baseband Signals
- Lecture 8 - Random Variables and Random Processes
- Lecture 9 - Fundamentals of Digital Modulation
- Lecture 10 - Linear Modulation Methods: Amplitude Shift Keying (ASK)
- Lecture 11 - Linear Modulation Methods: Phase Shift Keying (PSK)
- Lecture 12 - Linear Modulation Methods: Quadrature Amplitude Modulation (QAM) and Frequency Shift Keying (FSK)
- Lecture 13 - Pulse Shaping for ISI Free Signaling
- Lecture 14 - ASK using Raised Cosine (RC) and Root-Raised Cosine (RRC) Pulse Shaping
- Lecture 15 - Basics of Detection: Properties of Gaussian Random Variables
- Lecture 16 - Basics of Detection: Gaussian Random Vectors and Hypothesis Testing
- Lecture 17 - Optimal Receivers for M-ary Signaling
- Lecture 18 - Gram-Schmidt Orthogonalisation
- Lecture 19 - Optimal Reception of M-ary Signals in AWGN
- Lecture 20 - Detection and Optimal Decision for On-Off Signaling in AWGN Channel
- Lecture 21 - Detection and Optimal Decision for M-ary Signaling
- Lecture 22 - Python for GNU Radio
- Lecture 23 - Extending GNU Radio Features using Python
- Lecture 24 - Constructing and Visualising Constellations using GNU Radio
- Lecture 25 - Understanding matched filtering using GNU Radio
- Lecture 26 - Histograms in GNU Radio
- Lecture 27 - Visualising Symbol Error Rate in GNU Radio
- Lecture 28 - Signal-to-Noise Ratio and Symbol Error Probability - Part 1
- Lecture 29 - Signal-to-Noise Ratio and Symbol Error Probability - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Symbol error rate and Bit error rate
- Lecture 31 - Computing bit error rates in GNU Radio
- Lecture 32 - End-to-end Digital Communication System Simulation in GNU Radio
- Lecture 33 - Parameter Estimation for Practical Receivers - Part 1
- Lecture 34 - Parameter Estimation for Practical Receivers - Part 2
- Lecture 35 - Phase Locked Loop and Differential Modulation
- Lecture 36 - Maximum Likelihood delay estimate for a single symbol in GNU Radio
- Lecture 37 - Maximum Likelihood delay estimate for multiple symbols in GNU Radio
- Lecture 38 - Phase offset estimation in GNU Radio
- Lecture 39 - Phase Locked Loop in GNU Radio
- Lecture 40 - Costas Loop and Differential PSK in GNU Radio
- Lecture 41 - Channel Equalisation
- Lecture 42 - Detection Strategy for Dispersive Channels
- Lecture 43 - Maximum Likelihood sequence estimation: Viterbi Algorithm
- Lecture 44 - Suboptimal Channel Equalisation: Zero-forcing Receiver
- Lecture 45 - Zero forcing Receiver in GNU Radio
- Lecture 46 - Suboptimal Channel Equalisation: Linear Minimum mean-square error receiver
- Lecture 47 - LMMSE Receiver in GNU Radio
- Lecture 48 - Parallelising Frequency Selective Channels
- Lecture 49 - Orthogonal Frequency Division Multiplexing (OFDM)
- Lecture 50 - OFDM in the presence of dispersive channels
- Lecture 51 - Equalisation using OFDM in GNU Radio
- Lecture 52 - Error Control Coding: Parity Check Codes
- Lecture 53 - Error Control Coding: Repetition Codes
- Lecture 54 - Error Control Coding: Linear Block Codes
- Lecture 55 - Repetition Codes in GNU Radio
- Lecture 56 - Error Control Coding: Perfect Codes
- Lecture 57 - Error Control Coding: Hamming Codes
- Lecture 58 - (7,4) Hamming Code in GNU Radio
- Lecture 59 - Rate and error-free Communication
- Lecture 60 - Quantisation
- Lecture 61 - Visualising Quantisation in GNU Radio
- Lecture 62 - Course Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Circuit Theory

Subject Co-ordinator - Prof. S.C. Dutta Roy

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Review of Signals and Systems  
Lecture 2 - Review of Signals and Systems  
Lecture 3 - Network Equations; Initial and Final Conditions  
Lecture 4 - Problem Session 1  
Lecture 5 - Step, Impulse and Complete Responses  
Lecture 6 - 2nd Order Circuits  
Lecture 7 - Transformer Transform Domain Analysis  
Lecture 8 - Problem Session 2  
Lecture 9 - Network Theorems and Network Functions  
Lecture 10 - Network Functions (Continued.)  
Lecture 11 - Amplitude and Phase of Network Functions  
Lecture 12 - Problem Session 3  
Lecture 13 - Poles, Zeros and Network Response  
Lecture 14 - Single Tuned Circuits  
Lecture 15 - Single Tuned Circuits (Continued.)  
Lecture 16 - Double Tuned Circuits  
Lecture 17 - Double Tuned Circuits (Continued.)  
Lecture 18 - Problem Session 4  
Lecture 19 - Double Tuned Circuits (Continued.)  
Lecture 20 - Concept of Delay and Introduction  
Lecture 21 - Two-port Networks (Continued.)  
Lecture 22 - Problem Session 5  
Lecture 23 - Minor - 1  
Lecture 24 - The Hybrid & Transmission Parameters of 2 ports  
Lecture 25 - Problem Session 6  
Lecture 26 - Two - port Network parameters  
Lecture 27 - Two-port Interconnections  
Lecture 28 - Interconnection of Two-port Networks (Continued.)  
Lecture 29 - Problem Session 7

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Scattering Matrix
- Lecture 31 - Scattering Parameters of a Two-port
- Lecture 32 - Problem Session 8
- Lecture 33 - Solutions of Minor - 2 Problems
- Lecture 34 - Insertion Loss
- Lecture 35 - Example of Insertion Loss and Elements
- Lecture 36 - Elements of Realizability Theory (Continued.)
- Lecture 37 - Positive Real Functions
- Lecture 38 - Testing of Positive Real Functions
- Lecture 39 - Problem Session 9
- Lecture 40 - More on PRF's and their Synthesis
- Lecture 41 - LC Driving Point Functions
- Lecture 42 - LC Driving Point Synthesis (Continued.)
- Lecture 43 - RC and RL Driving Point Synthesis
- Lecture 44 - Problem Session 10
- Lecture 45 - RC & RL One-port Synthesis (Continued.)
- Lecture 46 - Elementary RLC One-port Synthesis
- Lecture 47 - Properties and Synthesis of Transfer Parameters
- Lecture 48 - Resistance Terminated LC Ladder
- Lecture 49 - Resistance Terminated LC Ladder (Continued.)
- Lecture 50 - Problem session 11
- Lecture 51 - Network Transmission Criteria



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Control Engineering (Prof. M. Gopal)

Subject Co-ordinator - Prof. M. Gopal

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to control problem
- Lecture 2 - Basic Feedback Structure
- Lecture 3 - Introduction to Control Problem (Continued.)
- Lecture 4 - Dynamic Systems and Dynamic Response
- Lecture 5 - Dynamic Systems and Dynamic Response (Continued.)
- Lecture 6 - Dynamic Systems and Dynamic Response (Continued.)
- Lecture 7 - Dynamic Systems and Dynamic Response (Continued.)
- Lecture 8 - Dynamic Systems and Dynamic Response (Continued.)
- Lecture 9 - Dynamic Systems and Dynamic Response (Continued.)
- Lecture 10 - Models of Industrial Control Devices and Systems
- Lecture 11 - Models of Industrial Control Devices and Systems (Continued.)
- Lecture 12 - Models of Industrial Control Devices and Systems( Continued.)
- Lecture 13 - Models of Industrial Control Devices and Systems( Continued.)
- Lecture 14 - Models of Industrial Control Devices and Systems( Continued.)
- Lecture 15 - Models of Industrial Control Devices and Systems( Continued.)
- Lecture 16 - Models of Industrial Control Devices and Systems (Continued.)
- Lecture 17 - Models of Industrial Control Devices and Systems (Continued.)
- Lecture 18 - Models of Industrial Control Devices and Systems (Continued.)
- Lecture 19 - Basic Principles of Feedback Control
- Lecture 20 - Basic Principles of Feedback Control (Continued.)
- Lecture 21 - Basic Principles of Feedback Control (Continued.)
- Lecture 22 - Basic Principles of Feedback Control (Continued.)
- Lecture 23 - Concepts of stability and Routh Stability Criterion
- Lecture 24 - Concepts of stability and Routh Stability Criterion (Continued.)
- Lecture 25 - Concepts of stability and Routh Stability Criterion (Continued.)
- Lecture 26 - The Performance of Feedback Systems
- Lecture 27 - The Performance of Feedback Systems (Continued.)
- Lecture 28 - The Performance of Feedback Systems (Continued.)
- Lecture 29 - The Performance of Feedback Systems (Continued.)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Compensator Design Using Root Locus Plots
- Lecture 31 - Compensator Design Using Root Locus Plots (Continued.)
- Lecture 32 - Compensator Design Using Root Locus Plots (Continued.)
- Lecture 33 - Compensator Design Using Root Locus Plots (Continued.)
- Lecture 34 - Compensator Design Using Root Locus Plots (Continued.)
- Lecture 35 - The Nyquist Stability Criterion and Stability Margins
- Lecture 36 - The Nyquist Stability Criterion and Stability Margins (Continued.)
- Lecture 37 - The Nyquist Stability Criterion and Stability Margins (Continued.)
- Lecture 38 - The Nyquist Stability Criterion and Stability Margins (Continued.)
- Lecture 39 - Feedback System Performance Based on the Frequency Response
- Lecture 40 - Feedback System Performance Based on the Frequency Response (Continued.)
- Lecture 41 - Compensator Design Using Frequency Response Plots

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Embedded Systems

Subject Co-ordinator - Prof. Santanu Chaudhary

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Embedded Systems
- Lecture 2 - Embedded Hardware
- Lecture 3 - PIC
- Lecture 4 - PIC Peripherals On Chip
- Lecture 5 - ARM Processor
- Lecture 6 - More ARM Instructions
- Lecture 7 - ARM
- Lecture 8 - Digital Signal Processors
- Lecture 9 - More on DSP Processors
- Lecture 10 - System On Chip (SOC)
- Lecture 11 - Memory
- Lecture 12 - Memory Organization
- Lecture 13 - Virtual Memory and Memory Management Unit
- Lecture 14 - Bus Structure
- Lecture 15 - Bus Structure - 2
- Lecture 16 - Bus Structure - 3 Serial Interfaces
- Lecture 17 - Serial Interfaces
- Lecture 18 - Power Aware Architecture
- Lecture 19 - Software for Embedded Systems
- Lecture 20 - Fundamentals of Embedded Operating Systems
- Lecture 21 - Scheduling Policies
- Lecture 22 - Resource Management
- Lecture 23 - Embedded - OS
- Lecture 24 - Networked Embedded Systems - I
- Lecture 25 - Networked Embedded Systems - II
- Lecture 26 - Networked Embedded Systems - III
- Lecture 27 - Networked Embedded Systems - IV
- Lecture 28 - Designing Embedded Systems - I
- Lecture 29 - Designing Embedded Systems - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Designing Embedded Systems- III
- Lecture 31 - Embedded System Design - IV
- Lecture 32 - Designing Embedded Systems - V
- Lecture 33 - Platform Based Design
- Lecture 34 - Compilers for Embedded Systems
- Lecture 35 - Developing Embedded Systems
- Lecture 36 - Building Dependable Embedded Systems
- Lecture 37 - Pervasive and Ubiquitous Computing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Power System Generation, Transmission and Distribution (Encapsu

Subject Co-ordinator - Prof. D.P. Kothari

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Electric Energy Systems A Perspective
- Lecture 2 - Structure of Power Systems
- Lecture 3 - Conventional Sources of Electric Energy
- Lecture 4 - Hydroelectric Power Generation
- Lecture 5 - Non Conventional Energy Sources
- Lecture 6 - Renewable Energy (Continued.)
- Lecture 7 - Energy Storage
- Lecture 8 - Deregulation
- Lecture 9 - Air Pollutants
- Lecture 10 - Transmission Line Parameters
- Lecture 11 - Capacitance of Transmission Lines
- Lecture 12 - Characteristics and Performance of Transmission Lines
- Lecture 13 - Voltage Regulation (VR)
- Lecture 14 - Power Flow through a Line
- Lecture 15 - Methods of Voltage Control
- Lecture 16 - Compensation of Transmission Lines
- Lecture 17 - Compensation of Transmission Lines (Continued.)
- Lecture 18 - Underground Cables
- Lecture 19 - Cables (Continued.)
- Lecture 20 - Insulators for Overhead Lines
- Lecture 21 - HVDC
- Lecture 22 - HVDC (Continued.)
- Lecture 23 - Distribution Systems
- Lecture 24 - Automatic Generation Control
- Lecture 25 - Automatic Generation Control (Continued.)
- Lecture 26 - Load Flow Studies
- Lecture 27 - Load Flow Problem
- Lecture 28 - Load Flow Analysis (Continued.), Gauss Siedel Method
- Lecture 29 - Newton Raphson (NR), Load Flow Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fast Decoupled Load Flow
- Lecture 31 - Control of Voltage Profile
- Lecture 32 - Optimal System Operation (Economic Operation)
- Lecture 33 - Optimal Unit Commitment
- Lecture 34 - Optimal Generation Scheduling
- Lecture 35 - Optimal Load Flow (Continued.) and Hydro Thermal Scheduling

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Power System Dynamics

Subject Co-ordinator - Dr. M.L. Kothari

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Power System Stability Problem - Part-1
- Lecture 2 - Introduction to Power System Stability Problem - Part-2
- Lecture 3 - Introduction to Power System Stability Problem - Part-3
- Lecture 4 - Solution of Switching Equation
- Lecture 5 - The Equal Area Criterion for Stability - Part-1
- Lecture 6 - The Equal Area Criterion for Stability - Part-2
- Lecture 7 - Transient Stability Analysis of a Multi Machine System
- Lecture 8 - Modeling of Synchronous Machine - Part-1
- Lecture 9 - Modeling of Synchronous Machine - Part-2
- Lecture 10 - Modeling of Synchronous Machine - Part-3
- Lecture 11 - Modeling of Synchronous Machine - Part-4
- Lecture 12 - Synchronous Machine Representation for Stability Studies - Part-1
- Lecture 13 - Synchronous Machine Representation for Stability Studies - Part-2
- Lecture 14 - Excitation Systems - Part-1
- Lecture 15 - Excitation Systems - Part-2
- Lecture 16 - Modeling of Excitation Systems - Part-1
- Lecture 17 - Modeling of Excitation Systems - Part-2
- Lecture 18 - Small Signal Stability of a Single Machine Infinite Bus System - Part-1
- Lecture 19 - Small Signal Stability of a Single Machine Infinite Bus System - Part-2
- Lecture 20 - Small Signal Stability of a Single Machine Infinite Bus System - Part-3
- Lecture 21 - Small Signal Stability of a Single Machine Infinite Bus System - Part-4
- Lecture 22 - Small Signal Stability of a Single Machine Infinite Bus System - Part-5
- Lecture 23 - Dynamic Modeling of Steam turbines and Governors
- Lecture 24 - Dynamic modeling of Hydro Turbines and Governors
- Lecture 25 - Load modeling for Stability Studies
- Lecture 26 - Numerical Integration Methods for Solving a Set of Ordinary Nonlinear Differential Equation
- Lecture 27 - Simulation of Power System Dynamic Response
- Lecture 28 - Dynamic Equivalents for Large Scale Systems - Part-1
- Lecture 29 - Dynamic Equivalents for Large Scale Systems - Part-2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dynamic Equivalents for Large Scale Systems - Part-3
- Lecture 31 - Direct Method of Transient Stability Analysis - Part-1
- Lecture 32 - Direct Method of Transient Stability Analysis - Part-2
- Lecture 33 - Sub Synchronous Oscillations - Part-1
- Lecture 34 - Sub Synchronous Oscillations - Part-2
- Lecture 35 - Voltage Stability - Part-1
- Lecture 36 - Voltage Stability - Part-2
- Lecture 37 - Voltage Stability - Part-3
- Lecture 38 - Voltage Stability - Part-4
- Lecture 39 - Methods of Improving Stability - Part-1
- Lecture 40 - Methods of Improving Stability - Part-2



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Analog Electronic Circuits

Subject Co-ordinator - Prof. S.C. Dutta Roy

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of DC Models of Diodes & BJT's
- Lecture 2 - Review of DC Models of BJT (Continued...) and FET
- Lecture 3 - FET Characteristics and Models
- Lecture 4 - Problem Session-1 on DC Analysis of BJT Circuits
- Lecture 5 - BJT Biasing and Bias Stability
- Lecture 6 - BJT Bias Stability (Continued...)
- Lecture 7 - FET Biasing, Current Sources
- Lecture 8 - Problem Session-2 on FET and BJT Characteristics and Biasing
- Lecture 9 - Current Mirrors; BJT Small Signal Models
- Lecture 10 - Small Signal Amplifiers
- Lecture 11 - Mid Frequency Analysis of the CE and CB Amplifier
- Lecture 12 - Problem Session-3 on Mid- Frequency Analysis of CE Amplifiers
- Lecture 13 - Midband Analysis of CB and CC Amplifiers
- Lecture 14 - Midband Analysis of FET Amplifiers
- Lecture 15 - Problem Session-4 on Midband Analysis of Amplifiers
- Lecture 16 - High Frequency Response of Small Signal Amplifiers
- Lecture 17 - High Frequency Response of Small Signal Amplifiers (Continued...)
- Lecture 18 - Low Frequency Response of Small Signal Amplifiers
- Lecture 19 - Problem Session-5 on Frequency Response of Small Signal Amplifiers
- Lecture 20 - Differential Amplifiers
- Lecture 21 - Differential Amplifiers (Continued...)
- Lecture 22 - Discussion on Minor-1 Problems and Differential Amplifiers (Continued...)
- Lecture 23 - Problem Session-6 on Frequency Response of Small Signal Amplifiers (Continued...) and Differential Amplifiers
- Lecture 24 - Use of Current Mirrors in Differential Amplifiers
- Lecture 25 - FET Differential Amplifiers and Introduction to Power Amplifiers
- Lecture 26 - Class B, Class AB and Class A Power Amplifiers
- Lecture 27 - Class A Power Amplifiers; Efficiency Considerations
- Lecture 28 - Problem Session-7 on Differential and Power Amplifiers
- Lecture 29 - Introduction to Feedback Amplifiers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Advantages of Negative Feedback Amplifiers
- Lecture 31 - Analysis of Feedback Amplifiers
- Lecture 32 - Analysis of the Series - Series and Other Feedback Configurations
- Lecture 33 - Problem Session-8 on Feedback Amplifiers
- Lecture 34 - Sinusoidal Oscillators
- Lecture 35 - More on Oscillators
- Lecture 36 - Solutions to Minor-2 Exam and Concluding Discussions on Oscillators
- Lecture 37 - Problem Session-9 on Oscillators
- Lecture 38 - Tuned (or Narrowband) Amplifiers
- Lecture 39 - Widebanding Techniques
- Lecture 40 - Widebanding By Using an Inductance
- Lecture 41 - Problem Session-10 on Tuned Amplifiers
- Lecture 42 - Widebanding by Using Compound Devices
- Lecture 43 - Cascode Configuration as Wideband Amplifier
- Lecture 44 - Widebanding by Local Feedback
- Lecture 45 - Problem Session-11 on Minor-3 Problems & Widebanding by Compound Devices
- Lecture 46 - Widebanding by Local Feedback and Feedback Cascades
- Lecture 47 - Widebanding by Overall Feedback and Dual Loop Feedback
- Lecture 48 - The Differential Pair and the Gilbert Cell as Wideband Amplifiers
- Lecture 49 - Correction to Gilbert Cell Analysis and Operational Amplifier Imperfections
- Lecture 50 - Op-Amp offsets, Compensation and Slew Rate
- Lecture 51 - Op-Amp Compensation, Slew Rate and Some Problems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Digital Communication

Subject Co-ordinator - Prof. Surendra Prasad

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course
- Lecture 2 - Digital Representation of Analog Signals, Delta Modulation
- Lecture 3 - Digital Representation of Analog Signals, Pulse Code Modulation
- Lecture 4 - Digital Representation of Analog Signals
- Lecture 5 - Quantization Noise in Delta Modulation (Continued...) and Time Division Multiplexing
- Lecture 6 - Introduction to Line Coding
- Lecture 7 - Spectral Properties of Line Codes
- Lecture 8 - Spectral Properties of Line Codes
- Lecture 9 - Spectral Properties of Line Codes
- Lecture 10 - Baseband Pulse Shaping
- Lecture 11 - Baseband Pulse Shaping; Raised Cosine Family of Pulses
- Lecture 12 - Partial Response Signalling
- Lecture 13 - Precoding for Duobinary and Modified Duobinary Systems
- Lecture 14 - Precoding for Modified Duobinary Systems (Continued...) and General Partial Response Signalling
- Lecture 15 - Binary Baseband Digital Modulation Techniques
- Lecture 16 - Mâ ary Baseband Digital Modulation Techniques
- Lecture 17 - Passband Digital Modulations - I
- Lecture 18 - Passband Digital Modulations - II
- Lecture 19 - Passband Digital Modulations - III
- Lecture 20 - Passband Digital Modulations - IV
- Lecture 21 - Passband Modulations for Band Limited Channels
- Lecture 22 - Baseband and Passband Digital Demodulations
- Lecture 23 - Digital Modulation Part - II Matched Filters
- Lecture 24 - Matched Filters and Coherent Demodulation-I
- Lecture 25 - Coherent Demodulation for Binary Wave Form
- Lecture 26 - Demodulators for Binary Waveforms (Continued...)
- Lecture 27 - Performance Analysis of Binary Digital Modulations
- Lecture 28 - Error Rates for Binary Signalling
- Lecture 29 - Performance of Non Coherent FSK and Differential Phase Shift Keying

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Demodulation of DPSK and M<sup>ary</sup> Signals
- Lecture 31 - Performance of M<sup>ary</sup> Digital Modulations
- Lecture 32 - Performance of M<sup>ary</sup> Digital Modulations (Continued...)
- Lecture 33 - Introduction to Information Theory, Part-1
- Lecture 34 - Source Coding
- Lecture 35 - Error Free Communication Over a Noisy Channel
- Lecture 36 - The Concept of Channel Capacity
- Lecture 37 - Error Correcting Codes
- Lecture 38 - Error Correcting Codes (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Introduction To Electronic Circuits

Subject Co-ordinator - Prof. S.C. Dutta Roy

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course and Basic Electrical Quantity
- Lecture 2 - R.L.C. Components, Energy Considerations, Sources and Circuit Laws
- Lecture 3 - KCL, KVL and Network Analysis
- Lecture 4 - Networks Theorems ( Thevenin's Norton's )
- Lecture 5 - Source Transformation; Super Position Theorem and Non-Linear One-Ports
- Lecture 6 - Signal Wave Forms
- Lecture 7 - Periodic Wave Forms and Elements of Amplifiers
- Lecture 8 - Operational Amplifiers and Diodes
- Lecture 9 - Rectifiers and Power Supplies
- Lecture 10 - Wave Shaping Circuits
- Lecture 11 - More on Wave Shaping Circuits and Introduction to Natural Response of Circuits
- Lecture 12 - Natural Response (Continued...)
- Lecture 13 - Natural Response of 2nd Order Circuit
- Lecture 14 - Natural Response of 2nd Order Circuit (Continued...)
- Lecture 15 - Impedance Functions, Poles, Zeros and their Applications
- Lecture 16 - Natural Response and Poles and Zeros and Introduction to Forced Response
- Lecture 17 - Phasors and their Applications in AC Ckts, analysis
- Lecture 18 - More About Phasors and Introduction to Complete Response
- Lecture 19 - Complete Response of Electrical Circuits
- Lecture 20 - AC Circuit Analysis
- Lecture 21 - Filter Circuits and Resonance
- Lecture 22 - Resonance (Continued...)
- Lecture 23 - General Network Analysis
- Lecture 24 - Two-Port Networks
- Lecture 25 - Semiconductor Physics
- Lecture 26 - Semiconductor Physics (Continued...)
- Lecture 27 - More About Diodes Including Zener Diodes
- Lecture 28 - Bipolar Junction Transistors
- Lecture 29 - Transistors Characteristics and Biasing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - BJT Biasing and Introduction to Power Amplifiers
- Lecture 31 - BJT Power Amplifiers
- Lecture 32 - Power Amplifier
- Lecture 33 - Power Amplifiers (Continued...) and an Introduction to Small Signal Modelling of BJT
- Lecture 34 - Small Signal Model and Small Signal Amplifiers
- Lecture 35 - Small Signal Amplifiers (Continued...)
- Lecture 36 - Small Signal Amplifier (Continued...)
- Lecture 37 - Small Signal Amplifiers (Continued...)
- Lecture 38 - Negative Feedback
- Lecture 39 - Digital Circuits
- Lecture 40 - Digital Circuits (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Analog Electronic Circuit

Subject Co-ordinator - Dr. Shouribrata Chatterjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Analog Circuits Introduction to the Diode
- Lecture 2 - Diodes, Introduction to The Transistor
- Lecture 3 - MOS Device, Characteristics
- Lecture 4 - DC operating point
- Lecture 5 - DC operating point, amplifier design
- Lecture 6 - Common source amplifier, small signal analysis
- Lecture 7 - Common gate, common drain
- Lecture 8 - Common gate circuit
- Lecture 9 - Source degenerated amplifier
- Lecture 10 - Swing limits
- Lecture 11 - Swing limits (Continued...), multi transistor amplifiers
- Lecture 12 - Multi-transistor amplifiers
- Lecture 13 - Introduction to current sources
- Lecture 14 - Current sources/mirrors (Continued...)
- Lecture 15 - Current sources, biasing
- Lecture 16 - Differential circuits
- Lecture 17 - Differential amplifiers-I
- Lecture 18 - Differential amplifiers-II
- Lecture 19 - Differential amplifiers-III
- Lecture 20 - Self biased active load diff. amp
- Lecture 21 - Diff. Cascode amplifier, two stage amplifiers
- Lecture 22 - Two stage diff. amps, op-amps
- Lecture 23 - Op-amps, OTAs
- Lecture 24 - Circuits with op-amps
- Lecture 25 - Capacitance in MOS devices
- Lecture 26 - Common source, drain, gate-revisited
- Lecture 27 - Common gate, common drain with capacitances
- Lecture 28 - Cascode, cascade-revisit with capacitance
- Lecture 29 - Cascade amplifier (with capacitance)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diversion
- Lecture 31 - Diversion Continued
- Lecture 32 - Compensation
- Lecture 33 - Op-amp Design with Compensation
- Lecture 34 - Unity Gain Bandwidth
- Lecture 35 - Power Amplification
- Lecture 36 - Power Amplifiers-2
- Lecture 37 - Power Amplifiers- Class A,B,AB,C ClassD
- Lecture 38 - Class D Amplifiers, Push-pull Amplifiers
- Lecture 39 - Introduction to Voltage Regulators
- Lecture 40 - Voltage Regulators- line, load; Conclusion Regulation



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Nonlinear and Adaptive Control

Subject Co-ordinator - Prof. Shubhendu Bhasin

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Preliminaries

Lecture 3 - Model Reference Adaptive Control - Part 1

Lecture 4 - Model Reference Adaptive Control - Part 2

Lecture 5 - Model Reference Adaptive Control - Part 3

Lecture 6 - Adaptive Command Tracking

Lecture 7 - Robust Model Reference Adaptive Control - Part 1

Lecture 8 - Robust Model Reference Adaptive Control - Part 2

Lecture 9 - Robust Model Reference Adaptive Control - Part 3

Lecture 10 - Robust Model Reference Adaptive Control - Part 4

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Information Theory, Coding and Cryptography

Subject Co-ordinator - Prof. Ranjan Bose

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Information Theory
- Lecture 2 - Entropy, Mutual Information, Conditional and Joint Entropy
- Lecture 3 - Measures for Continuous, Random Variable, Relative Entropy
- Lecture 4 - Variable Length Codes, Prefix Codes
- Lecture 5 - Source Coding Theorem
- Lecture 6 - various source coding Techniques
- Lecture 7 - Optimum Quantizer, Practical Application of Source Coding
- Lecture 8 - Introduction to Super Information
- Lecture 9 - Channel Models and Channel Capacity
- Lecture 10 - Noisy Channel Coding Theorem
- Lecture 11 - Gaussian Channel and Information Capacity Theorem
- Lecture 12 - Capacity of MIMO Channels
- Lecture 13 - Introduction to Error Control Coding
- Lecture 14 - Introduction to Galois Field
- Lecture 15 - Equivalent Codes, Generator Matrix and Parity Check Matrix
- Lecture 16 - Systematic Codes, Error Detections and Correction
- Lecture 17 - Erasure and Errors, Standard Array and Syndrome Decoding
- Lecture 18 - Probability of Error, Coding Gain and Hamming Bound
- Lecture 19 - Hamming Codes, LDPC Codes and MDS Codes
- Lecture 20 - Introduction to Cyclic Codes
- Lecture 21 - Generator Polynomial, Syndrome Polynomial and Matrix Representation
- Lecture 22 - Fire Code, Golay Code, CRC Codes and Circuit Implementation of Cyclic Codes
- Lecture 23 - Introduction to BCH Codes
- Lecture 24 - Multiple Error Correcting BCH Codes, Decoding of BCH Codes
- Lecture 25 - Introduction to Reed Solomon (RS) Codes
- Lecture 26 - Introduction to Convolutional Codes
- Lecture 27 - Trellis Codes
- Lecture 28 - Vitrebi Decoding and Known good Convolutional Codes
- Lecture 29 - Introduction to Turbo Codes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Trellis Coded Modulation (TCM)
- Lecture 31 - Ungerboeck's Design Rules and Performance Evaluation of TCM Schemes
- Lecture 32 - TCM for Fading Channel and Space Time Trellis Codes (STTC)
- Lecture 33 - Introduction to Space Time Block Codes (STBC)
- Lecture 34 - Space Time Codes
- Lecture 35 - Space Time Codes (Continued...)
- Lecture 36 - Introduction to Cryptography
- Lecture 37 - Some Well-Known Algorithms
- Lecture 38 - Introduction to Physical Layer Security
- Lecture 39 - Secrecy Outage Capacity, Secrecy Outage Probability, Cooperative Jamming

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Engineering Electromagnetics

Subject Co-ordinator - Prof. Sheel Aditya

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Transmission Lines

Lecture 3 - Transmission Lines

Lecture 4 - Transmission Lines

Lecture 5 - Transmission Lines

Lecture 6 - Transmission Lines

Lecture 7 - Transmission Lines

Lecture 8 - Transmission Lines

Lecture 9 - Transmission Lines

Lecture 10 - Transmission Lines

Lecture 11 - Transmission Lines

Lecture 12 - Wave Propagation

Lecture 13 - Wave Propagation (Continued...)

Lecture 14 - Wave Propagation

Lecture 15 - Wave Propagation

Lecture 16 - Wave Propagation

Lecture 17 - Wave Propagation

Lecture 18 - Reflection and Refraction of waves

Lecture 19 - Reflection and Refraction of waves (Continued...)

Lecture 20 - Reflection and Refraction of waves (Continued...) - 1

Lecture 21 - Reflection and Refraction of waves (Continued...); The Plane slab

Lecture 22 - Reflection and Refraction of waves (Continued...); Transmission Line Analogy for Planes Waves

Lecture 23 - Wave Guides

Lecture 24 - Wave Guides (Continued...) Parallel plane Guide, Transverse Electric Waves, Field Distribution, Sup

Lecture 25 - Wave Guides (Continued...)

Lecture 26 - Wave Guides (Continued...) Parallel plane Guide, Characteristics of TE and Tm Waves, TEM Waves, Wav

Lecture 27 - Wave Guides (Continued...) - 1

Lecture 28 - Wave Guides (Continued...) - 2

Lecture 29 - Wave Guides (Continued...) Rectangular Wave Guides

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Wave Guides (Continued...)
- Lecture 31 - Wave Guides (Continued...) Rectangular Wave Guides - 1
- Lecture 32 - Resonators General Properties
- Lecture 33 - Resonators (Continued...) Transmission Line Resonators
- Lecture 34 - Resonators (Continued...) Wave Guide Resonators
- Lecture 35 - Radiation
- Lecture 36 - Radiation (Continued...)
- Lecture 37 - Radiation (Continued...) - 1
- Lecture 38 - Radiation (Continued...) - 2
- Lecture 39 - Radiation (Continued...) Monopole Antennas half Wave Dipole Antenna
- Lecture 40 - Radiation (Continued...)
- Lecture 41 - Radiation (Continued...) 2 - Element Arrays, Yagi-Uda Array

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Principles of Digital Communications (2018)

Subject Co-ordinator - Prof. Abhishek Dixit

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Signal Spaces  
Lecture 3 - Inner Product and Orthogonal Expansion  
Lecture 4 - Signal Spaces  
Lecture 5 - Signal Spaces  
Lecture 6 - Signal Spaces  
Lecture 7 - Random Variables and Random Processes  
Lecture 8 - Random Variables and Random Processes  
Lecture 9 - Random Variables and Random Processes  
Lecture 10 - Random Variables and Random Processes  
Lecture 11 - Random Variables and Random Processes  
Lecture 12 - Random Variables and Random Processes  
Lecture 13 - Random Variables and Random Processes  
Lecture 14 - Random Variables and Random Processes  
Lecture 15 - Random Variables and Random Processes  
Lecture 16 - Random Variables and Random Processes  
Lecture 17 - Random Variables and Random Processes  
Lecture 18 - Waveform Coding  
Lecture 19 - Modulation  
Lecture 20 - Modulation  
Lecture 21 - Modulation  
Lecture 22 - Modulation  
Lecture 23 - Modulation  
Lecture 24 - Modulation  
Lecture 25 - Modulation  
Lecture 26 - Modulation  
Lecture 27 - Modulation  
Lecture 28 - Modulation  
Lecture 29 - Modulation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Detection  
Lecture 31 - Detection  
Lecture 32 - Detection  
Lecture 33 - Detection  
Lecture 34 - Detection  
Lecture 35 - Detection  
Lecture 36 - Detection  
Lecture 37 - Detection  
Lecture 38 - Detection

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electric Vehicles - Part 1

Subject Co-ordinator - Prof. Amit Jain

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - EV Historical Background
- Lecture 2 - Introduction - EV Benefits of Using EVs
- Lecture 3 - Introduction - EV Overview of types of EVs and its Challenges
- Lecture 4 - Introduction - EV Motor Drive Technologies
- Lecture 5 - Introduction - EV Energy Source Technologies
- Lecture 6 - Introduction - EV Battery Charging Technologies
- Lecture 7 - Introduction - EV Vehicle to Grid
- Lecture 8 - Introduction - EV Subsystems and Configurations
- Lecture 9 - Introduction - HEV Subsystems and Configurations
- Lecture 10 - Introduction - HEV Subsystems and Modes of Operation
- Lecture 11 - Vehicle Dynamics Introduction and tractive effort
- Lecture 12 - Vehicle Dynamics and dynamic equation
- Lecture 13 - Vehicle Dynamics simulation dynamic equation constant  $F_{te}$
- Lecture 14 - Vehicle Dynamics dynamic equation variable  $F_{te}$
- Lecture 15 - Vehicle Dynamics simulation dynamic equation variable  $F_{te}$
- Lecture 16 - Vehicle Dynamics Modelling and simulation in Simulink
- Lecture 17 - Summary Electric Vehicles Part 1 Course
- Lecture 18 - Basics of DC Motor Drive
- Lecture 19 - Realization of DC Chopper
- Lecture 20 - Open Loop Operation of Chopper Fed DC Motor Drive
- Lecture 21 - Review of Control Theory
- Lecture 22 - Modeling and Current Controller Design for Separately Excited DC Motor Drive
- Lecture 23 - Speed Controller Design and Performance Evaluation of DC Motor Drive
- Lecture 24 - Fundamentals of Three Phase Induction Motor
- Lecture 25 - Equivalent Circuit and Torque-Speed Characteristics of Induction Motor
- Lecture 26 - Starting and Speed Control of Induction Motor
- Lecture 27 - Realisation of DC to AC Power Converter
- Lecture 28 - Impact of Non-Sinusoidal Voltage on Induction Motor
- Lecture 29 - Selective Harmonic Elimination and Optimal Pulse Width Modulation Techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Switching Energy Losses and Sine-Triangle PWM
- Lecture 31 - Analysis of Sine-Triangle PWM
- Lecture 32 - Simulation Studies on Open Loop Induction Motor Drive

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Power Electronics

Subject Co-ordinator - Prof. G.Bhuvaneshwari

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Power Electronics
- Lecture 2 - Power Devices
- Lecture 3 - Power Devices
- Lecture 4 - Power Devices
- Lecture 5 - Single-phase Uncontrolled Rectifiers
- Lecture 6 - Single-phase Controlled Rectifiers - I
- Lecture 7 - Single-phase Controlled Rectifiers - II
- Lecture 8 - Three Phase Rectifiers - I
- Lecture 9 - Numericals on devices and Single-phase Rectifiers
- Lecture 10 - Three Phase Rectifiers - II
- Lecture 11 - Dual Converter and Communication Overlap
- Lecture 12 - Communication Overlap - II and AC-AC Converter-Introduction
- Lecture 13 - Single-Phase and Three-Phase AC Voltage Controllers
- Lecture 14 - Three-Phase AC Voltage Controllers and Cycloconverters
- Lecture 15 - Non-Isolated DC-DC Converters - I
- Lecture 16 - Non-Isolated DC-DC Converters - II
- Lecture 17 - Isolated DC-DC Converters - I
- Lecture 18 - Isolated DC-DC Converters - II and Cuk Converters
- Lecture 19 - Voltage Source Inverters
- Lecture 20 - VSI PWM Techniques - I
- Lecture 21 - VSI PWM Techniques - II
- Lecture 22 - SPWM and SVM Technique
- Lecture 23 - Current Source Inverter
- Lecture 24 - Power Electronics Applications

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electrical Machines

Subject Co-ordinator - Prof. G.Bhuvaneshwari

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Electrical Machines - I
- Lecture 2 - Single-phase and Three-phase AC Circuits, Magnetic circuits
- Lecture 3 - Magnetic Circuit - II
- Lecture 4 - Magnetic Circuit - III
- Lecture 5 - Transformers - Introduction
- Lecture 6 - Transformers - Amp-Turn Balance, Ideal and practical transformers
- Lecture 7 - Transformer Equivalent circuit and Reducing leakage
- Lecture 8 - Transformer equivalent circuit parameter determination
- Lecture 9 - Transformers - Voltage regulation and efficiency
- Lecture 10 - Auto-transformers
- Lecture 11 - PU notation and Introduction to Instrument transformers
- Lecture 12 - Instrument Transformers and All Day Efficiency
- Lecture 13 - Three Phase Transformers - I
- Lecture 14 - Three Phase Transformers - II
- Lecture 15 - Electromechanical Energy Conversion - I
- Lecture 16 - Electromechanical Energy Conversion - II
- Lecture 17 - Electromechanical Energy Conversion - III
- Lecture 18 - DC Machines-Introduction, Constructional Features
- Lecture 19 - DC Machines - EMF and Torque Equations and Generator Operation
- Lecture 20 - DC Machines - OCC and Load Characteristics Classification
- Lecture 21 - DC Machines - Armature Reaction
- Lecture 22 - DC Machines - Voltage Build-up and Load Characteristics
- Lecture 23 - DC Generator Characteristics and Introduction to DC Motors
- Lecture 24 - DC Motors
- Lecture 25 - DC Motor
- Lecture 26 - DC Motor
- Lecture 27 - DC Machine
- Lecture 28 - DC Machine
- Lecture 29 - 3 Phase Induction Machine

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - 3 Phase Induction Machine
- Lecture 31 - 3 Phase Induction Machine
- Lecture 32 - Testing of Induction Motor
- Lecture 33 - 3 Phase Induction Machine
- Lecture 34 - Synchronous Machines
- Lecture 35 - Synchronous Machines
- Lecture 36 - Numerical Session
- Lecture 37 - Synchronization of Alternators
- Lecture 38 - Synchronous Machines
- Lecture 39 - Synchronous Machines
- Lecture 40 - Synchronous Machines
- Lecture 41 - Single Phase Induction Motors

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Special Electromechanical Systems

Subject Co-ordinator - Prof. S.S. Murthy

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Special Electromechanical Systems (Introduction)

Lecture 2 - Classification of Machines

Lecture 3 - Single and Two-Phase Motors

Lecture 4 - Single-Phase Induction Motors-Analysis

Lecture 5 - Starting of Single-Phase Induction Motors

Lecture 6 - Single-Phase Induction Motors Analysis

Lecture 7 - Induction Motors Analysis by Symmetrical Components

Lecture 8 - Modelling of 1-Phase Induction Motor (One and Two Windings)

Lecture 9 - Asymmetrical Induction Motor Generalized Rotating Field Theory

Lecture 10 - Generalized Rotating Field Theory (Continued...)

Lecture 11 - Generalized Rotating Field Theory (Continued...)

Lecture 12 - Generalized Rotating Field Theory (Continued...)

Lecture 13 - Analysis of Asymmetrical Machine by Generalized Rotating Field Theory

Lecture 14 - Analysis of Asymmetrical Machine

Lecture 15 - Analysis of Asymmetrical Induction Machine

Lecture 16 - Generalised Rotating-Field Theory of Wound Rotor Ind. Machine Having Asymmetry in Stator and Rotor

Lecture 17 - Generalised Rotating-Field Theory of Wound Rotor Ind. Machine Having Asymmetry in Stator and Rotor

Lecture 18 - Testing of Small Electrical Machines

Lecture 19 - Testing of 1-Phase Induction Motors

Lecture 20 - Variable Reluctance (VR) Motors

Lecture 21 - Switched Reluctance Motor (Continued...)

Lecture 22 - Switched Reluctance Motor (Continued...)

Lecture 23 - Switched Reluctance Motor (Continued...)

Lecture 24 - Stepper Motors

Lecture 25 - Stepper Motors (Continued...)

Lecture 26 - Induction Generators

Lecture 27 - Induction Generators (Continued...)

Lecture 28 - Doubly Fed Induction Generators

Lecture 29 - Self Excited Induction Generators

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Self Excited Induction Generators (Continued...)
- Lecture 31 - Permanent Magnet Machines
- Lecture 32 - Squarewave Permanent Magnet Brushless Motor Drive
- Lecture 33 - Sine Wave Permanent Magnet Brushless Motor Drives
- Lecture 34 - Permanent Magnet Synchronous Motors

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:High Power Multilevel Converters - Analysis, Design and Operation

Subject Co-ordinator - Prof. Anand Rup

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Understanding of Converter (Introduction to Power Converters)
- Lecture 2 - Basic Understanding of Converter (Half Bridge and Full Bridge Circuit Operation)
- Lecture 3 - Basic Understanding of Converter (Sinusoidal Pulse width Modulation and Three Phase Circuit)
- Lecture 4 - Basic Understanding of Converter (Harmonics in Sinusoidal PWM)
- Lecture 5 - Third harmonic addition in Sine PWM
- Lecture 6 - Introduction to Space Vectors
- Lecture 7 - Space Vector PWM - Timing Calculation
- Lecture 8 - Space Vector PWM - Switching Sequence
- Lecture 9 - Space Vector PWM - Using Carriers
- Lecture 10 - Basic Introduction to Power Devices
- Lecture 11 - Introduction to Multilevel Converters
- Lecture 12 - Cascaded H-bridge Multilevel Converters
- Lecture 13 - Output Voltage Waveform Synthesis in CHB Converter and Basic of Asymmetrical CHB Converters
- Lecture 14 - Cascaded H-Bridge Converters
- Lecture 15 - Cascaded H-Bridge Converters
- Lecture 16 - Fault Tolerant Operation of Cascaded H-Bridge Converter - Part I
- Lecture 17 - Fault Tolerant Operation of Cascaded H-Bridge Converter - Part II
- Lecture 18 - Modular Multilevel Converter - Topology and Operation
- Lecture 19 - Modular Multilevel Converter - Arm and Cell Voltage Ratings
- Lecture 20 - Modular Multilevel Converter - Arm Currents
- Lecture 21 - Modular Multilevel Converter - Arm Energy Balancing
- Lecture 22 - Modular Multilevel Converter - Different Circuit Topologies
- Lecture 23 - Modular Multilevel Converter - PWM Technique and Capacitor Voltage Balancing
- Lecture 24 - Modular Multilevel Converter - Fault Tolerant Operation and Commercial Production
- Lecture 25 - Design of Components in MMC
- Lecture 26 - Neutral Point Clamped Converter - Circuit Topology - Part I
- Lecture 27 - Neutral Point Clamped Converter - Circuit Topology - Part II
- Lecture 28 - Neutral Point Clamped Converter - Space Vector Diagram
- Lecture 29 - Neutral Point Clamped Converter - Space Vector PWM

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - NPC - Sinusoidal PWM and Space Vector PWM using Single Carrier Strategy
- Lecture 31 - Neutral Point Clamped Converter - Mid-point Voltage Fluctuations
- Lecture 32 - Neutral Point Clamped Converter - Capacitor Voltage Balancing
- Lecture 33 - Neutral Point Clamped Converter - Another Strategy of Capacitor Voltage Balancing
- Lecture 34 - Other Topologies of NPC Converters - Higher Level NPC, TNPC and Active NPC
- Lecture 35 - Multipulse Transformer - Part I
- Lecture 36 - Multipulse Transformer - Part II
- Lecture 37 - A Case Study on MMC and CHB
- Lecture 38 - Basics of Gate Driver Circuits
- Lecture 39 - Gate Driver Circuits - Turn-on and Turn-off Process
- Lecture 40 - Gate Driver Circuits - Features of Gate Drivers and Basics of Bootstrap Functionality
- Lecture 41 - Condition Monitoring of Converters
- Lecture 42 - Other Converter Topologies
- Lecture 43 - Summary of the Course



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Introduction to Embedded System Design

Subject Co-ordinator - Prof. Badri N Subudhi, Prof.Dhananjay V. Gadre

Co-ordinating Institute - IIT - Jammu

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction continued with Project demos
- Lecture 3 - Modular Approach to ESD
- Lecture 4 - Modular Approach to ESD (Continued...)
- Lecture 5 - Salient Features of Modern Microcontrollers
- Lecture 6 - Salient Features of Modern Microcontrollers (Continued...)
- Lecture 7 - Elements of Microcontroller Ecosystem
- Lecture 8 - Elements of Microcontroller Ecosystem (Continued...)
- Lecture 9 - Power Supply for Embedded Systems
- Lecture 10 - Power Supply for Embedded Systems (Continued...)
- Lecture 11 - Introduction to MSP430
- Lecture 12 - MSP430 Architecture
- Lecture 13 - MSP430 Architecture- (Continued...) And Introduction to Lunchbox
- Lecture 14 - Programming Methods for MSP430
- Lecture 15 - Physical Interfacing - 1
- Lecture 16 - Physical Interfacing - 2
- Lecture 17 - Physical Interfacing - 3
- Lecture 18 - Physical Interfacing - 4
- Lecture 19 - Physical Interfacing - 5
- Lecture 20 - Physical Interfacing - 6
- Lecture 21 - GIT, CCS Installation and Embedded C
- Lecture 22 - MSP430 Digital I/O
- Lecture 23 - MSP430 Digital I/O
- Lecture 24 - MSP430 Clock System and Reset
- Lecture 25 - Interrupts in MSP430
- Lecture 26 - Interrupts in MSP430 (Continued...)
- Lecture 27 - Interfacing Seven Segment Displays with MSP430; Low Power Modes in MSP430
- Lecture 28 - Interfacing Liquid Crystal Displays (LCD)
- Lecture 29 - MSP430 Timer Module

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pulse Width Modulation, PWM using Timer Capture
- Lecture 31 - Analog to Digital Converter in the MSP430
- Lecture 32 - ADC and DAC using R2R Ladder and Random number generation using LFSR
- Lecture 33 - Serial Communication Protocols, USCI Module in MSP430
- Lecture 34 - MSP430 Timer in Capture Mode
- Lecture 35 - Coding Ninja
- Lecture 36 - Building an Electronics Project
- Lecture 37 - Circuit Prototyping Techniques
- Lecture 38 - Single Purpose Computers
- Lecture 39 - Single Purpose Computers (Continued...)
- Lecture 40 - Recap of Course Coverage and Project Demonstration from Concept to Final

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Power Quality

Subject Co-ordinator - Prof. Bhim Singh

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Power Quality - An Introduction
- Lecture 2 - Power Quality Standards and Monitoring
- Lecture 3 - Power Quality Standards and Monitoring (Continued...)
- Lecture 4 - Passive Shunt and Series Compensations
- Lecture 5 - Passive Shunt and Series Compensations (Continued...)
- Lecture 6 - Passive Shunt and Series Compensations (Continued...)
- Lecture 7 - Active Shunt Compensation
- Lecture 8 - Active Shunt Compensation (Continued...)
- Lecture 9 - Active Shunt Compensation (Continued...)
- Lecture 10 - Active Series Compensation
- Lecture 11 - Active Series Compensation (Continued...)
- Lecture 12 - Unified Power Quality Compensators
- Lecture 13 - Unified Power Quality Compensators (Continued...)
- Lecture 14 - Unified Power Quality Compensators (Continued...)
- Lecture 15 - Loads Which Cause Power Quality Problems
- Lecture 16 - Loads Which Cause Power Quality Problems (Continued...)
- Lecture 17 - Passive Power Filters
- Lecture 18 - Passive Power Filters (Continued...)
- Lecture 19 - Passive Power Filters (Continued...)
- Lecture 20 - Shunt Active Power Filters
- Lecture 21 - Shunt Active Power Filters (Continued...)
- Lecture 22 - Shunt Active Power Filters (Continued...)
- Lecture 23 - Active Series Power Filters
- Lecture 24 - Active Series Power Filters (Continued...)
- Lecture 25 - Active Series Power Filters (Continued...)
- Lecture 26 - Hybrid Power Filters
- Lecture 27 - Hybrid Power Filters (Continued...)
- Lecture 28 - Hybrid Power Filters (Continued...)
- Lecture 29 - AC-DC Converters That Cause Power Quality

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Improved Power Quality Converters - AC-DC Boost Converters
- Lecture 31 - Improved Power Quality Converters - AC-DC Boost Converters (Continued...)
- Lecture 32 - Improved Power Quality Converters - AC-DC Buck Converters
- Lecture 33 - Improved Power Quality Converters - AC-DC Buck-Boost Converters
- Lecture 34 - Improved Power Quality Converters - AC-DC Buck-Boost Converters (Continued...)
- Lecture 35 - Improved Power Quality Converters - AC-DC Buck-Boost Converters (Continued...)
- Lecture 36 - Three Phase AC-DC Improved Power Quality Converters
- Lecture 37 - Multipulse Converters
- Lecture 38 - Multipulse Converters (Continued...)
- Lecture 39 - Multipulse Converters (Continued...)
- Lecture 40 - Power Quality Improvement in Solar Energy Conversion System
- Lecture 41 - Power Quality Improvement in Solar Energy Conversion System (Continued...)
- Lecture 42 - Power Quality Improvement in Wind Energy Conversion System
- Lecture 43 - Power Quality Improvement in Diesel Generator Set Based Power Supply System
- Lecture 44 - Power Quality Improvement in Diesel Generator Set Based Power Supply System (Continued...)
- Lecture 45 - Power Quality Improvement in Distributed Generation Sources Based Microgrids

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Introduction to Electrical Engineering

Subject Co-ordinator - Prof. Bhim Singh

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Transducers for Instrumentation

Subject Co-ordinator - Ankur Gupta

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Computer-Aided Design of Electrical Machines

Subject Co-ordinator - Prof. Bhim Singh

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Outline and Introduction  
Lecture 2 - Fundamental - I  
Lecture 3 - Equivalent Circuit Approach to Design  
Lecture 4 - Transformer Design - I  
Lecture 5 - Transformer Design - II  
Lecture 6 - Transformer Design - III  
Lecture 7 - Transformer Design - IV  
Lecture 8 - Windings in Electrical Machines  
Lecture 9 - Design of DC Machine - I  
Lecture 10 - Design of DC Machine - II  
Lecture 11 - Design of DC Machine - III  
Lecture 12 - Design of Three-Phase Induction Motors - I  
Lecture 13 - Design of Three-Phase Induction Motors - II  
Lecture 14 - Design of Three-Phase Induction Motors - III  
Lecture 15 - Design of Three-Phase Induction Motors - IV  
Lecture 16 - Design of Single-Phase Induction Machine - I  
Lecture 17 - Design of Single-Phase Induction Machine - II  
Lecture 18 - Design of Single-Phase Induction Machine - III  
Lecture 19 - Design of Three-Phase Synchronous Machines - I  
Lecture 20 - Design of Three-Phase Synchronous Machines - II  
Lecture 21 - Design of Three-Phase Synchronous Machines - III  
Lecture 22 - Design of Three-Phase Synchronous Machines - IV  
Lecture 23 - Design of Synchronous Reluctance Machines - I  
Lecture 24 - Design of Synchronous Reluctance Machines - II  
Lecture 25 - Design of Synchronous Reluctance Machines - III  
Lecture 26 - Design of Brushless PM Machines - I  
Lecture 27 - Design of Brushless PM Machines - II  
Lecture 28 - Design of Brushless PM Machines - III  
Lecture 29 - Design of Brushless PM Machines - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design of Brushless PM Machines - V
- Lecture 31 - Design of Switched Reluctance Machines - I
- Lecture 32 - Design of Switched Reluctance Machines - II
- Lecture 33 - Design of Switched Reluctance Machines - III
- Lecture 34 - Design of Stepper Machines - I
- Lecture 35 - Design of Stepper Machines - II
- Lecture 36 - Design of Axial Flux Machines - I
- Lecture 37 - Design of Axial Flux Machines - II
- Lecture 38 - Computer Aided Design and Analysis Method - I
- Lecture 39 - Computer Aided Design and Analysis Method - II
- Lecture 40 - Case Studies and Tutorials - I and II
- Lecture 41 - Tutorial-III : Determination of Transformer Operating Point
- Lecture 42 - Tutorial-IV

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Advanced Control Systems

Subject Co-ordinator - Prof. S. Majhi

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Control structures and performance measures
- Lecture 3 - Time and frequency domain performance measures
- Lecture 4 - Design of controller
- Lecture 5 - Design of controller for SISO system
- Lecture 6 - Controller design for TITO processes
- Lecture 7 - Limitations of PID controllers
- Lecture 8 - PI-PD controller for SISO system
- Lecture 9 - PID-P controller for Two Input Two Output system
- Lecture 10 - Effects of measurement noise and load
- Lecture 11 - Identification of dynamic models of plants
- Lecture 12 - Relay control system for identification
- Lecture 13 - Off-line identification of process dynamics
- Lecture 14 - On-line identification of plant dynamics
- Lecture 15 - State space based identification
- Lecture 16 - State space analysis of systems
- Lecture 17 - State space based identification of systems - 1
- Lecture 18 - State space based identification of systems - 2
- Lecture 19 - Identification of simple systems
- Lecture 20 - Identification of FOPDT model
- Lecture 21 - Identification of second order plus dead time model
- Lecture 22 - Identification of SOPDT model
- Lecture 23 - Steady state gain from asymmetrical relay test
- Lecture 24 - Identification of SOPDT model with pole multiplicity
- Lecture 25 - Existence of limit cycle for unstable system
- Lecture 26 - Identification procedures
- Lecture 27 - Identification of underdamped systems
- Lecture 28 - Off-line identification of TITO systems
- Lecture 29 - On-line identification of TITO systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Review of time domain based identification
- Lecture 31 - DF based analytical expressions for on-line identification
- Lecture 32 - Model parameter accuracy and sensitivity
- Lecture 33 - Improved identification using Fourier series and wavelet transform
- Lecture 34 - Reviews of DF based identification
- Lecture 35 - Advanced Smith predictor controller
- Lecture 36 - Design of controllers for the advanced Smith predictor
- Lecture 37 - Model-free controller design
- Lecture 38 - Model Based PID controller Design - I
- Lecture 39 - Model Based PI-PD controller Design - II
- Lecture 40 - Tuning of reconfigurable PID controllers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Optimization Techniques for Digital VLSI Design

Subject Co-ordinator - Dr. Santosh Biswas, Prof. Chandan Karfa

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Digital VLSI Design Flow
- Lecture 2 - High-level Synthesis (HLS) flow with an example
- Lecture 3 - Automation of High-level Synthesis Steps
- Lecture 4 - Impact of Coding Style on HLS Results
- Lecture 5 - Impact of Compiler Optimizations on HLS Results
- Lecture 6 - RTL Optimizations for Timing
- Lecture 7 - Retiming
- Lecture 8 - RTL Optimizations for Area
- Lecture 9 - RTL Optimizations for Power
- Lecture 10 - High Level Synthesis
- Lecture 11 - Overview of FPGA Technology Mapping
- Lecture 12 - Introduction to Physical Synthesis
- Lecture 13 - Introduction to Digital VLSI Testing - I
- Lecture 14 - Introduction to Digital VLSI Testing - II
- Lecture 15 - Optimization Techniques for ATPG - Part I
- Lecture 16 - Optimization Techniques for ATPG - Part II
- Lecture 17 - Optimization Techniques for Design for Testability
- Lecture 18 - High-level fault modeling and RTL level Testing
- Lecture 19 - LTL/CTL based Verification
- Lecture 20 - Verification of Large Scale Systems
- Lecture 21 - BDD based verification
- Lecture 22 - Verification
- Lecture 23 - Verification
- Lecture 24 - Verification

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Advanced Topics in Probability and Random Processes

Subject Co-ordinator - Prof. Prabin K Bora

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Probability Basics
- Lecture 2 - Random Variable - I
- Lecture 3 - Random Variable - II
- Lecture 4 - Random Vectors and Random Processes
- Lecture 5 - Infinite Sequence of Events - I
- Lecture 6 - Infinite Sequence of Events - II
- Lecture 7 - Convergence of Sequence of Random Variables
- Lecture 8 - Weak Convergence - I
- Lecture 9 - Weak Convergence - II
- Lecture 10 - Laws of Large Numbers
- Lecture 11 - Central Limit Theorem
- Lecture 12 - Large Deviation Theory
- Lecture 13 - Crammer's Theorem for Large Deviation
- Lecture 14 - Introduction to Markov Processes
- Lecture 15 - Discrete Time Markov Chain - 1
- Lecture 16 - Discrete Time Markov Chain - 2
- Lecture 17 - Discrete Time Markov Chain - 3
- Lecture 18 - Discrete Time Markov Chain - 4
- Lecture 19 - Discrete Time Markov Chain - 5
- Lecture 20 - Continuous Time Markov Chain - 1
- Lecture 21 - Continuous Time Markov Chain - 2
- Lecture 22 - Continuous Time Markov Chain - 3
- Lecture 23 - Martingale Process - 1
- Lecture 24 - Martingale Process - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC: Microwave Engineering

Subject Co-ordinator - Dr. Ratnajit Bhattacharjee

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Microwave Engineering
- Lecture 2 - Introduction to Transmission Line Theory
- Lecture 3 - Lossy Transmission Line
- Lecture 4 - Smith Chart
- Lecture 5 - Introduction to Waveguides and Rectangular Waveguide
- Lecture 6 - Circular Waveguide
- Lecture 7 - Attenuation Waveguide
- Lecture 8 - N-port microwave networks and equivalent voltages and currents
- Lecture 9 - Scattering Matrix (S-Parameters) Part-1
- Lecture 10 - Scattering Matrix (S-parameters) Part-2 and Transmission Matrix (ABCD-Parameters)
- Lecture 11 - Impedance Matching Using L-Section and Series Stub Networks
- Lecture 12 - Impedance Matching Using Shunt Stub, Double Stub and Quarter wave Transformer
- Lecture 13 - Multisection Matching Networks and Tapered Lines
- Lecture 14 - Series and Parallel RLC Resonators
- Lecture 15 - Transmission Line Resonators
- Lecture 16 - Waveguide Resonators
- Lecture 17 - Introduction to power dividers
- Lecture 18 - Directional couplers
- Lecture 19 - Microwave Filters - Part 1
- Lecture 20 - Microwave Filters - Part 2
- Lecture 21 - Characteristics of Microwave BJT and FET
- Lecture 22 - PIN Diodes and Control Circuits
- Lecture 23 - Schottky Diodes and Detectors and Tunnel Diodes
- Lecture 24 - Gunn Diodes, IMPATT Diodes and Varactor Diodes
- Lecture 25 - Two-Port Power Gain and Stability
- Lecture 26 - Design of single stage transistor amplifier (for maximum gain, specified gain, low noise)
- Lecture 27 - RF oscillator
- Lecture 28 - Limitations of Conventional Tubes at Microwave Ranges
- Lecture 29 - Introduction to Klystron

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Reflex Klystron, Magnetron and TWT
- Lecture 31 - Ferrite Devices
- Lecture 32 - Planar transmission lines for MIC
- Lecture 33 - Lumped elements for MIC
- Lecture 34 - Lumped inductor, HMIC and MMIC
- Lecture 35 - Overview of Radar
- Lecture 36 - Cellular Communication
- Lecture 37 - Satellite Communication and Applications of Microwave



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Microprocessors and Interfacing

Subject Co-ordinator - Prof. Shaik Rafi Ahamed

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Microprocessor Operations  
Lecture 2 - 8086 Flags  
Lecture 3 - Functional Diagram of 8086  
Lecture 4 - 8086 Common and Minimum Mode Signals  
Lecture 5 - 8086 Maximum Mode Signals  
Lecture 6 - 8086 Data Transfer Instructions  
Lecture 7 - 8086 Arithmetic Instructions - I  
Lecture 8 - 8086 Arithmetic Instructions - II  
Lecture 9 - 8086 Logical Instructions  
Lecture 10 - 8086 Branch and String Instructions  
Lecture 11 - 8086 Interrupt and Machine Control Instructions  
Lecture 12 - Sum of Products, Multi-byte addition  
Lecture 13 - Largest number, 2's complement Programs  
Lecture 14 - Programs on Subroutines  
Lecture 15 - ROM, RAM  
Lecture 16 - Example I  
Lecture 17 - Example II  
Lecture 18 - Architecture, Interfacing to Simple I/O  
Lecture 19 - Keyboard Interface  
Lecture 20 - 7-segment Display Interface  
Lecture 21 - Multiplexed 7-segment Display Interface  
Lecture 22 - Stepper motor, Liquid level control  
Lecture 23 - Traffic light control, A/D converter  
Lecture 24 - D/A converter  
Lecture 25 - Electronic weighing machine  
Lecture 26 - Programmable Interval Timer (8254)  
Lecture 27 - Modes of 8254  
Lecture 28 - Architecture of 8259  
Lecture 29 - Initialization command words of 8259

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Operational command words of 8259
- Lecture 31 - 8237 Architecture, interfacing and Programming
- Lecture 32 - Basic Concepts of serial I/O
- Lecture 33 - Basic Concepts of serial I/O (Continued...)
- Lecture 34 - Architecture of 8251

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Statistical Signal Processing

Subject Co-ordinator - Prof. Prabin Kumar Bora

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of Statistical Signal Processing
- Lecture 2 - Probability and Random Variables
- Lecture 3 - Linear Algebra of Random Variables
- Lecture 4 - Random Processes
- Lecture 5 - Linear Shift Invariant Systems with Random Inputs
- Lecture 6 - White Noise and Spectral Factorization Theorem
- Lecture 7 - Linear Models of Random Signals
- Lecture 8 - Estimation Theory - 1
- Lecture 9 - Estimation Theory - 2
- Lecture 10 - Cramer Rao Lower Bound 2
- Lecture 11 - MVUE through Sufficient Statistic - 1
- Lecture 12 - MVUE through Sufficient Statistic - 2
- Lecture 13 - Method of Moments and Maximum Likelihood Estimators
- Lecture 14 - Properties of Maximum Likelihood Estimator (MLE)
- Lecture 15 - Bayesian Estimators - 1
- Lecture 16 - Bayesian Estimators - 2
- Lecture 17 - Optimal linear filters
- Lecture 18 - FIR Wiener filter
- Lecture 19 - Non-Causal IIR Wiener Filter
- Lecture 20 - Causal IIR Wiener Filter
- Lecture 21 - Linear Prediction of Signals - 1
- Lecture 22 - Linear Prediction of Signals - 2
- Lecture 23 - Linear Prediction of Signals - 3
- Lecture 24 - Review Assignment - 1
- Lecture 25 - Adaptive Filters - 1
- Lecture 26 - Adaptive Filters - 2
- Lecture 27 - Adaptive Filters - 3
- Lecture 28 - Review Assignment - 2
- Lecture 29 - Adaptive Filters - 4

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- Lecture 30 - Adaptive Filters - 4 (Continued...)
- Lecture 31 - Review Assignment - 3
- Lecture 32 - Recursive Least Squares (RLS) Adaptive Filter - 1
- Lecture 33 - Recursive Least Squares (RLS) Adaptive Filter - 2
- Lecture 34 - Review Assignment - 4
- Lecture 35 - Kalman Filter - 1
- Lecture 36 - Vector Kalman Filter
- Lecture 37 - Linear Models of Random Signals
- Lecture 38 - Review - 1
- Lecture 39 - Review - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Computer Vision and Image Processing - Fundamentals and App

Subject Co-ordinator - Prof. M. K. Bhuyan

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Digital Image Processing
- Lecture 2 - Introduction to Computer Vision
- Lecture 3 - Introduction to Computer Vision and Basic Concepts of Image Formation
- Lecture 4 - Shape From Shading
- Lecture 5 - Image Formation: Geometric Camera Models - I
- Lecture 6 - Image Formation: Geometric Camera Models - II
- Lecture 7 - Image Formation: Geometric Camera Models - III
- Lecture 8 - Image Formation in a Stereo Vision Setup
- Lecture 9 - Image Reconstruction from a Series of Projections
- Lecture 10 - Image Reconstruction from a Series of Projections
- Lecture 11 - Image Transforms - I
- Lecture 12 - Image Transforms - II
- Lecture 13 - Image Transforms - III
- Lecture 14 - Image Transforms - IV
- Lecture 15 - Image Enhancement
- Lecture 16 - Image Filtering - I
- Lecture 17 - Image Filtering - II
- Lecture 18 - Colour Image Processing - I
- Lecture 19 - Colour Image Processing - II
- Lecture 20 - Image Segmentation
- Lecture 21 - Image Features and Edge Detection
- Lecture 22 - Edge Detection
- Lecture 23 - Hough Transform
- Lecture 24 - Image Texture Analysis - I
- Lecture 25 - Image Texture Analysis - II
- Lecture 26 - Object Boundary and Shape Representations - I
- Lecture 27 - Object Boundary and Shape Representations - II
- Lecture 28 - Interest Point Detectors
- Lecture 29 - Image Features - HOG and SIFT

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- Lecture 30 - Introduction to Machine Learning - I
- Lecture 31 - Introduction to Machine Learning - II
- Lecture 32 - Introduction to Machine Learning - III
- Lecture 33 - Introduction to Machine Learning - IV
- Lecture 34 - Introduction to Machine Learning - V
- Lecture 35 - Artificial Neural Network for Pattern Classification - I
- Lecture 36 - Artificial Neural Network for Pattern Classification - II
- Lecture 37 - Introduction to Deep Learning
- Lecture 38 - Gesture Recognition
- Lecture 39 - Background Modelling and Motion Estimation
- Lecture 40 - Object Tracking
- Lecture 41 - Programming Examples

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC: System Design through VERILOG

Subject Co-ordinator - Prof. Shaik Rafi Ahamed

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Verilog Operators and Modules
- Lecture 2 - Verilog Ports, Data types and Assignments
- Lecture 3 - Basics of gate level modeling
- Lecture 4 - Half adder, full adder and ripple carry adder
- Lecture 5 - Parallel adder/subtractor
- Lecture 6 - Multiplier and comparator
- Lecture 7 - Decoder, encoder and multiplexer
- Lecture 8 - Demultiplexer, read only memory
- Lecture 9 - Review of flip-flops
- Lecture 10 - Verilog modeling of flip-flops
- Lecture 11 - Modeling of CMOS gates and Boolean functions
- Lecture 12 - Modeling using transmission gates, CMOS delay times
- Lecture 13 - Signal strengths
- Lecture 14 - Basics of dataflow modeling
- Lecture 15 - Examples of dataflow modeling
- Lecture 16 - Basics of behavioral modeling
- Lecture 17 - Examples of behavioral modeling
- Lecture 18 - Verilog modeling of counters
- Lecture 19 - Verilog modeling of sequence detector
- Lecture 20 - Verilog modeling FSMs and shift registers
- Lecture 21 - Combinational circuit examples
- Lecture 22 - Sequential circuit examples
- Lecture 23 - Arithmetic and Logic Unit (ALU)
- Lecture 24 - Static RAM and Braun Multiplier
- Lecture 25 - FIR filter implementation
- Lecture 26 - Baugh-Wooley signed multiplier architecture
- Lecture 27 - IIR filter implementation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Usability Engineering

Subject Co-ordinator - Prof. Debayan Dhar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Usability  
Lecture 2 - Usability - Historical Foundations  
Lecture 3 - Standard Terminologies  
Lecture 4 - Elements of User Experience  
Lecture 5 - Usability in software development - I  
Lecture 6 - Usability in software development - II  
Lecture 7 - User Centered Design Process - I  
Lecture 8 - User Centered Design Process - II  
Lecture 9 - User Centered Design Process - III  
Lecture 10 - Requirement Analysis - I (A)  
Lecture 11 - Requirement Analysis - I (B)  
Lecture 12 - Requirement Analysis - I (C)  
Lecture 13 - Requirement Analysis - I (D)  
Lecture 14 - Requirement Analysis - I (E)  
Lecture 15 - Requirement Analysis - I (F)  
Lecture 16 - Requirement Analysis - II (A)  
Lecture 17 - Requirement Analysis - II (B)  
Lecture 18 - Requirement Analysis - II (C)  
Lecture 19 - Requirement Analysis - II (D)  
Lecture 20 - Requirement Analysis - III (A)  
Lecture 21 - Eye Tracker  
Lecture 22 - Demonstration of an Eye tracking device  
Lecture 23 - Requirement Analysis - III (B)  
Lecture 24 - Mapping Experiences  
Lecture 25 - Cognitive Issues - I  
Lecture 26 - Cognitive Issues - II  
Lecture 27 - Cognitive Issues - III  
Lecture 28 - Cognitive Issues - IV  
Lecture 29 - Competitive analysis and preparing for design briefing - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Competitive analysis and preparing for design briefing - II
- Lecture 31 - Conceptualization and Prototyping - I (A)
- Lecture 32 - Conceptualization and Prototyping - I (B)
- Lecture 33 - Conceptualization and Prototyping - I (C)
- Lecture 34 - Conceptualization and Prototyping - II (A)
- Lecture 35 - Conceptualization and Prototyping - II (B)
- Lecture 36 - Usability heuristics and testing - I
- Lecture 37 - Usability heuristics and testing - II
- Lecture 38 - Usability heuristics and testing - III
- Lecture 39 - Usability Testing (A)
- Lecture 40 - Usability Testing (B)
- Lecture 41 - Usability Testing (C)
- Lecture 42 - UI/UX design based on Garret model: a case study
- Lecture 43 - Effective contextual enquiry
- Lecture 44 - Contextual enquiry: case study

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Probability and Random Processes

Subject Co-ordinator - Prof. Ribhu, Prof. Rohit Sinha

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Algebra of Events  
Lecture 3 - Axioms of Probability  
Lecture 4 - Example 1  
Lecture 5 - Example 2  
Lecture 6 - Example 3  
Lecture 7 - Example 4  
Lecture 8 - Example 5  
Lecture 9 - Conditional Probability  
Lecture 10 - Bayes Theorem 1  
Lecture 11 - Bayes Theorem 2  
Lecture 12 - A Brief Review  
Lecture 13 - Example 1  
Lecture 14 - Example 2  
Lecture 15 - Example 3  
Lecture 16 - Example 4  
Lecture 17 - Example 5  
Lecture 18 - Independent Events  
Lecture 19 - A Brief Review  
Lecture 20 - Example 1  
Lecture 21 - Example 2  
Lecture 22 - Example 3  
Lecture 23 - Example 4  
Lecture 24 - Discrete Random Variables  
Lecture 25 - Expectation  
Lecture 26 - Moments  
Lecture 27 - Variance  
Lecture 28 - Binomial Random Variables  
Lecture 29 - Poisson Random Variables

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - More on Poission Random Variables
- Lecture 31 - Properties of the CDF
- Lecture 32 - A Brief Review - I
- Lecture 33 - A Brief Review - II
- Lecture 34 - Example 1
- Lecture 35 - Example 2
- Lecture 36 - Example 3
- Lecture 37 - Example 4
- Lecture 38 - Example 5
- Lecture 39 - Example 6
- Lecture 40 - Example 7
- Lecture 41 - Example 8
- Lecture 42 - Example 9
- Lecture 43 - Continuous Random Variables
- Lecture 44 - Expectation of Continuous random variables
- Lecture 45 - The uniform and the Gaussian Random variables
- Lecture 46 - The mean and variance of a Gaussian Random Variable
- Lecture 47 - The exponential random variable and other continuous distributions
- Lecture 48 - A Brief Review
- Lecture 49 - Example 1
- Lecture 50 - Example 2
- Lecture 51 - Example 3
- Lecture 52 - Example 4
- Lecture 53 - Example 5
- Lecture 54 - Functions of a random variable
- Lecture 55 - Functions of a random variable
- Lecture 56 - The moment generating function
- Lecture 57 - Conditional Distributions
- Lecture 58 - Bivariate Distributions
- Lecture 59 - Independence of Random Variables
- Lecture 60 - Jointly Gaussian Random Variables and Circular symmetry
- Lecture 61 - Jointly Discrete Random Variables
- Lecture 62 - One Function of two random variables
- Lecture 63 - Order Statistics
- Lecture 64 - Two functions of two random variables
- Lecture 65 - Joint Moments
- Lecture 66 - Joint Charactristic Functions
- Lecture 67 - Conditional Distributions for multiple random variables
- Lecture 68 - Conditional Expectations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Examples
- Lecture 70 - Random Vectors
- Lecture 71 - Independence of Random Variables
- Lecture 72 - Complex Random Variables
- Lecture 73 - Covariance Matrices
- Lecture 74 - Conditional Densities
- Lecture 75 - Gaussianity
- Lecture 76 - Chi Squared Densities
- Lecture 77 - Examples
- Lecture 78 - Estimation Theory
- Lecture 79 - Measurements
- Lecture 80 - Sequences of Random Variables
- Lecture 81 - Laws of large numbers
- Lecture 82 - Random processes
- Lecture 83 - Stationarity, Cyclostationarity, Ergodicity
- Lecture 84 - Random Processes as Signals (PSD and LTI Response)
- Lecture 85 - White and Gaussian Processes Noise

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Simulation of Communication Systems using Matlab

Subject Co-ordinator - Dr. Ribhu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Basics of MATLAB  
Lecture 3 - Data Types  
Lecture 4 - Floating Point Numbers  
Lecture 5 - Scripts and Flow of Control  
Lecture 6 - The For Loop  
Lecture 7 - Arrays  
Lecture 8 - Indexing  
Lecture 9 - Some Results from Linear Algebra  
Lecture 10 - Matrix Multiplication  
Lecture 11 - Eigenvalues and Eigenvectors  
Lecture 12 - Complex Numbers  
Lecture 13 - Hermitian Matrices  
Lecture 14 - Matrix Inversion  
Lecture 15 - Signals  
Lecture 16 - Convolution  
Lecture 17 - Probability  
Lecture 18 - Bayes Theorem  
Lecture 19 - Random Variables  
Lecture 20 - Clinical Trials - I  
Lecture 21 - Clinical Trials - II  
Lecture 22 - Random Numbers  
Lecture 23 - Random Distributions  
Lecture 24 - Histograms - I  
Lecture 25 - Histograms - II  
Lecture 26 - Functions of Random Variables  
Lecture 27 - Generating Random Distributions  
Lecture 28 - Laws of Large numbers  
Lecture 29 - Random Processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Properties of Random Processes
- Lecture 31 - Power Spectra
- Lecture 32 - Signals and Noise
- Lecture 33 - Stochastic Models
- Lecture 34 - The AR-1 Process
- Lecture 35 - Stochastic Models II
- Lecture 36 - Yule Walker Equations
- Lecture 37 - Markov Chains - I
- Lecture 38 - Markov Chains - II
- Lecture 39 - Markov Chains - III
- Lecture 40 - Analog to Digital Conversion
- Lecture 41 - K Means
- Lecture 42 - Correlation
- Lecture 43 - Predictive Coding
- Lecture 44 - Image Compression
- Lecture 45 - Transform Domain Compression
- Lecture 46 - Multi Resolution Coding
- Lecture 47 - Introduction to Communications
- Lecture 48 - Low Pass and BandPass Signals
- Lecture 49 - Signal Spaces
- Lecture 50 - PAM
- Lecture 51 - Detection
- Lecture 52 - Effects of AWGN
- Lecture 53 - ML Detection - I
- Lecture 54 - ML Detection - II
- Lecture 55 - The Union Bound
- Lecture 56 - Symbol Error Rates
- Lecture 57 - Choosing Constellations
- Lecture 58 - Orthogonal Signalling
- Lecture 59 - Non-Coherent Detection - 1
- Lecture 60 - Non-Coherent Detection - 2
- Lecture 61 - DPSK - I
- Lecture 62 - DPSK - II
- Lecture 63 - Introduction to Wireless Communications
- Lecture 64 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Machine Learning and Deep Learning - Fundamentals and Appli

Subject Co-ordinator - Prof. M.K. Bhuyan

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Machine Learning
- Lecture 2 - Performance Measures of Classification
- Lecture 3 - Bias-Variance Tradeoff
- Lecture 4 - Regression
- Lecture 5 - Bayesian Decision Theory - 1
- Lecture 6 - Bayesian Decision Theory - 2
- Lecture 7 - Bayes Decision Theory - Binary Features
- Lecture 8 - Bayesian Decision Theory - 3
- Lecture 9 - Bayesian Decision Theory - 4
- Lecture 10 - Bayesian Belief Networks
- Lecture 11 - Parameter Estimation and Maximum Likelihood Estimation
- Lecture 12 - Parameter Estimation and Bayesian Estimation
- Lecture 13 - Concept of non-parametric techniques
- Lecture 14 - Density Estimation by Parzen Window
- Lecture 15 - Parzen Window and K nearest neighbor algorithm
- Lecture 16 - Linear Discriminant Functions and Perceptron Criteria - Part I
- Lecture 17 - Linear Discriminant Functions and Perceptron Criteria - Part II
- Lecture 18 - Linear Discriminant Functions and Perceptron Criteria - Part III
- Lecture 19 - Support Vector Machine - Part I
- Lecture 20 - Support Vector Machine - Part II
- Lecture 21 - Logistic Regression
- Lecture 22 - Decision Tree
- Lecture 23 - Hidden Markov Model (HMM)
- Lecture 24 - Ensemble Classifiers - Part I
- Lecture 25 - Ensemble Classifiers - Part II
- Lecture 26 - Dimensionality Problem and Principal Component Analysis
- Lecture 27 - Principal Component Analysis
- Lecture 28 - Linear Discriminant Analysis (LDA) - Part I
- Lecture 29 - Linear Discriminant Analysis (LDA) - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gaussian Mixture Model and EM Algorithm
- Lecture 31 - K-means clustering.
- Lecture 32 - Fuzzy K-means clustering
- Lecture 33 - Hierarchical Agglomerative Clustering and Mean-shift Clustering
- Lecture 34 - Artificial Neural Networks for Pattern Classification - Part 1
- Lecture 35 - Artificial Neural Networks for Pattern Classification - Part 2
- Lecture 36 - Artificial Neural Networks for Pattern Classification - Part 3
- Lecture 37 - Introduction to Deep Learning and Convolutional Neural Network (CNN)
- Lecture 38 - Vanishing and Exploding Gradients in Deep Neural Networks
- Lecture 39 - CNN Architectures - LeNet-5 and AlexNet
- Lecture 40 - CNN Architectures - VGG 16, GoogLeNet and ResNet
- Lecture 41 - Generative Adversarial Networks (GAN) - Fundamentals and Applications
- Lecture 42 - U-Net: Convolutional Networks for Image Segmentation
- Lecture 43 - Introduction to Autoencoder and Recurrent Neural Networks (RNN)
- Lecture 44 - Programming Concepts - 1
- Lecture 45 - Programming Concepts - 2
- Lecture 46 - Problem Solving Session - 1
- Lecture 47 - Problem Solving Session - 2
- Lecture 48 - Problem Solving Session - 3



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC: Integrated Circuits and Applications

Subject Co-ordinator - Prof. Shaik Rafi Ahamed

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Integrated Circuits
- Lecture 2 - Summing and Difference Amplifiers
- Lecture 3 - Instrumentation Amplifier
- Lecture 4 - Integrator and Differentiator
- Lecture 5 - Precision Half Wave and Full Wave Rectifiers
- Lecture 6 - Clipper and Clamper circuits
- Lecture 7 - Logarithmic and Anti-logarithmic Amplifiers
- Lecture 8 - DC Characteristics (Offset Currents and Voltages)
- Lecture 9 - AC Characteristics (Frequency Response)
- Lecture 10 - AC Characteristics (Compensation Techniques and Slew Rate)
- Lecture 11 - Examples on Design of Adder and Subtractor Circuits
- Lecture 12 - Examples on Transfer Function Computation
- Lecture 13 - Examples on Instrumentation Amplifier
- Lecture 14 - Examples on CMRR Computation
- Lecture 15 - First Order Low Pass Filter
- Lecture 16 - Second Order Low Pass Filter
- Lecture 17 - Design of Butterworth Low Pass Filter
- Lecture 18 - Design of Butterworth High Pass Filter
- Lecture 19 - Design of Band Pass Filter
- Lecture 20 - Design of Band Stop Filter
- Lecture 21 - All Pass Filter
- Lecture 22 - RC Phase Shift Oscillator
- Lecture 23 - Wien Bridge, Colpitt's and Hartley Oscillators
- Lecture 24 - Comparator and Schmitt Trigger Circuits
- Lecture 25 - Square Wave and Triangular Waveform Generators
- Lecture 26 - Monostable operation
- Lecture 27 - Monostable applications - I
- Lecture 28 - Monostable applications - II
- Lecture 29 - Astable operation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Phase detectors
- Lecture 31 - Voltage Controlled oscillator
- Lecture 32 - PLL IC 565 operation
- Lecture 33 - PLL Applications
- Lecture 34 - Fixed Voltage Regulator
- Lecture 35 - Adjustable Voltage Regulator
- Lecture 36 - Switching Regulators
- Lecture 37 - Weighted Resistor D/A Converter
- Lecture 38 - R-2R Ladder D/A Converter
- Lecture 39 - Inverted R-2R Ladder D/A Converter
- Lecture 40 - Analog to Digital Converters
- Lecture 41 - CMOS Inverter
- Lecture 42 - CMOS NAND Gate
- Lecture 43 - Transient Response of CMOS NAND and NOR Gates
- Lecture 44 - Boolean function Realization using CMOS and Sizing

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Advanced Electric Drives

Subject Co-ordinator - Dr. S.P. Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - High Voltage DC Transmission

Subject Co-ordinator - Dr. S.N. Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - High Voltage DC Transmission  
Lecture 2 - High Voltage DC Transmission  
Lecture 3 - High Voltage DC Transmission  
Lecture 4 - High Voltage DC Transmission  
Lecture 5 - High Voltage DC Transmission  
Lecture 6 - High Voltage DC Transmission  
Lecture 7 - High Voltage DC Transmission  
Lecture 8 - High Voltage DC Transmission  
Lecture 9 - High Voltage DC Transmission  
Lecture 10 - High Voltage DC Transmission  
Lecture 11 - High Voltage DC Transmission  
Lecture 12 - High Voltage DC Transmission  
Lecture 13 - High Voltage DC Transmission  
Lecture 14 - High Voltage DC Transmission  
Lecture 15 - High Voltage DC Transmission  
Lecture 16 - High Voltage DC Transmission  
Lecture 17 - High Voltage DC Transmission  
Lecture 18 - High Voltage DC Transmission  
Lecture 19 - High Voltage DC Transmission  
Lecture 20 - High Voltage DC Transmission  
Lecture 21 - High Voltage DC Transmission  
Lecture 22 - High Voltage DC Transmission  
Lecture 23 - High Voltage DC Transmission  
Lecture 24 - High Voltage DC Transmission  
Lecture 25 - High Voltage DC Transmission  
Lecture 26 - High Voltage DC Transmission  
Lecture 27 - High Voltage DC Transmission  
Lecture 28 - High Voltage DC Transmission  
Lecture 29 - High Voltage DC Transmission

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - High Voltage DC Transmission  
Lecture 31 - High Voltage DC Transmission  
Lecture 32 - High Voltage DC Transmission  
Lecture 33 - High Voltage DC Transmission  
Lecture 34 - High Voltage DC Transmission  
Lecture 35 - High Voltage DC Transmission  
Lecture 36 - High Voltage DC Transmission  
Lecture 37 - High Voltage DC Transmission

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Intelligent Systems and Control

Subject Co-ordinator - Prof. Laxmidhar Behera

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Intelligent Systems and Control
- Lecture 2 - Linear Neural networks
- Lecture 3 - Multi layered Neural Networks
- Lecture 4 - Back Propagation Algorithm revisited
- Lecture 5 - Non Linear System Analysis - Part I
- Lecture 6 - Non Linear System Analysis - Part II
- Lecture 7 - Radial Basis Function Networks
- Lecture 8 - Adaptive Learning rate
- Lecture 9 - Weight update rules
- Lecture 10 - Recurrent networks Back propagation through time
- Lecture 11 - Recurrent networks Real time recurrent learning
- Lecture 12 - Self organizing Map - Multidimensional networks
- Lecture 13 - Fuzzy sets - A Primer
- Lecture 14 - Fuzzy Relations
- Lecture 15 - Fuzzy Rule base and Approximate Reasoning
- Lecture 16 - Introduction to Fuzzy Logic Control
- Lecture 17 - Neural Control A review
- Lecture 18 - Network inversion and Control
- Lecture 19 - Neural Model of a Robot manipulator
- Lecture 20 - Indirect Adaptive Control of a Robot manipulator
- Lecture 21 - Adaptive neural control for Affine Systems SISO
- Lecture 22 - Adaptive neural control for Affine systems MIMO
- Lecture 23 - Visual Motor Coordination with KSOM
- Lecture 24 - Visual Motor coordination - quantum clustering
- Lecture 25 - Direct Adaptive control of Manipulators - Intro
- Lecture 26 - NN based back stepping control
- Lecture 27 - Fuzzy Control - a Review
- Lecture 28 - Mamdani type flc and parameter optimization
- Lecture 29 - Fuzzy Control of a pH reactor

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- Lecture 30 - Fuzzy Lyapunov controller - Computing with words
- Lecture 31 - Controller Design for a T-S Fuzzy model
- Lecture 32 - Linear controllers using T-S fuzzy model



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Power Systems Operation and Control

Subject Co-ordinator - Dr. S.N. Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Module 1 - Lecture 1  
Module 1 - Lecture 2  
Module 1 - Lecture 3  
Module 2 - Lecture 1  
Module 2 - Lecture 2  
Module 2 - Lecture 3  
Module 2 - Lecture 4  
Module 2 - Lecture 5  
Module 2 - Lecture 6  
Module 2 - Lecture 7  
Module 2 - Lecture 8  
Module 2 - Lecture 9  
Module 2 - Lecture 10  
Module 2 - Lecture 11  
Module 2 - Lecture 12  
Module 2 - Lecture 13  
Module 2 - Lecture 14  
Module 3 - Lecture 1  
Module 3 - Lecture 2  
Module 3 - Lecture 3  
Module 3 - Lecture 4  
Module 3 - Lecture 5  
Module 3 - Lecture 6  
Module 3 - Lecture 7  
Module 3 - Lecture 8  
Module 3 - Lecture 9  
Module 3 - Lecture 10  
Module 4 - Lecture 1  
Module 4 - Lecture 2

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Module 4 - Lecture 3  
Module 4 - Lecture 4  
Module 5 - Lecture 1  
Module 5 - Lecture 2  
Module 6 - Lecture 1  
Module 6 - Lecture 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electromagnetic theory

Subject Co-ordinator - Dr. Pradeep Kumar K

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to EMT
- Lecture 2 - Coulombs law
- Lecture 3 - Vector analysis-I and Introduction to coordinate system
- Lecture 4 - Rectangular coordinate system
- Lecture 5 - Vector analysis-II
- Lecture 6 - Introduction to Electric field
- Lecture 7 - Electric field-I
- Lecture 8 - Cylindrical coordinate system
- Lecture 9 - Transformation and Electric field-II
- Lecture 10 - Electric Potential-I
- Lecture 11 - Spherical co-ordinate system and Electric potential-II
- Lecture 12 - Vector Analysis-III and Electric potential-III
- Lecture 13 - Gauss's law and its application-I
- Lecture 14 - Gauss's law and its application-II
- Lecture 15 - Divergence and Poisson's and Laplace's equation
- Lecture 16 - Gauss's law and its application -III
- Lecture 17 - Vector analysis  $\hat{\text{A}}$  III (curl and its significance)
- Lecture 18 - Conductor and dielectric-I
- Lecture 19 - Polarization - I
- Lecture 20 - Polarization - II
- Lecture 21 - Polarization - II (Continued...)
- Lecture 22 - Boundary condition
- Lecture 23 - Continuity equation and Conductors - III
- Lecture 24 - Conductors  $\hat{\text{A}}$  IV
- Lecture 25 - Conductors  $\hat{\text{A}}$  IV (Continued...) and Capacitor - I
- Lecture 26 - Capacitor - II
- Lecture 27 - Capacitor - II (Continued...) and Equipotential Surfaces
- Lecture 28 - Solution of Laplace's equation-I
- Lecture 29 - Solution of Laplace's equation-I I and method of images-I

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- Lecture 30 - Method of images-II
- Lecture 31 - Solution of Laplace's equation-III
- Lecture 32 - Solution of Laplace's equation-IV
- Lecture 33 - Introduction of magnetic field
- Lecture 34 - Biot savart law and its application
- Lecture 35 - Biot savart law and its application-II
- Lecture 36 - Magnetic vector potential
- Lecture 37 - Magnetic force, torque and dipole
- Lecture 38 - Magnetic force, torque and dipole (Continued...)
- Lecture 39 - Magnetic materials-I
- Lecture 40 - Magnetic materials-I (Continued...) and Magnetic moment
- Lecture 41 - Magnetic materials-I (Continued...) and Boundary condition for Magnetic fields
- Lecture 42 - Inductor and calculation of inductance for different shapes
- Lecture 43 - Inductor and calculation of inductance for different shapes (Continued...)
- Lecture 44 - Faradays law and its application-I
- Lecture 45 - Faradays law and its application-II
- Lecture 46 - Displacement current
- Lecture 47 - Maxwell's equation
- Lecture 48 - Wave propagation
- Lecture 49 - Solution of Helmholtz equation
- Lecture 50 - Uniform plane waves
- Lecture 51 - Polarization and Poynting Vector
- Lecture 52 - Wave reflections (Normal incidence)
- Lecture 53 - Waves in imperfect dielectrics and Good conductors
- Lecture 54 - Skin depth/effect
- Lecture 55 - Oblique incidence of waves
- Lecture 56 - Oblique incidence of waves (Continued...)
- Lecture 57 - Transmission line
- Lecture 58 - Transmission line model
- Lecture 59 - Steady state sinusoidal response of T-line-I
- Lecture 60 - Steady state sinusoidal response of T-line-II
- Lecture 61 - Steady state sinusoidal response of T-line-II and Smith chart
- Lecture 62 - Application of smith chart-I
- Lecture 63 - Application of smith chart-II
- Lecture 64 - Impedance matching
- Lecture 65 - Transients on Transmission line-I
- Lecture 66 - Transients on Transmission line-II
- Lecture 67 - Pulse on Transmission line
- Lecture 68 - Capacitive termination in Transmission line

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- Lecture 69 - Waveguide
- Lecture 70 - Waveguide Analysis
- Lecture 71 - TM modes in Waveguide
- Lecture 72 - Rectangular waveguide
- Lecture 73 - Rectangular waveguide
- Lecture 74 - Waveguide
- Lecture 75 - Waveguide losses
- Lecture 76 - Dielectric Waveguide
- Lecture 77 - Dielectric Waveguide (Continued...)
- Lecture 78 - Radiation and Antenna
- Lecture 79 - Hertzian Dipole Antenna
- Lecture 80 - Hertzian Dipole Antenna (Continued...)
- Lecture 81 - Quasi-statistics-I
- Lecture 82 - Quasi-statistics-II
- Lecture 83 - Long wire Antenna
- Lecture 84 - Group velocity and Phase velocity
- Lecture 85 - Numerical solution of Laplace's equation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Principles of Communication - Part 1

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basics - Definition of Energy and Power of Signals
- Lecture 2 - Frequency Domain Representation and Introduction to Discrete Fourier Series
- Lecture 3 - Discrete Fourier Series Example and Parseval's Theorem for Periodic Signals
- Lecture 4 - Fourier Transform (FT), Inverse Fourier Transform (IFT) of Continuous Signals, Example of FT of P
- Lecture 5 - Modulation Property of Fourier Transform, Dirac Delta or Unit Impulse Function - Definition and F
- Lecture 6 - Duality Property of Fourier Transform and Introduction to Linear Time Invariant (LTI) Systems
- Lecture 7 - Transmission of Signal through Linear Time Invariant (LTI) Systems and Cross- Correlation of Sign
- Lecture 8 - Auto-Correlation of Signal and Energy Spectral Density (ESD)
- Lecture 9 - Example for Auto-Correlation of Signal and Energy Spectral Density (ESD)
- Lecture 10 - Introduction to Amplitude Modulation (AM), Modulation Index, Envelope Distortion and Over Modula
- Lecture 11 - Spectrum of Amplitude Modulated(AM) Signals and Introduction to Envelope Detection
- Lecture 12 - Envelope Detection for Amplitude Modulated (AM) Signals and Time Constant for Capacitor in Envel
- Lecture 13 - Power of Amplitude Modulated (AM) Signals and Power Efficiency of AM Signals
- Lecture 14 - Double Sideband (DSB) Suppressed Carrier (SC) Modulation, Spectrum of DSB-SC Signals and Coheren
- Lecture 15 - Double Sideband(DSB) Suppressed Carrier (SC) Demodulation, Non-coherent demodulation, Impact of
- Lecture 16 - Carrier Phase Offset Example for Double Sideband (DSB) Suppressed Carrier (SC) Demodulation- Wir
- Lecture 17 - Phase Synchronization using Costas Receiver for Double Sideband (DSB) Suppressed Carrier (SC) De
- Lecture 18 - Introduction to Quadrature Carrier Multiplexing (QCM) and Demodulation of QCM Signals.
- Lecture 19 - Introduction to Single Sideband (SSB) Modulation
- Lecture 20 - Generation of Single Sideband (SSB) Modulation Signals through Frequency Discrimination
- Lecture 21 - Frequency Domain Description of Hilbert Transform  $\hat{A}$  Fourier Spectrum of the Hilbert Transformer
- Lecture 22 - Time Domain Description of Hilbert Transform  $\hat{A}$  Impulse Response of the Hilbert Transformer
- Lecture 23 - Phase Shifting Method for Generation of Single Sideband (SSB) Modulated Signals based on Hilbert
- Lecture 24 - Complex Pre-Envelope and Complex Envelope of Passband Signals
- Lecture 25 - Complex Pre- Envelope and Complex Envelope of QCM (Quadrature Carrier Modulated) Signals
- Lecture 26 - Introduction to Vestigial Side Band(VSB) Modulation and Non- Ideal Filtering, Spectral Efficiency
- Lecture 27 - Properties of Vestigial Side Band Filter for Reconstruction of Message Signal without Distortion
- Lecture 28 - Introduction to Angle Modulation, Description of Phase Modulation (PM) and Frequency Modulation
- Lecture 29 - Frequency Modulation (FM) with Sinusoidal Modulation Signal and Pictorial Examples, Insights of

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- Lecture 30 - Indirect Method for Generation of FM Signals - Generation of Narrowband FM Signal
- Lecture 31 - Indirect Method for Generation of FM Signals - Generation of Wideband FM Signal through Frequency Modulation
- Lecture 32 - Spectrum of Frequency Modulated (FM) Signals
- Lecture 33 - Bandwidth of Frequency Modulated (FM) Signals - Carson's Rule
- Lecture 34 - Demodulation of Frequency Modulated (FM) Signals, Condition of Envelope Detection
- Lecture 35 - Analog to Digital Conversion of Signals and Introduction to Sampling
- Lecture 36 - Spectrum of Sampled Signal, Aliasing and Nyquist Sampling Theorem
- Lecture 37 - Ideal Impulse Train Sampling, Reconstruction of Original Signal from Samples, Sinc Interpolation
- Lecture 38 - Introduction to Pulse Amplitude Modulation (PAM), Sample and Hold, Flat Top Sampling
- Lecture 39 - Pulse Amplitude Modulation (PAM), Spectrum of PAM Signal, Reconstruction of Original Signal from Samples
- Lecture 40 - Introduction to Quantization, Uniform Quantizer, Mid-Tread Quantizer
- Lecture 41 - Quantization, Mid-Rise Quantizer, PDF and Power of Quantization Noise, Quantization Noise Power
- Lecture 42 - Introduction to Lloyd-Max Quantization Algorithm, Optimal Quantizer Design
- Lecture 43 - Lloyd-Max Quantization Algorithm, Iterative Computation of Optimal Quantization Levels and Intervals
- Lecture 44 - Companding for Non-Uniform Quantization,  $\mu$ -law Compressor, A-law Compressor
- Lecture 45 - Introduction to Delta Modulation, One-bit Quantizer
- Lecture 46 - Signal Reconstruction in Delta Modulation, Schematic Diagrams, Slope Overload Distortion and Granular Noise
- Lecture 47 - Differential Pulse Coded Modulation (DPCM), DPCM Signal Reconstruction and Schematic Diagram
- Lecture 48 - Frequency Mixing and Translation in Communication Systems, Heterodyne and Super Heterodyne Receivers
- Lecture 49 - Frequency Translation and Super Heterodyne Receivers, Problem of Image Frequency
- Lecture 50 - Frequency Division Multiplexing (FDM), Carrier Spacing in FDM
- Lecture 51 - Time Division Multiplexing (TDM), Operation of TDM, Sample Spacing in TDM
- Lecture 52 - Bandwidth Requirements for Time Division Multiplexing (TDM), The T1 TDM System

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:An Introduction to Coding Theory

Subject Co-ordinator - Dr. Adrish Banerjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Error Control Coding - I  
Lecture 2 - Introduction to Error Control Coding - II  
Lecture 3 - Introduction to Error Control Coding - III  
Lecture 4 - Introduction to Linear Block Codes, Generator Matrix and Parity Check Matrix  
Lecture 5 - Syndrome, Error Correction and Error Detection  
Lecture 6 - Problem Solving Session - I  
Lecture 7 - Decoding of Linear Block Codes  
Lecture 8 - Distance Properties of Linear Block Codes - I  
Lecture 9 - Distance Properties of Linear Block Codes - II  
Lecture 10 - Problem Solving Session - II  
Lecture 11 - Some Simple Linear Block Codes - I  
Lecture 12 - Some Simple Linear Block Codes - II  
Lecture 13 - Bounds on the Size of a Code  
Lecture 14 - Problem Solving Session - III  
Lecture 15 - Introduction to Convolutional Codes - I  
Lecture 16 - Introduction to Convolutional Codes - II  
Lecture 17 - Convolutional Codes  
Lecture 18 - Convolutional Codes  
Lecture 19 - Decoding of Convolutional Codes - I  
Lecture 20 - Decoding of Convolutional Codes - II  
Lecture 21 - Problem solving session - IV  
Lecture 22 - Problem solving session - V  
Lecture 23 - Performance Bounds for Convolutional Codes  
Lecture 24 - Low Density Parity Check Codes  
Lecture 25 - Decoding of Low Density Parity Check Codes - I  
Lecture 26 - Decoding of Low Density Parity Check Codes - II  
Lecture 27 - Turbo Codes  
Lecture 28 - Turbo Decoding  
Lecture 29 - Problem Solving Sessions - VI

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Distance Properties of Turbo Codes
- Lecture 31 - Convergence of Turbo Codes
- Lecture 32 - Automatic Repeat reQuest (ARQ) Schemes
- Lecture 33 - Applications of Linear Codes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Principles of Communication Systems - Part II

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Digital Communication Systems
- Lecture 2 - Spectrum of Transmitted Digital Communication Signal and Wide Sense Stationarity
- Lecture 3 - Spectrum of Transmitted Digital Communication Signal, Autocorrelation Function and Power Spectral Density
- Lecture 4 - Spectrum of Transmitted Digital Communication Signal, Relation to Energy Spectral Density and Intensity
- Lecture 5 - Additive White Gaussian Noise (AWGN) Properties, Gaussian Noise and White Noise
- Lecture 6 - Structure of Digital Communication Receiver, Receiver Filter and Signal-to-Noise Power Ratio (SNR)
- Lecture 7 - Digital Communication Receiver, Noise Properties and Output Noise Power
- Lecture 8 - Digital Communication Receiver, Optimal SNR and Matched Filter
- Lecture 9 - Probability of Error in Digital Communication and Probability Density Functions of Output
- Lecture 10 - Probability of Error in Digital Communication, Optimal Decision Rule and Gaussian Q function
- Lecture 11 - Introduction to Binary Phase Shift Keying (BPSK) Modulation, Optimal Decision Rule and Probability of Error
- Lecture 12 - Introduction to Amplitude Shift Keying (ASK) Modulation
- Lecture 13 - Optimal Decision Rule for Amplitude Shift Keying (ASK), Bit Error Rate (BER) and Comparison with BPSK
- Lecture 14 - Introduction to Signal Space Concept and Orthonormal Basis Signals
- Lecture 15 - Introduction to Frequency Shift Keying (FSK)
- Lecture 16 - Optimal Decision Rule for FSK, Bit Error Rate (BER) and Comparison with BPSK, ASK
- Lecture 17 - Introduction to Quadrature Phase Shift Keying (QPSK)
- Lecture 18 - Waveforms of Quadrature Phase Shift Keying (QPSK)
- Lecture 19 - Matched Filtering, Bit Error Rate and Symbol Error Rate for Quadrature Phase Shift Keying (QPSK)
- Lecture 20 - Introduction to M-ary PAM (Pulse Amplitude Modulation), Average Symbol Power and Decision rules
- Lecture 21 - M-ary PAM (Pulse Amplitude Modulation) -Part-II, Optimal Decision Rule and Probability of Error
- Lecture 22 - M-ary QAM (Quadrature Amplitude Modulation) Part-I, Introduction, Transmitted Waveform and Average Symbol Power
- Lecture 23 - M-ary QAM (Quadrature Amplitude Modulation) - Part-II, Optimal Decision Rule, Probability of Error
- Lecture 24 - M-ary PSK (Phase Shift Keying) Part-I, Introduction , Transmitted Waveform and Constellation Diagram
- Lecture 25 - M-ary PSK (Phase Shift Keying) - Part-II, Optimal Decision Rule, Nearest Neighbor Criterion and Probability of Error
- Lecture 26 - Introduction to Information Theory, Relevance of Information Theory and Characterization of Information
- Lecture 27 - Definition of Entropy, Average of Information / Uncertainty of source and Properties of Entropy
- Lecture 28 - Entropy Example- Binary Source Maximum and Minimum Entropy of Binary Source
- Lecture 29 - Maximum Entropy of Source with M-ary Alphabet, Concave/Convex Functions and Jensens Inequality

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Joint Entropy , Definition of Joint Entropy of Two Sources and Simple Examples for Joint Entropy
- Lecture 31 - Properties of Joint Entropy and Relation between Joint Entropy and Marginal Entropies
- Lecture 32 - Conditional Entropy, Example of Conditional Entropy and Properties of Conditional Entropy
- Lecture 33 - Mutual Information, Diagrammatic Representation and Properties of Mutual Information
- Lecture 34 - Simple Example of Mutual Information and Practical Example of Mutual Information-Binary Symmetric
- Lecture 35 - Channel Capacity, Implications of Channel Capacity, Claude E. Shannon- Father of Information Theory
- Lecture 36 - Differential Entropy and Example for Uniform Probability Density function
- Lecture 37 - Differential Entropy of Gaussian Source and Insights
- Lecture 38 - Joint Conditional/ Differential Entropies and Mutual Information
- Lecture 39 - Capacity of Gaussian channel - Part I
- Lecture 40 - Capacity of Gaussian Channel - Part-II, Practical Implications and Maximum rate in bits/sec
- Lecture 41 - Introduction to Source Coding and Data Compression, Variable Length codes and Unique Decodability
- Lecture 42 - Uniquely Decodable Codes, Prefix-free code, Instantaneous Code and Average Code length
- Lecture 43 - Binary Tree Representation of Code, Example and Kraft Inequality
- Lecture 44 - Lower Bound on Average Code Length and Kullback-Leibler Divergence
- Lecture 45 - Optimal Code length, Constrained Optimization and Morse Code Example
- Lecture 46 - Approaching Lower Bound on Average code length and Block Coding
- Lecture 47 - Huffman Code, Algorithm, Example and Average Code Length
- Lecture 48 - Introduction to channel coding, Rate of Code, Repetition Code and Hamming Distance
- Lecture 49 - Introduction to Convolutional Codes, Binary Field Arithmetic and Linear Codes
- Lecture 50 - Example of Convolutional Code Output and Convolution Operation for Code generation
- Lecture 51 - Matrix Representation of Convolutional Codes, Generator Matrix, Transform Domain Representation
- Lecture 52 - State Diagram Representation of Convolutional Code, State transitions and Example of Code Generation
- Lecture 53 - Trellis Representation of Convolutional Code and Valid Code Words
- Lecture 54 - Decoding of the Convolutional Code, Minimum Hamming distance and Maximum Likelihood Codeword Estimation
- Lecture 55 - Principle of Decoding of Convolutional code
- Lecture 56 - Viterbi Decoder for Maximum Likelihood Decoding of Convolutional Code Using Trellis Representation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Applied Engineering Electromagnetics

Subject Co-ordinator - Dr. Pradeep Kumar K

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Applied Electromagnetics
- Lecture 2 - Introduction to Transmission lines
- Lecture 3 - Sinusoidal waves on Transmission lines
- Lecture 4 - Terminating T-lines
- Lecture 5 - Circuit parameters of a T-line
- Lecture 6 - Lossy Transmission lines and primary constants
- Lecture 7 - When to apply T-line Theory?
- Lecture 8 - Standing Waves on T-lines
- Lecture 9 - Lumped equivalent circuits of T-lines
- Lecture 10 - Impedance transformation and power flow on T-lines
- Lecture 11 - Graphical aid
- Lecture 12 - Smith chart applications
- Lecture 13 - Further applications of Smith chart - Part 1
- Lecture 14 - Further applications of Smith chart - Part 2
- Lecture 15 - Impedance matching techniques - Part 1
- Lecture 16 - Impedance matching techniques - Part 2
- Lecture 17 - Impedance matching techniques - Part 3
- Lecture 18 - T-lines in time domain
- Lecture 19 - Further examples of use of lattice diagrams
- Lecture 20 - High-speed digital signal propagation on T-lines
- Lecture 21 - Transient analysis with reactive termination and Time-domain reflectometry
- Lecture 22 - Fault detection using TDR
- Lecture 23 - Why Electromagnetics?
- Lecture 24 - Rectangular coordinate systems
- Lecture 25 - Cylindrical coordinate systems
- Lecture 26 - Review of vector fields and Gradient
- Lecture 27 - Divergence, Curl, and Laplacian operations
- Lecture 28 - Towards Maxwells equations - Part 1
- Lecture 29 - Towards Maxwells equations - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Faradays law
- Lecture 31 - Completing Maxwells equations and Boundary conditions
- Lecture 32 - Boundary conditions for Electromagnetic fields
- Lecture 33 - Electrostatics-I
- Lecture 34 - Electrostatics-II
- Lecture 35 - Electrostatics-III
- Lecture 36 - Electrostatics-IV
- Lecture 37 - Magnetostatic fields-I
- Lecture 38 - Magnetostatic fields-II
- Lecture 39 - Inductance calculations
- Lecture 40 - From Maxwells equations to uniform plane waves
- Lecture 41 - Plane wave propagation in lossless dielectric media
- Lecture 42 - Polarization of plane waves
- Lecture 43 - Can an Ideal capacitor exist?
- Lecture 44 - Skin effect in conductors
- Lecture 45 - Skin effect in round wires
- Lecture 46 - Finite difference method
- Lecture 47 - Reflection of uniform plane waves
- Lecture 48 - Application
- Lecture 49 - Oblique incidence of plane waves
- Lecture 50 - Total internal reflection
- Lecture 51 - Application
- Lecture 52 - Application
- Lecture 53 - Introduction to waveguides
- Lecture 54 - Rectangular waveguides
- Lecture 55 - Attenuation and Dispersion in rectangular waveguides
- Lecture 56 - Planar optical waveguides
- Lecture 57 - Application
- Lecture 58 - Application
- Lecture 59 - Mach-Zehnder Modulator
- Lecture 60 - Wave Propagation in Anisotropic Medium
- Lecture 61 - Wave Propagation in Ferrites
- Lecture 62 - Magnetic Vector Potential - Part 1
- Lecture 63 - Magnetic Vector Potential - Part 2
- Lecture 64 - Fields of a Dipole Antenna
- Lecture 65 - Antenna Parameters and Long wire Antenna
- Lecture 66 - Friis Transmission Formula

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Principles of Signals and Systems

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Principles of Signals and Systems- Introduction to Signals and Systems, Signal Classification - C
- Lecture 2 - Analog and Digital Signals
- Lecture 3 - Energy and Power Signals
- Lecture 4 - Real Exponential Signals
- Lecture 5 - Memory/Memory-less and Causal/Non-Causal Systems
- Lecture 6 - Properties of Linear Systems
- Lecture 7 - Example Problems - 1
- Lecture 8 - Example Problems - 2
- Lecture 9 - Example Problems - 3
- Lecture 10 - Properties and Analysis of LTI Systems - I
- Lecture 11 - Properties and Analysis of LTI Systems - II
- Lecture 12 - Properties and Analysis of LTI Systems - III
- Lecture 13 - Properties of Discrete Time LTI Systems
- Lecture 14 - Example Problems LTI Systems - I
- Lecture 15 - Example Problems LTI Systems - II
- Lecture 16 - Example Problems DT-LTI Systems
- Lecture 17 - Laplace Transform
- Lecture 18 - Laplace Transform Properties - I
- Lecture 19 - Laplace Transform Properties - II
- Lecture 20 - Laplace Transform of LTI Systems
- Lecture 21 - Laplace Transform Example Problems - I
- Lecture 22 - Laplace Transform Example Problems - II
- Lecture 23 - Laplace Transform of RL, RC Circuit
- Lecture 24 - Z-Transform
- Lecture 25 - Z-Transform Properties - I
- Lecture 26 - Z-Transform Properties - II
- Lecture 27 - Z-Transform of LTI Systems
- Lecture 28 - Z-Transform Examples - I
- Lecture 29 - Z-Transform Examples - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Z-Transform Examples - III
- Lecture 31 - Z-Transform Examples - IV
- Lecture 32 - Inverse Z-Transform
- Lecture 33 - Fourier Analysis Introduction
- Lecture 34 - Complex Exponential and Trigonometric FS
- Lecture 35 - Conditions for Existence of FS
- Lecture 36 - Fourier Transform (FT) Introduction
- Lecture 37 - Properties of Fourier Transform - I
- Lecture 38 - Properties of Fourier Transform - II
- Lecture 39 - Fourier Transform - Parseval's Relation
- Lecture 40 - Fourier Transform of LTI Systems
- Lecture 41 - FT- Ideal and Non-Ideal Filters
- Lecture 42 - Fourier Analysis Examples - I
- Lecture 43 - Fourier Analysis Examples - II
- Lecture 44 - Fourier Analysis Examples - III
- Lecture 45 - Fourier Analysis Examples - IV
- Lecture 46 - Fourier Analysis Examples - V
- Lecture 47 - Fourier Analysis Examples - VI
- Lecture 48 - Fourier Analysis Bode Plot - I
- Lecture 49 - Fourier Analysis Bode Plot - II
- Lecture 50 - Fourier Transform Examples
- Lecture 51 - Fourier Transform Problems
- Lecture 52 - Sampling
- Lecture 53 - Sampling
- Lecture 54 - Fourier Analysis of Discrete Time Signals and Systems - Introduction
- Lecture 55 - Fourier Analysis of Discrete Time Signals - Duality, Parseval's Theorem
- Lecture 56 - Discrete Time Fourier Transform
- Lecture 57 - Discrete Time Fourier Transform
- Lecture 58 - Discrete Time Fourier Transform
- Lecture 59 - DTFT
- Lecture 60 - Discrete Fourier Transform - Definition, Inverse DFT, Relation between DFT and DFS, Relation bet
- Lecture 61 - Discrete Fourier Transform
- Lecture 62 - Example Problems
- Lecture 63 - Example Problems
- Lecture 64 - DTFT Example Problems - III
- Lecture 65 - DTFT Example Problems - IV
- Lecture 66 - DTFT Example Problems - V
- Lecture 67 - DFT Example Problems - I
- Lecture 68 - Example Problems

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- Lecture 69 - Group/Phase Delay - Part I
- Lecture 70 - Group/Phase Delay - Part II
- Lecture 71 - IIR Filter Structures
- Lecture 72 - IIR Filter Structures
- Lecture 73 - IIR Filter Structures
- Lecture 74 - IIR Filter Structures
- Lecture 75 - IIR Filter



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Applied Optimization for Wireless, Machine Learning, Big Data

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Vectors and Matrices - Linear Independence and Rank
- Lecture 2 - Eigenvectors and Eigenvalues of Matrices and their Properties
- Lecture 3 - Positive Semidefinite (PSD) and Positive Definite (PD) Matrices and their Properties
- Lecture 4 - Inner Product Space and its Properties
- Lecture 5 - Inner Product Space and its Properties
- Lecture 6 - Properties of Norm, Gaussian Elimination and Echelon form of matrix
- Lecture 7 - Gram Schmidt Orthogonalization Procedure
- Lecture 8 - Null Space and Trace of Matrices
- Lecture 9 - Eigenvalue Decomposition of Hermitian Matrices and Properties
- Lecture 10 - Matrix Inversion Lemma (Woodbury identity)
- Lecture 11 - Introduction to Convex Sets and Properties
- Lecture 12 - Affine Set Examples and Application
- Lecture 13 - Norm Ball and its Practical Applications
- Lecture 14 - Ellipsoid and its Practical Applications
- Lecture 15 - Norm Cone, Polyhedron and its Applications
- Lecture 16 - Applications
- Lecture 17 - Positive Semi Definite Cone And Positive Semi Definite (PSD) Matrices
- Lecture 18 - Introduction to Affine functions and examples
- Lecture 19 - norm balls and Matrix properties
- Lecture 20 - Inverse of a Positive Definite Matrix
- Lecture 21 - Example Problems
- Lecture 22 - Problems on Convex Sets (Continued...)
- Lecture 23 - Introduction to Convex and Concave Functions
- Lecture 24 - Properties of Convex Functions with examples
- Lecture 25 - Test for Convexity
- Lecture 26 - Application
- Lecture 27 - Jensen's Inequality and Practical Application
- Lecture 28 - Jensen's Inequality application
- Lecture 29 - Properties of Convex Functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Conjugate Function and Examples to prove Convexity of various Functions
- Lecture 31 - Examples on Operations Preserving Convexity
- Lecture 32 - Examples on Test for Convexity, Quasi-Convexity
- Lecture 33 - Examples on Convex Functions
- Lecture 34 - Practical Application
- Lecture 35 - Practical Application
- Lecture 36 - Practical Application
- Lecture 37 - Practical Application
- Lecture 38 - Practical Application
- Lecture 39 - Practical Application
- Lecture 40 - Practical Application
- Lecture 41 - Linear modeling and Approximation Problems
- Lecture 42 - Geometric Intuition for Least Squares
- Lecture 43 - Practical Application
- Lecture 44 - Practical Application
- Lecture 45 - Least Norm Signal Estimation
- Lecture 46 - Regularization
- Lecture 47 - Convex Optimization Problem representation
- Lecture 48 - Linear Program Practical Application
- Lecture 49 - Stochastic Linear Program, Gaussian Uncertainty
- Lecture 50 - Practical Application
- Lecture 51 - Practical Application
- Lecture 52 - Practical Application
- Lecture 53 - Practical Application
- Lecture 54 - Practical Application
- Lecture 55 - Practical Application
- Lecture 56 - Practical Application
- Lecture 57 - Practical Application- Orthogonal Matching Pursuit (OMP) algorithm for Compressive Sensing
- Lecture 58 - Example Problem
- Lecture 59 - Practical Application
- Lecture 60 - Practical Application of Machine Learning and Artificial Intelligence
- Lecture 61 - Practical Application
- Lecture 62 - Practical Application
- Lecture 63 - Concept of Duality
- Lecture 64 - Relation between optimal value of Primal and Dual Problems, concepts of Duality gap and Strong D
- Lecture 65 - Example problem on Strong Duality
- Lecture 66 - Karush-Kuhn-Tucker (KKT) conditions
- Lecture 67 - Application of KKT condition
- Lecture 68 - Optimal MIMO Power allocation (Waterfilling)-II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Example problem on Optimal MIMO Power allocation (Waterfilling)
- Lecture 70 - Linear objective with box constraints, Linear Programming
- Lecture 71 - Example Problems II
- Lecture 72 - Examples on Quadratic Optimization
- Lecture 73 - Examples on Duality
- Lecture 74 - Examples on Duality
- Lecture 75 - Semi Definite Program (SDP) and its application
- Lecture 76 - Application
- Lecture 77 - Introduction to big Data
- Lecture 78 - Matrix Completion Problem in Big Data
- Lecture 79 - Matrix Completion Problem in Big Data

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fiber-Optic Communication Systems and Techniques

Subject Co-ordinator - Dr. Pradeep Kumar K

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of fiber-optic communication systems
- Lecture 2 - Review of Maxwell's equations
- Lecture 3 - Uniform plane waves (UWPs) in free-space
- Lecture 4 - Properties of UWPs (propagation constant, polarization, and Poynting vector)
- Lecture 5 - Boundary conditions and reflection from a PEC
- Lecture 6 - Obliquely incident waves-I (TE and TM waves, Snell's laws)
- Lecture 7 - Obliquely incident waves-II (Reflection and transmission coefficients, Brewster angle)
- Lecture 8 - Total internal reflection
- Lecture 9 - Ray theory of dielectric slab waveguides
- Lecture 10 - Transverse resonance condition for slab waveguides
- Lecture 11 - Introduction to optical fibers
- Lecture 12 - Ray theory of light propagation in optical fibers
- Lecture 13 - Concept of waveguide modes
- Lecture 14 - Systematic procedure to obtain modes of a waveguide
- Lecture 15 - Systematic analysis of parallel plate metallic waveguide
- Lecture 16 - Systematic analysis of dielectric slab waveguides
- Lecture 17 - Further discussion on slab waveguides
- Lecture 18 - Modal analysis of step index optical fiber
- Lecture 19 - Properties of modes of step-index optical fiber - I
- Lecture 20 - Properties of modes of step-index optical fiber - II
- Lecture 21 - Linearly polarized modes
- Lecture 22 - Attenuation and power loss in fibers
- Lecture 23 - Introduction to dispersion in fibers
- Lecture 24 - Mathematical modelling of dispersion
- Lecture 25 - Pulse propagation equation and its solution
- Lecture 26 - Pre-chirped pulses and Inter and Intra-modal dispersion in optical fibers
- Lecture 27 - Beam Propagation Method
- Lecture 28 - Polarization Effects on Pulse Propagation
- Lecture 29 - Modes in Optical Fibres and Pulse Propagation in Optical Fibres

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Graded Index Fibers
- Lecture 31 - Light Sources, Detectors and Amplifiers
- Lecture 32 - Basics of Lasers-I (Structure of Lasers, Process of Photon Emission)
- Lecture 33 - Basics of Lasers-II (Einstein's Theory of Radiation)
- Lecture 34 - Basics of Lasers-III (Population Inversion and Rate Equation for Lasers)
- Lecture 35 - Basic Properties of Semiconductor Laser-I (Energy Gap, Intrinsic and Extrinsic Semiconductors)
- Lecture 36 - Basic Properties of Semiconductor Laser-II (Fermi Level)
- Lecture 37 - Optical Properties of Semiconductors-I (Direct Bandgap and Indirect Bandgap, Density of States)
- Lecture 38 - Optical Properties of Semiconductors-II (Gain, Absorption, Recombination rate) Homojunction Laser
- Lecture 39 - Double Heterostructure Lasers, Introduction to Quantum Well Lasers
- Lecture 40 - Semiconductor Optical Amplifier
- Lecture 41 - Erbium-doped fiber amplifier
- Lecture 42 - Photodetectors
- Lecture 43 - Noise in Photodetectors
- Lecture 44 - Introduction to WDM components
- Lecture 45 - Couplers, Circulators, FRM and Filters
- Lecture 46 - Filter, MUX/DEMUX, Diffraction grating (FBG and Long period grating)
- Lecture 47 - Optical Modulators-I (Current modulation)
- Lecture 48 - Optical Modulators-II (Electro-optic modulators)
- Lecture 49 - Review of Communication Concepts-I (Deterministic and Random Signals, Baseband and Passband Signals)
- Lecture 50 - Review of Communication Concepts-II (Signal and vectors, Signal energy, Orthonormal basis functions)
- Lecture 51 - Intensity modulation/ Direct Detection
- Lecture 52 - BER discussion for OOK systems
- Lecture 53 - Higher order modulation and Coherent Receiver
- Lecture 54 - Coherent receiver for BPSK systems and BER calculation
- Lecture 55 - Recovering Polarization
- Lecture 56 - DSP algorithms for Chromatic dispersion mitigation
- Lecture 57 - DSP algorithms for Carrier phase estimation - I
- Lecture 58 - DSP algorithms for Carrier phase estimation - II
- Lecture 59 - Nonlinear effects in fiber
- Lecture 60 - Four wave mixing, Loss measurement, Dispersion measurement
- Lecture 61 - Lab Demonstration (Laser diode characteristics, Loss measurement, Optical Intensity Modulation)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electromagnetic Waves in Guided and Wireless Media

Subject Co-ordinator - Dr. Pradeep Kumar K

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Types of Transmission Lines
- Lecture 2 - Distributed Circuit Model of Uniform Transmission Line
- Lecture 3 - Voltage and Current Equation of the Transmission line
- Lecture 4 - Sinusoidal Excitation of Transmission Line (Propagation constant, Characteristic Impedance)
- Lecture 5 - Properties of Transmission Line (Reflection Coefficient, Input Impedance, Standing Wave Ratio)
- Lecture 6 - Power Calculations and Introduction to Smith Chart
- Lecture 7 - Smith Chart
- Lecture 8 - Additional Applications of Smith Chart
- Lecture 9 - Time domain Analysis of Transmission Line - I
- Lecture 10 - Time domain Analysis of Transmission Line - II
- Lecture 11 - Usage of Lattice Diagrams
- Lecture 12 - TDR analysis of Transmission Lines
- Lecture 13 - Introduction to Propagation of Electromagnetic Waves
- Lecture 14 - Uniform Plane Waves - I
- Lecture 15 - Uniform Plane Waves - II
- Lecture 16 - Poynting Vector, Average Power, Polarization
- Lecture 17 - Uniform Plane Waves in Lossy Medium
- Lecture 18 - Normal Incidence of Plane Waves
- Lecture 19 - Oblique Incidence of Plane Waves - I
- Lecture 20 - Oblique Incidence of Plane Waves - II
- Lecture 21 - Total Internal Reflection
- Lecture 22 - Slab Waveguides
- Lecture 23 - Optical Fibers
- Lecture 24 - Parallel Plate Waveguides
- Lecture 25 - Rectangular Waveguides
- Lecture 26 - Modes of Rectangular Waveguides
- Lecture 27 - Waveguides summary and Introduction to Radiation
- Lecture 28 - Solution to Electric Scalar Potential and Magnetic Vector Potential Equations
- Lecture 29 - Further discussion on Magnetic Vector Potential and Elementary Hertzian Dipole

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Near field and Far-field Antenna and Properties of Antennas
- Lecture 31 - Linear antenna - I
- Lecture 32 - Linear antenna - II and Properties of Transmitting and Receiving Antenna
- Lecture 33 - Friis Transmission Formula
- Lecture 34 - Antenna Array
- Lecture 35 - Wireless Channel
- Lecture 36 - Further discussion on Wireless Channel Modelling
- Lecture 37 - Diffraction - I
- Lecture 38 - Diffraction - II
- Lecture 39 - Distribution of Laser Beam
- Lecture 40 - Interference (Double slit experiment, Fabry Perot Interferometer)
- Lecture 41 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Basic Electric Circuits

Subject Co-ordinator - Prof. Ankush Sharma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Concepts
- Lecture 2 - Sinusoids and Phasors
- Lecture 3 - Circuit Elements - Part 1
- Lecture 4 - Circuit Elements - Part 2
- Lecture 5 - AC Power Analysis
- Lecture 6 - RMS Voltage and Current
- Lecture 7 - Topology
- Lecture 8 - Star-Delta Transformation and Mesh Analysis
- Lecture 9 - Mesh Analysis.
- Lecture 10 - Nodal Analysis
- Lecture 11 - Linearity Property and Superposition Theorem
- Lecture 12 - Source Transformation
- Lecture 13 - Duality
- Lecture 14 - Thevenin's Theorem - 1
- Lecture 15 - Thevenin's Theorem - 2
- Lecture 16 - Norton's Theorem - 1
- Lecture 17 - Norton's Theorem - 2
- Lecture 18 - Maximum Power Transfer Theorem - 1
- Lecture 19 - Maximum Power Transfer Theorem - 2
- Lecture 20 - Reciprocity and Compensation Theorem
- Lecture 21 - First Order RC Circuits
- Lecture 22 - First Order RL Circuits
- Lecture 23 - Singularity Functions
- Lecture 24 - Step Response of RC and RL Circuits
- Lecture 25 - Second Order Response
- Lecture 26 - Step Response of Second Order Circuits-First Order and Second Order Circuits (Continued...)
- Lecture 27 - Step Response of Parallel RLC Circuit-First Order and Second Order Circuits (Continued...)
- Lecture 28 - Definition of the Laplace Transform
- Lecture 29 - Properties of the Laplace Transform

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Inverse Laplace Transform
- Lecture 31 - Laplace Transform of Circuit Elements
- Lecture 32 - Transfer Function
- Lecture 33 - Convolution Integral
- Lecture 34 - Graphical Approach of Convolution Integral
- Lecture 35 - Network Stability and Network Synthesis
- Lecture 36 - Impedance Parameters
- Lecture 37 - Admittance Parameters
- Lecture 38 - Hybrid Parameters
- Lecture 39 - Transmission Parameters
- Lecture 40 - Interconnection of Networks
- Lecture 41 - Nodal and Mesh Analysis
- Lecture 42 - Superposition Theorem and Source Transformation
- Lecture 43 - Thevenin's, Norton's and, Maximum Power Transfer Theorem
- Lecture 44 - Magnetically Coupled Circuits
- Lecture 45 - Energy in Coupled Circuits and Ideal Transformer
- Lecture 46 - Ideal Transformer and Introduction to Three-Phase Circuits
- Lecture 47 - Balanced Three-Phase Connections
- Lecture 48 - Balanced Wye-Delta and Delta-Delta Connections
- Lecture 49 - Balanced Delta-Wye Connection and Power in Balanced Three-Phase System
- Lecture 50 - Unbalanced Three-Phase System and Three-Phase Power Measurement
- Lecture 51 - Introduction to Graphical Models
- Lecture 52 - State Equations
- Lecture 53 - State Diagram
- Lecture 54 - State Transition Matrix
- Lecture 55 - State Variable Method to Circuit Analysis
- Lecture 56 - Characteristic Equation, Eigenvalues, and Eigenvectors-State Variable Analysis (Continued...)
- Lecture 57 - Modeling of Mechanical Systems
- Lecture 58 - Modeling of The Rotational Motion of Mechanical Systems
- Lecture 59 - Modeling of Electrical Systems
- Lecture 60 - Solving Analogous Systems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Electric Drives

Subject Co-ordinator - Prof. Shyama Prasad Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Electric Drives

Lecture 2 - Dynamics of Electric Drives, Four Quadrant Operation, Equivalent Drive Parameters

Lecture 3 - Equivalent Drive Parameters, Friction Components, Nature of Load Torque

Lecture 4 - Steady State Stability, Load Equalization

Lecture 5 - Load Equalization, Characteristics of DC Motor

Lecture 6 - Speed Torque Characteristics of Separately Excited DC Motor and Series DC Motor

Lecture 7 - Field Control of Series Motor, Motoring and Braking of Separately Excited and Series DC motors

Lecture 8 - Speed Control of Separately Excited DC Motor Using Controlled Rectifiers

Lecture 9 - Analysis of Single Phase Full Controlled Converter-fed Separately Excited DC Motor

Lecture 10 - Speed Torque Characteristics of Full Controlled Converter-fed Separately Excited DC Motor, Analy

Lecture 11 - Analysis of Single Phase Half Controlled Converter-fed Separately Excited DC Motor.

Lecture 12 - Three Phase Full Controlled Converter-fed Separately Excited DC Motor, Multi-quadrant Operation

Lecture 13 - Dual Converter-fed DC Motor, Multi-quadrant Operation Using Field Current Reversal

Lecture 14 - DC Chopper-fed Separately Excited DC Motor for Motoring and Braking

Lecture 15 - Two-quadrant DC Chopper, Four-quadrant DC Chopper

Lecture 16 - Dynamic Braking of DC Motor by Chopper Controlled Resistor, Closed-loop Operation of DC Drives,

Lecture 17 - Speed Torque Characteristics of Induction Motor, Operation of Induction Motor from Non-sinusoidal

Lecture 18 - Operation of Induction Motor from Non-sinusoidal Supply

Lecture 19 - Stator Current of Induction Motor with Non-sinusoidal Supply, Operation of Induction Motor with

Lecture 20 - Single Phasing of Induction Motor, Braking of Induction Motor

Lecture 21 - Dynamic braking of induction motor, AC dynamic braking, DC dynamic braking

Lecture 22 - Analysis of DC dynamic braking of induction motor

Lecture 23 - Self-excited dynamic braking of induction motor, Speed control of induction motor using stator v

Lecture 24 - Variable voltage variable frequency control of induction motor, Open loop V/F control

Lecture 25 - Slip speed control of induction motor, Constant Volt/Hz control with slip speed regulation

Lecture 26 - Closed-loop Volt/Hz control of induction motor with slip speed regulation, Multi-quadrant operat

Lecture 27 - Current Source Inverter (CSI) fed induction motor drive

Lecture 28 - Closed-loop operation of current source inverter (CSI) fed induction motor drive, Control of sli

Lecture 29 - Closed-loop operation of slip ring induction motor with static rotor resistance control, Slip po

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Static Kramer drive and its closed-loop control, Introduction to synchronous motor
- Lecture 31 - Various types of synchronous motors, Equivalent circuit and phasor diagram of cylindrical synchronous motor
- Lecture 32 - Phasor diagram of salient pole synchronous motor, Expression of power and torque for a salient pole synchronous motor
- Lecture 33 - Open-loop V/f control, Torque-speed characteristics, Self controlled synchronous motor drive employing V/f control
- Lecture 34 - Detailed analysis of commutation of load commutated thyristor inverter, Derivation of overlap angle
- Lecture 35 - Low cost brushless DC motor (BLDCM), Trapezoidal permanent magnet AC motor
- Lecture 36 - Trapezoidal permanent magnet AC motor, Derivation of power and torque, Closed-loop control of trapezoidal permanent magnet AC motor
- Lecture 37 - Construction and operating principle of switched reluctance motor
- Lecture 38 - Current/ voltage control for switched reluctance motor, operating modes of switched reluctance motor
- Lecture 39 - Current collector for mainline trains, Nature of traction load, Duty cycle of traction drives
- Lecture 40 - Duty cycle of traction drives, Distance between two stops, Calculation of total tractive effort

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fuzzy Sets, Logic and Systems and Applications

Subject Co-ordinator - Prof. Nishchal K Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction
- Lecture 3 - Fuzzy Sets and Fuzzy Logic Toolbox in MATLAB - I
- Lecture 4 - Fuzzy Sets and Fuzzy Logic Toolbox in MATLAB - II
- Lecture 5 - Membership Functions - I
- Lecture 6 - Membership Functions - II
- Lecture 7 - Nomenclatures used in Fuzzy Set Theory - I
- Lecture 8 - Nomenclatures used in Fuzzy Set Theory - II
- Lecture 9 - Nomenclatures used in Fuzzy Set Theory - III
- Lecture 10 - Set Theoretic Operations on Fuzzy Sets - I
- Lecture 11 - Set Theoretic Operations on Fuzzy Sets - II
- Lecture 12 - Properties of Fuzzy Sets - I
- Lecture 13 - Properties of Fuzzy Sets - II
- Lecture 14 - Properties of Fuzzy Sets - III
- Lecture 15 - Properties of Fuzzy Sets - IV
- Lecture 16 - Properties of Fuzzy Sets - V
- Lecture 17 - Distance between Fuzzy Sets - I
- Lecture 18 - Distance between Fuzzy Sets - II
- Lecture 19 - Distance between Fuzzy Sets - III
- Lecture 20 - Arithmetic Operations on Fuzzy Numbers - I
- Lecture 21 - Arithmetic Operations on Fuzzy Numbers - II
- Lecture 22 - Arithmetic Operations on Fuzzy Numbers - III
- Lecture 23 - Complement of Fuzzy Sets
- Lecture 24 - T-norm Operators
- Lecture 25 - S-norm Operators
- Lecture 26 - Parameterized T-Norm Operators
- Lecture 27 - Parameterized S-Norm Operators
- Lecture 28 - Fuzzy Relation - I
- Lecture 29 - Fuzzy Relation - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Operations on Crisp and Fuzzy Relations
- Lecture 31 - Projection of Fuzzy Relation Set
- Lecture 32 - Cylindrical Extension of Fuzzy Set
- Lecture 33 - Properties of Fuzzy Relation - I
- Lecture 34 - Properties of Fuzzy Relation - II
- Lecture 35 - Extension Principle
- Lecture 36 - Composition of Fuzzy Relations
- Lecture 37 - Properties of Composition of Fuzzy Relations
- Lecture 38 - Fuzzy Tolerance and Equivalence Relations - I
- Lecture 39 - Fuzzy Tolerance and Equivalence Relations - II
- Lecture 40 - Fuzzy Tolerance and Equivalence Relations - III
- Lecture 41 - Linguistic Hedges
- Lecture 42 - Linguistic Hedges and Negation/ Complement and Connectives
- Lecture 43 - Concentration and Dilation and Composite Linguistic Term and Some Examples
- Lecture 44 - Dilation and Composite Linguistic Term and Some Examples
- Lecture 45 - Some Examples on Composite Linguistic Terms
- Lecture 46 - Contrast Intensification of Fuzzy Sets
- Lecture 47 - Orthogonality of Fuzzy Sets
- Lecture 48 - Fuzzy Rules and Fuzzy Reasoning - I
- Lecture 49 - Fuzzy Rules and Fuzzy Reasoning - II
- Lecture 50 - Fuzzy Inference System
- Lecture 51 - Mamdani Fuzzy Model - I
- Lecture 52 - Mamdani Fuzzy Model - II
- Lecture 53 - Mamdani Fuzzy Model - III
- Lecture 54 - Example on Mamdani Fuzzy Model for Single Antecedent with Three Rules
- Lecture 55 - Example on Mamdani Fuzzy Model for Two Antecedents with Four Rules
- Lecture 56 - Larsen Fuzzy Model - I
- Lecture 57 - Larsen Fuzzy Model - II
- Lecture 58 - Larsen Fuzzy Model - III
- Lecture 59 - Tsukamoto Fuzzy Model
- Lecture 60 - TSK Fuzzy Model

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Peer to Peer Networks

Subject Co-ordinator - Prof. Yatindra N Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Peer to Peer Networks
- Lecture 2 - Peer to Peer Network in Telephony
- Lecture 3 - Building DHT Networks
- Lecture 4 - Logarithmic Partitioning of Node ID Space and Index Entry Authenticity
- Lecture 5 - Implementation of Voice over Internet Telephony in P2P Way
- Lecture 6 - Leaf Nodes, Core Nodes and Type of Messages in DHT Networks
- Lecture 7 - Static and Dynamic Partitioning of Node ID Space
- Lecture 8 - PASTRY Protocol
- Lecture 9 - Understanding the PASTRY Protocol through Example
- Lecture 10 - Kademlia
- Lecture 11 - Tapestry
- Lecture 12 - Understanding the Tapestry Protocol through Example
- Lecture 13 - Multi-dimensional Distributed Hash Table
- Lecture 14 - Multi-Layer DHT
- Lecture 15 - Keeping <Key, Value> Pairs at Correct Root Nodes
- Lecture 16 - Abrupt and Graceful Exit of Root Node
- Lecture 17 - Resilience of <Key, Value> Pairs
- Lecture 18 - A P2P Distributed File System
- Lecture 19 - Storage Space Problem and Incentives to Share Storage
- Lecture 20 - P2P Nodes Communications Challenges in Heterogeneous Network Environments
- Lecture 21 - P2P Overlaid Multicast
- Lecture 22 - P2P Overlaid Multicast
- Lecture 23 - A Design of P2P Email System
- Lecture 24 - P2P Mailing List Services
- Lecture 25 - P2P Mailing List Services
- Lecture 26 - P2P Web
- Lecture 27 - P2P Web Search Engine
- Lecture 28 - P2P Internet
- Lecture 29 - P2P in Blockchain

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- Lecture 30 - P2P Anonymous Communication
- Lecture 31 - The Anonymous Communication on the Internet through TOR Network
- Lecture 32 - An Introduction To TOR Browser
- Lecture 33 - Hidden Services on TOR Network
- Lecture 34 - MOOC Wrap-Up

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Applied Linear Algebra for Signal Processing, Data Analytics

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Vector Properties: Addition, Linear Combination, Inner Product, Orthogonality, Norm
- Lecture 2 - Vectors: Unit Norm Vector, Cauchy-Schwarz inequality, Radar Application
- Lecture 3 - Inner Product Application: Beamforming in Wireless Communication Systems
- Lecture 4 - Matrices, Definition, Addition and Multiplication of Matrices
- Lecture 5 - Matrix: Column Space, Linear Independence, Rank of Matrix, Gaussian Elimination
- Lecture 6 - Matrix: Determinant, Inverse Computation, Adjoint, Cofactor Concepts
- Lecture 7 - Applications of Matrices: Solution of System of Linear equations, MIMO Wireless Technology
- Lecture 8 - Applications of Matrices: Electric Circuits, Traffic flows
- Lecture 9 - Applications of Matrices: Graph Theory, Social Networks, Dominance Directed Graph, Influential Nodes
- Lecture 10 - Null Space of Matrix: Definition, Rank-Nullity Theorem, Application in Electric Circuits
- Lecture 11 - Gram-Schmidt Orthogonalization
- Lecture 12 - Gaussian Random Variable: Definition, Mean, Variance, Multivariate Gaussian, Covariance Matrix
- Lecture 13 - Linear Transformation of Gaussian Random Vectors
- Lecture 14 - Machine Learning Application: Gaussian Classification
- Lecture 15 - Eigenvalue: Definition, Characteristic Equation, Eigenvalue Decomposition
- Lecture 16 - Special Matrices: Rotation and Unitary Matrices, Application: Alamouti Code
- Lecture 17 - Positive Semi-definite (PSD) Matrices: Definition, Properties, Eigenvalue Decomposition
- Lecture 18 - Positive Semidefinite Matrix: Example and Illustration of Eigenvalue Decomposition
- Lecture 19 - Machine Learning Application: Principle Component Analysis (PCA)
- Lecture 20 - Computer Vision Application: Face Recognition, Eigenfaces
- Lecture 21 - Least Squares (LS) Solution, Pseudo-Inverse Concept
- Lecture 22 - Least Squares (LS) via Principle of Orthogonality, Projection Matrix, Properties
- Lecture 23 - Application: Pseudo-Inverse and MIMO Zero Forcing (ZF) Receiver
- Lecture 24 - Wireless Application: Multi-Antenna Channel Estimation
- Lecture 25 - Machine Learning Application: Linear Regression
- Lecture 26 - Computation Mathematics Application: Polynomial Fitting
- Lecture 27 - Least Norm Solution
- Lecture 28 - Wireless Application: Multi-user Beamforming
- Lecture 29 - Singular Value Decomposition (SVD): Definition, Properties, Example

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- Lecture 30 - SVD Application in MIMO Wireless Technology: Spatial-Multiplexing and High Data Rates
- Lecture 31 - SVD for MIMO wireless optimization, water-filling algorithm, optimal power allocation
- Lecture 32 - SVD application for Machine Learning: Principal component analysis (PCA)
- Lecture 33 - Multiple signal classification (MUSIC) algorithm: system model
- Lecture 34 - MUSIC algorithm for Direction of Arrival (DoA) estimation
- Lecture 35 - Linear minimum mean square error (LMMSE) principle
- Lecture 36 - LMMSE estimate and error covariance matrix
- Lecture 37 - LMMSE estimation in linear systems
- Lecture 38 - LMMSE application: Wireless channel estimation and example
- Lecture 39 - Time-series prediction via auto-regressive (AR) model
- Lecture 40 - Recommender system: design and rating prediction
- Lecture 41 - Recommender system: Illustration via movie rating prediction example
- Lecture 42 - Fast Fourier transform (FFT) and Inverse fast Fourier transform (IFFT)
- Lecture 43 - IFFT/ FFT application in Orthogonal Frequency Division Multiplexing (OFDM) wireless technology
- Lecture 44 - OFDM system: Circulant matrices and properties
- Lecture 45 - OFDM system model: Transmitter and receiver processing
- Lecture 46 - Single-carrier frequency division for multiple access (SC-FDMA) technology
- Lecture 47 - Linear dynamical systems: definition and solution via matrix exponential
- Lecture 48 - Linear dynamical systems: matrix exponential via SVD
- Lecture 49 - Machine Learning application: Support Vector Machines (SVM)
- Lecture 50 - Support Vector Machines (SVM): Problem formulation via maximum hyperplane separation
- Lecture 51 - Sparse regression: problem formulation and relation to Compressive Sensing (CS)
- Lecture 52 - Sparse regression: solution via the Orthogonal Matching Pursuit (OMP) algorithm
- Lecture 53 - OMP Example for Sparse Regression
- Lecture 54 - Machine Learning Application: Clustering
- Lecture 55 - K-Means Clustering algorithm
- Lecture 56 - Introduction to Stochastic Processes and Markov Chains
- Lecture 57 - Discrete Time Markov Chains and Transition Probability Matrix
- Lecture 58 - Discrete Time Markov Chain Examples
- Lecture 59 - m-STEP Transition Probabilities for Discrete Time Markov Chains
- Lecture 60 - Limiting Behavior of Discrete Time Markov Chains
- Lecture 61 - Least Squares Revisited: Rank Deficient Matrix
- Lecture 62 - Least Squares using SVD
- Lecture 63 - Weighted Least Squares
- Lecture 64 - Weighted Least Squares Example
- Lecture 65 - Woodbury Matrix Identity - Matrix Inversion Lemma
- Lecture 66 - Woodbury Matrix Identity - Proof
- Lecture 67 - Conditional Gaussian Density - Mean
- Lecture 68 - Conditional Gaussian Density - Covariance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Scalar Linear Model for Gaussian Estimation

Lecture 70 - MMSE Estimate and Covariance for the Scalar Linear Model

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Economic Operations and Control of Power Systems

Subject Co-ordinator - Prof. Gururaj Mirle Vishwanath, Prof. Narayana Prasad Padhy

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Digital Switching

Subject Co-ordinator - Prof. Yatindra N Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Analog VLSI Design

Subject Co-ordinator - Prof. Imon Mondal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Electrical Machines I

Subject Co-ordinator - Dr. D. Kastha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Operating Principles and Construction of Single Phase Transformers
- Lecture 3 - Modeling of Single Phase Transformers
- Lecture 4 - Equivalent Circuits of Single Phase Transformers
- Lecture 5 - Testing of Single Phase Transformers
- Lecture 6 - Efficiency of Single Phase Transformers
- Lecture 7 - Voltage Regulation of Single Phase Transformers
- Lecture 8 - Parallel Operation of Single Phase Transformers
- Lecture 9 - Harmonics and Switching Transients in Single Phase Transformers
- Lecture 10 - Introduction to Three Phase Transformer
- Lecture 11 - Construction of Three Phase Transformers
- Lecture 12 - Three Phase Transformer Connections
- Lecture 13 - Three Phase Transformer Phase Groups Part - I
- Lecture 14 - Three Phase Transformer Phase Groups Part - II
- Lecture 15 - Analysis and Testing of Three Phase Transformers
- Lecture 16 - Operation of Three Phase Transformers
- Lecture 17 - Auto Transformers
- Lecture 18 - Three Winding Transformers
- Lecture 19 - Scott Connected Transformers
- Lecture 20 - Potential and Current Transformers
- Lecture 21 - Operating Principles of DC Machines
- Lecture 22 - Constructional Features of DC Machines
- Lecture 23 - Generated EMF and Torque in DC Machines
- Lecture 24 - Armature Reaction
- Lecture 25 - Commutation in DC Machines
- Lecture 26 - Separately Excited DC Generators
- Lecture 27 - DC Shunt Generators
- Lecture 28 - Compound DC Generators
- Lecture 29 - Interconnected DC Generators

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Characteristics of DC Shunt Motors
- Lecture 31 - Starting of DC Shunt Motors
- Lecture 32 - Speed Control of DC Shunt Motors
- Lecture 33 - Braking of DC Shunt Motors
- Lecture 34 - Electronic Control of DC Shunt Motors
- Lecture 35 - Testing of DC Shunt Motors
- Lecture 36 - Characteristics of DC Series Motors
- Lecture 37 - Starting and Braking of DC Series Motors
- Lecture 38 - Speed Control and of DC Series Motors
- Lecture 39 - Testing of DC Series Motors
- Lecture 40 - Characteristics of Compound DC Series Motors

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Optimal Control

Subject Co-ordinator - Prof. G.D. Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Optimization Problem
- Lecture 2 - Introduction to Optimization Problem
- Lecture 3 - Optimality Conditions for Function of Several Variables
- Lecture 4 - Optimality Conditions for Function of Several Variables (Continued.)
- Lecture 5 - Unconstrained Optimization Problem (Numerical Techniques)
- Lecture 6 - Solution of Unconstrained Optimization Problem Using Conjugate Gradient Method and Networks Method
- Lecture 7 - Solution of Unconstrained Optimization Problem Using Conjugate Gradient Method and Networks Method
- Lecture 8 - Solution of Constraint Optimization Problem-Karush-Kuhn Tucker (KKT) Conditions
- Lecture 9 - Solution of Constraint Optimization Problem-Karush-Kuhn Tucker (KKT) Conditions (Continued.)
- Lecture 10 - Problem and Solution Session
- Lecture 11 - Post Optimality Analysis, Convex Function and its Properties
- Lecture 12 - Post Optimality Analysis, Convex Function and its Properties (Continued.)
- Lecture 13 - Quadratic Optimization Problem Using Linear Programming
- Lecture 14 - Matrix form of the Simplex Method
- Lecture 15 - Matrix form of the Simplex Method (Continued.)
- Lecture 16 - Solution of Linear Programming Using Simplex Method
- Lecture 17 - Solution of Linear Programming Using Simplex Method
- Lecture 18 - Solution of LP Problems with Two Phase Method
- Lecture 19 - Solution of LP Problems with Two Phase Method (Continued.)
- Lecture 20 - Standard Primal and Dual Problems
- Lecture 21 - Relationship Between Primal and Dual Variables
- Lecture 22 - Solution of Quadratic Programming Problem Using Simplex Method
- Lecture 23 - Interior Point Method for Solving Optimization Problems
- Lecture 24 - Interior Point Method for Solving Optimization Problems (Continued.)
- Lecture 25 - Solution of Nonlinear Programming Problem Using Exterior Penalty Function Method
- Lecture 26 - Solution of Nonlinear Programming Problem Using Exterior Penalty Function Method (Continued.)
- Lecture 27 - Solution of Nonlinear Programming Problem Using Interior Penalty Function Method
- Lecture 28 - Solution of Nonlinear Programming Problem Using Interior Penalty Function Method (Continued.)
- Lecture 29 - Multiobjective Optimization Problem

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dynamic Optimization Problem
- Lecture 31 - Dynamic Optimization Problem
- Lecture 32 - Dynamic Optimization Problem
- Lecture 33 - Numerical Example and Solution of Optimal Control Problem using Calculus of Variation principle
- Lecture 34 - Numerical Example and Solution of Optimal Control Problem using Calculus of Variation principle
- Lecture 35 - Hamiltonian Formulation for solution of optimal Control problem and numerical example
- Lecture 36 - Hamiltonian Formulation for solution of optimal Control problem and numerical example (Continued)
- Lecture 37 - Performance Indices and Linear Quadratic Regulator Problem
- Lecture 38 - Performance Indices and Linear Quadratic Regulator Problem (Continued.)
- Lecture 39 - Solution and Stability Analysis of Finite - time LQR Problem
- Lecture 40 - Solution and Infinite - time LQR Problem and Stability Analysis
- Lecture 41 - Numerical Example and Methods for Solution of A.R.E.
- Lecture 42 - Numerical Example and Methods for Solution of A.R.E. (Continued.)
- Lecture 43 - Frequency Domain Interpretation of LQR Controlled System
- Lecture 44 - Gain and Phase Margin of LQR Controlled System
- Lecture 45 - The Linear Quadratic Gaussian Problem
- Lecture 46 - Loop-Transfer Recovery
- Lecture 47 - Dynamic Programming for Discrete Time Systems
- Lecture 48 - Minimum  $\hat{a}$  Time Control of a Linear Time Invariant System
- Lecture 49 - Solution of Minimum  $\hat{a}$  Time Control Problem with an Example
- Lecture 50 - Constraint in Control Inputs and State Variables
- Lecture 51 - Constraint in Control Inputs and State Variables (Continued...)
- Lecture 52 - Norms for Vectors, Matrices, Signals and Linear Systems
- Lecture 53 - Signal and System Norms
- Lecture 54 - Internal Stability, Sensitivity and Complementary Sensitivity Functions
- Lecture 55 - Internal Stability, Sensitivity and Complementary Sensitivity Functions (Continued...)
- Lecture 56 - Plant Uncertainty and Standard form for Robust Stability Analysis
- Lecture 57 - Plant Uncertainty and Standard form for Robust Stability Analysis (Continued...)
- Lecture 58 - Frequency Response of Linear System and Singular Value Decomposition of System
- Lecture 59 - Control Problem Statement in H-  $\alpha$  Framework
- Lecture 60 - Control Problem Statement in H -  $\alpha$  Framework (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Chaos, Fractals and Dynamic Systems

Subject Co-ordinator - Prof. S. Banerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Representations of Dynamical Systems
- Lecture 2 - Vector Fields of Nonlinear Systems
- Lecture 3 - Limit Cycles
- Lecture 4 - The Lorenz Equation - I
- Lecture 5 - The Lorenz Equation - II
- Lecture 6 - The Rossler Equation and Forced Pendulum
- Lecture 7 - The Chua's Circuit
- Lecture 8 - Discrete Time Dynamical Systems
- Lecture 9 - The Logistic Map and Period doubling
- Lecture 10 - Flip and Tangent Bifurcations
- Lecture 11 - Intermittency Transcritical and pitchfork
- Lecture 12 - Two Dimensional Maps
- Lecture 13 - Bifurcations in Two Dimensional Maps
- Lecture 14 - Introduction to Fractals
- Lecture 15 - Mandelbrot Sets and Julia Sets
- Lecture 16 - The Space Where Fractals Live
- Lecture 17 - Interactive Function Systems
- Lecture 18 - IFS Algorithms
- Lecture 19 - Fractal Image Compression
- Lecture 20 - Stable and Unstable Manifolds
- Lecture 21 - Boundary Crisis and Interior Crisis
- Lecture 22 - Statistics of Chaotic Attractors
- Lecture 23 - Matrix Times Circle
- Lecture 24 - Lyapunov Exponent
- Lecture 25 - Frequency Spectra of Orbits
- Lecture 26 - Dynamics on a Torus
- Lecture 27 - Dynamics on a Torus
- Lecture 28 - Analysis of Chaotic Time Series
- Lecture 29 - Analysis of Chaotic Time Series

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lyapunou Function and Centre Manifold Theory
- Lecture 31 - Non-Smooth Bifurcations
- Lecture 32 - Non-Smooth Bifurcations
- Lecture 33 - Normal form for Piecewise Smooth 2D Maps
- Lecture 34 - Bifurcations in Piecewise Linear 2D Maps
- Lecture 35 - Bifurcations in Piecewise Linear 2D Maps
- Lecture 36 - Multiple Attractor Bifurcation and Dangerous
- Lecture 37 - Dynamics of Discontinuous Maps
- Lecture 38 - Introduction to Floquet Theory
- Lecture 39 - The Monodromy Matrix and the Saltation Matrix
- Lecture 40 - Control of Chaos

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Digital Signal Processing

Subject Co-ordinator - Prof. T.K. Basu

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Discrete Time Signal and System  
Lecture 2 - Discrete Time Signal and System (Continued...)  
Lecture 3 - Discrete Time Signal and System (Continued...)  
Lecture 4 - Frequency Domain Representation of Discrete Signals  
Lecture 5 - Z-Transform  
Lecture 6 - Z-Transform (Continued...)  
Lecture 7 - Solution of Difference Equation  
Lecture 8 - Tutorial on Discrete Time Signals & Their Transforms  
Lecture 9 - Relation Between Discrete Time and Continuous Signals  
Lecture 10 - Discrete Fourier Transform (DFT)  
Lecture 11 - Discrete Fourier Transform (DFT) (Continued...)  
Lecture 12 - Discrete Fourier Transform (DFT) (Continued...)  
Lecture 13 - State Space Representation  
Lecture 14 - Filters Introduction  
Lecture 15 - FIR Filters  
Lecture 16 - FIR Filters (Continued...) Introduction to IIR Filters  
Lecture 17 - IIR Filters (Continued...)  
Lecture 18 - IIR Filters (Continued...)  
Lecture 19 - IIR Filters (Continued...)  
Lecture 20 - Tutorial & Introduction to Computer Aided Design of Filters  
Lecture 21 - Computer Aided Design of Filters  
Lecture 22 - FFT and Computer Aided Design of Filters  
Lecture 23 - Introduction to Lattice Filter  
Lecture 24 - Lattice Filter (Continued...)  
Lecture 25 - Effects of Quantization  
Lecture 26 - Effects of Quantization (Continued...)  
Lecture 27 - Effects of Quantization (Continued...)  
Lecture 28 - Effects of Quantization (Continued...)  
Lecture 29 - Random Signals

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Relationship Between Real and Imaginary Parts of DTFT
- Lecture 31 - Relationship Between Real and Imaginary Parts of DTFT
- Lecture 32 - Relationship Between Real and Imaginary Parts of DTFT
- Lecture 33 - Multi rate Signal Processing
- Lecture 34 - Multi rate Signal Processing (Continued...)
- Lecture 35 - Polyphase Decomposition



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Dynamics of Physical Systems

Subject Co-ordinator - Prof. S. Banerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to System Elements
- Lecture 2 - Newton's Method and Constraints
- Lecture 3 - Derivation of the Lagrangian Equation
- Lecture 4 - Using the lagrangian Equation to Obtain Differential Equations (Part-I)
- Lecture 5 - Using the lagrangian Equation to Obtain Differential Equations (Part-II)
- Lecture 6 - Using the lagrangian Equation to Obtain Differential Equations (Part-III)
- Lecture 7 - Using the lagrangian Equation to Obtain Differential Equations (Part-IV)
- Lecture 8 - Obtaining First Order Equations
- Lecture 9 - Application of the Hamiltonian Method
- Lecture 10 - Obtaining Differential Equations Using Kirchoff's Laws
- Lecture 11 - The Graph Theory Approach for Electrical Circuits (Part-I)
- Lecture 12 - The Graph Theory Approach for Electrical Circuits (Part-II)
- Lecture 13 - The Bond Graph Approach - I
- Lecture 14 - The Bond Graph Approach - II
- Lecture 15 - The Bond Graph Approach - III
- Lecture 16 - The Bond Graph Approach - IV
- Lecture 17 - The Bond Graph Approach - V
- Lecture 18 - The Bond Graph Approach - VI
- Lecture 19 - The Bond Graph Approach - VII
- Lecture 20 - Numerical Solution of Differential Equations
- Lecture 21 - Dynamics in the State Space
- Lecture 22 - Vector Field Around Equilibrium Points - I
- Lecture 23 - Vector Field Around Equilibrium Points - II
- Lecture 24 - Vector Field Around Equilibrium Points - III
- Lecture 25 - Vector Field Around Equilibrium Points - IV
- Lecture 26 - High Dimensional Linear Systems
- Lecture 27 - Linear Systems with External Input - I
- Lecture 28 - Linear Systems with External Input - II
- Lecture 29 - Linear Systems with External Input - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dynamics of Nonlinear Systems - I
- Lecture 31 - Dynamics of Nonlinear Systems - II
- Lecture 32 - Dynamics of Nonlinear Systems - III
- Lecture 33 - Discrete-Time Dynamical Systems - I
- Lecture 34 - Discrete-Time Dynamical Systems - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Energy Resources and Technology

Subject Co-ordinator - Prof. S. Banerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Thermodynamics  
Lecture 2 - Quality of Energy  
Lecture 3 - Complete Cycle Analysis of Fossil Fuels  
Lecture 4 - Energy in Transportation  
Lecture 5 - Other Fossil Fuels  
Lecture 6 - Energy Economics  
Lecture 7 - Energy Economics  
Lecture 8 - Thermal Power Plants  
Lecture 9 - Thermal Power Plants  
Lecture 10 - Hydroelectric Power  
Lecture 11 - Hydroelectric Power  
Lecture 12 - Nuclear Power Generation  
Lecture 13 - Nuclear Fusion Reactors  
Lecture 14 - Environmental Effects of Conventional Power  
Lecture 15 - Solar Thermal Energy Conversion  
Lecture 16 - Solar Concentrating Collectors  
Lecture 17 - Photovoltaic Power Generation  
Lecture 18 - Photovoltaic Power Generation (Continued.)  
Lecture 19 - Photovoltaic Power Generation (Continued.)  
Lecture 20 - Photovoltaic Power Generation (Continued.)  
Lecture 21 - Wind Energy - I  
Lecture 22 - Wind Energy - II  
Lecture 23 - Wind Energy - III  
Lecture 24 - Wind Energy - IV  
Lecture 25 - Wind Energy - V  
Lecture 26 - Wind Energy - VI  
Lecture 27 - Wind Electrical Conversion - I  
Lecture 28 - Wind Electrical Conversion - II  
Lecture 29 - Wind Electrical Conversion - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tidal Energy
- Lecture 31 - Tidal Energy
- Lecture 32 - Tidal Energy
- Lecture 33 - Ocean Thermal Energy Conversion
- Lecture 34 - Solar Pond and Wave Power
- Lecture 35 - Geothermal Energy
- Lecture 36 - Solar Distillation and Biomass Energy
- Lecture 37 - Energy Storage
- Lecture 38 - Magneto hydrodynamic Power Generation
- Lecture 39 - Magneto hydrodynamic Power Generation
- Lecture 40 - Hydrogen Economy

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Estimation of Signals and Systems

Subject Co-ordinator - Prof. S. Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Probability Theory
- Lecture 3 - Random Variables
- Lecture 4 - Function of Random Variable Joint Density
- Lecture 5 - Mean and Variance
- Lecture 6 - Random Vectors Random Processes
- Lecture 7 - Random Processes and Linear Systems
- Lecture 8 - Some Numerical Problems
- Lecture 9 - Miscellaneous Topics on Random Process
- Lecture 10 - Linear Signal Models
- Lecture 11 - Linear Mean Sq. Error Estimation
- Lecture 12 - Auto Correlation and Power Spectrum Estimation
- Lecture 13 - Z-Transform Revisited Eigen Vectors/Values
- Lecture 14 - The Concept of Innovation
- Lecture 15 - Least Squares Estimation Optimal IIR Filters
- Lecture 16 - Introduction to Adaptive Filters
- Lecture 17 - State Estimation
- Lecture 18 - Kalman Filter-Model and Derivation
- Lecture 19 - Kalman Filter-Derivation (Continued...)
- Lecture 20 - Estimator Properties
- Lecture 21 - The Time-Invariant Kalman Filter
- Lecture 22 - Kalman Filter-Case Study
- Lecture 23 - System identification Introductory Concepts
- Lecture 24 - Linear Regression-Recursive Least Squares
- Lecture 25 - Variants of LSE
- Lecture 26 - Least Square Estimation
- Lecture 27 - Model Order Selection Residual Tests
- Lecture 28 - Practical Issues in Identification
- Lecture 29 - Estimation Problems in Instrumentation and Control

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Illumination Engineering

Subject Co-ordinator - Prof. N.K. Kishore

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Illumination Engineering
- Lecture 2 - Instructional Objectives
- Lecture 3 - Eye and Vision - I
- Lecture 4 - Eye and Vision - II
- Lecture 5 - Laws of Illumination
- Lecture 6 - Photometry
- Lecture 7 - Incandescent Lamps
- Lecture 8 - Discharge Lamps - I
- Lecture 9 - Discharge Lamps - II
- Lecture 10 - Discharge Lamps - III
- Lecture 11 - Illumination Systems - I
- Lecture 12 - Illumination Systems - II
- Lecture 13 - Glare
- Lecture 14 - Color
- Lecture 15 - Interior Lighting
- Lecture 16 - Sports Lighting
- Lecture 17 - Road Lighting
- Lecture 18 - Lighting Calculations
- Lecture 19 - Lighting Applications
- Lecture 20 - Conclusions on Illumination Engineering

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Industrial Automation and Control

Subject Co-ordinator - Prof. S. Sen, Prof. S. Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Architecture of Industrial Automation Systems
- Lecture 3 - Measurement Systems Characteristics
- Lecture 4 - Temperature Measurement
- Lecture 5 - Pressure, Force and Torque Sensors
- Lecture 6 - Motion Sensing
- Lecture 7 - Flow Measurement
- Lecture 8 - Signal Conditioning
- Lecture 9 - Signal Conditioning (Continued.)
- Lecture 10 - Data Acquisition Systems
- Lecture 11 - Introduction to Automatic Control
- Lecture 12 - P-I-D Control
- Lecture 13 - PID Control Tuning
- Lecture 14 - Feedforward Control Ratio Control
- Lecture 15 - Time Delay Systems and Inverse Response Systems
- Lecture 16 - Special Control Structures
- Lecture 17 - Concluding Lesson on Process Control
- Lecture 18 - Introduction to Sequence Control, PLC, RLL
- Lecture 19 - Sequence Control. Scan Cycle, Simple RLL Programs
- Lecture 20 - Sequence Control. More RLL Elements, RLL Syntax
- Lecture 21 - A Structured Design Approach to Sequence
- Lecture 22 - PLC Hardware Environment
- Lecture 23 - Introduction To CNC Machines
- Lecture 24 - Contour generation and Motion Control
- Lecture 25 - Flow Control Valves
- Lecture 26 - Hydraulic Control Systems - I
- Lecture 27 - Hydraulic Control Systems - II
- Lecture 28 - Industrial Hydraulic Circuit
- Lecture 29 - Pneumatic Control Systems - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pneumatic Systems - II
- Lecture 31 - Energy Savings with Variable Speed Drives
- Lecture 32 - DC Motor Drives
- Lecture 33 - DC and BLDC Servo Drives
- Lecture 34 - Induction Motor Drives
- Lecture 35 - Step Motor Drives BLDC Drives
- Lecture 36 - Embedded Systems
- Lecture 37 - The Fieldbus Network - I
- Lecture 38 - The Fieldbus Network - II
- Lecture 39 - Higher Level Automation Systems
- Lecture 40 - Course Review and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Industrial Instrumentation

Subject Co-ordinator - Prof. Alok Barua

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Industrial Instrumentation  
Lecture 2 - Dynamic Characteristics  
Lecture 3 - Dynamic Characteristics (Continued.)  
Lecture 4 - Strain gauge  
Lecture 5 - Load cell  
Lecture 6 - Torque Measurement  
Lecture 7 - Thermistor  
Lecture 8 - Thermocouples  
Lecture 9 - Resistance Temperature Detector  
Lecture 10 - LVDT  
Lecture 11 - Capacitance Transducers  
Lecture 12 - Flowmeter - I  
Lecture 13 - Flowmeter - II  
Lecture 14 - Flowmeter - III  
Lecture 15 - Flowmeter - IV  
Lecture 16 - Flowmeter - V  
Lecture 17 - Problems on Temperature Sensors  
Lecture 18 - Pressure Sensors  
Lecture 19 - Low Pressure Measurement  
Lecture 20 - pH and Viscosity Measurement  
Lecture 21 - Problem and Solutions On Industrial Instrumentation  
Lecture 22 - Signal Conditioning Circuits - I  
Lecture 23 - Signal Conditioning Circuits - II  
Lecture 24 - Piezoelectric Sensors  
Lecture 25 - Ultrasonic Sensors  
Lecture 26 - Nucleonic Instrumentation  
Lecture 27 - Measurement Of Magnetic Field  
Lecture 28 - Optoelectronic Sensor - I  
Lecture 29 - Optoelectronic Sensor - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Synchro
- Lecture 31 - Dissolved Oxygen Sensors - I
- Lecture 32 - Dissolved Oxygen Sensors - II
- Lecture 33 - Flapper - Nozzle
- Lecture 34 - Smart Sensors
- Lecture 35 - Chromatography - I
- Lecture 36 - Chromatography - II
- Lecture 37 - Pollution Measurement
- Lecture 38 - Control Valve - I
- Lecture 39 - Control Valve - II
- Lecture 40 - Signal Conditioning Integrated Circuits

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Networks Signals and Systems

Subject Co-ordinator - Prof. T.K. Basu

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Network Elements and Sources  
Lecture 2 - Introduction to Linearity and Nonlinearity  
Lecture 3 - Distributed & Lumped Parameters 2-port Networks  
Lecture 4 - Two-port Parameters Short Circuit, Open Circuit  
Lecture 5 - Tutorial  
Lecture 6 - Locus Diagram - Introduction to Signals  
Lecture 7 - Signals (Continued.) Laplace Transforms  
Lecture 8 - Laplace Transform (Continued.)  
Lecture 9 - Tutorial on Laplace Transform  
Lecture 10 - Frequency Response Bode Plot  
Lecture 11 - Bode Plot (Continued.)  
Lecture 12 - Bode Plot (Continued.) - Poles & Zeros  
Lecture 13 - Driving Point Immittance Functions - Realisability Conditions  
Lecture 14 - Two - Element Synthesis  
Lecture 15 - Two - Element Synthesis (Continued.)  
Lecture 16 - Tutorial  
Lecture 17 - Tutorial  
Lecture 18 - Graph Theory  
Lecture 19 - Graph Theory (Continued.)  
Lecture 20 - Graph Theory (Continued.)  
Lecture 21 - Graph Theory (Continued.)  
Lecture 22 - Image Impedance, Iterative Impedance  
Lecture 23 - Image Impedance, Iterative Impedance  
Lecture 24 - Characteristic Impedance and Design of Filters  
Lecture 25 - Analysis of Resistive Networks Computer Aided  
Lecture 26 - R-L-C Two-Terminal Network  
Lecture 27 - Parts of Network Functions  
Lecture 28 - Parts of Network Functions (Continued.)  
Lecture 29 - Tutorial

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial (Continued.)
- Lecture 31 - Tutorial
- Lecture 32 - Synthesis of 2-port Network
- Lecture 33 - Synthesis of 2-port Network (Continued.)
- Lecture 34 - Synthesis of 2-port Network (Continued.)
- Lecture 35 - Fourier Series
- Lecture 36 - Fourier Series (Continued.)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Power System Analysis

Subject Co-ordinator - Prof. A.K. Sinha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Power system analysis
- Lecture 2 - Introduction to Single Line Diagram
- Lecture 3 - Transmission Line Parameters
- Lecture 4 - Inductance Calculation (Three Phase)
- Lecture 5 - Transmission Line Capacitance
- Lecture 6 - Transmission Line Capacitance (Continued..)
- Lecture 7 - Transmission Line Modeling
- Lecture 8 - Transmission Line Modeling Long Line
- Lecture 9 - Transmission Line Steady State Operation
- Lecture 10 - Transmission Line Steady State Control Voltage
- Lecture 11 - Transmission System A Review
- Lecture 12 - Transformer Model
- Lecture 13 - Synchronous Machine Model
- Lecture 14 - Synchronous Machine Model
- Lecture 15 - Load Model
- Lecture 16 - Power Flow - I
- Lecture 17 - Power Flow - II
- Lecture 18 - Power Flow - III
- Lecture 19 - Power Flow - IV
- Lecture 20 - Power Flow - V
- Lecture 21 - Power Flow - VI
- Lecture 22 - Power Flow - VII
- Lecture 23 - Review of Power System Component Models
- Lecture 24 - Review of Power Flow Study
- Lecture 25 - Short Circuit Analysis
- Lecture 26 - Symmetrical Component Analysis
- Lecture 27 - Sequence Networks
- Lecture 28 - Unbalanced Fault Analysis
- Lecture 29 - Unbalanced Fault Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fault Analysis for Large power Systems
- Lecture 31 - Bus Impedance Matrix
- Lecture 32 - Asymmetrical Fault Analysis Using Z - Bus
- Lecture 33 - Power System Stability - I
- Lecture 34 - Power System Stability - II
- Lecture 35 - Power System Stability - III
- Lecture 36 - Power System Stability - IV
- Lecture 37 - Power System Stability - V
- Lecture 38 - Power System Stability - VI
- Lecture 39 - Power System Stability - VII
- Lecture 40 - Power System Stability - VIII

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Industrial Automation and Control

Subject Co-ordinator - Prof. S. Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Architecture of Industrial Automation Systems
- Lecture 4 - Architecture of Industrial Automation Systems (Continued...)
- Lecture 5 - Measurement Systems Characteristics
- Lecture 6 - Measurement Systems Characteristics (Continued...)
- Lecture 7 - Data Acquisition Systems
- Lecture 8 - Data Acquisition Systems (Continued...)
- Lecture 9 - Introduction to Automatic Control
- Lecture 10 - Introduction to Automatic Control (Continued...)
- Lecture 11 - P-I-D Control
- Lecture 12 - P-I-D Control (Continued...)
- Lecture 13 - PID Controller Tuning
- Lecture 14 - PID Controller Tuning (Continued...)
- Lecture 15 - Feedforward Control Ratio Control
- Lecture 16 - Feedforward Control Ratio Control (Continued...)
- Lecture 17 - Time Delay Systems and Inverse Response Systems
- Lecture 18 - Time Delay Systems and Inverse Response Systems (Continued...)
- Lecture 19 - Special Control Structures
- Lecture 20 - Special Control Structures (Continued...)
- Lecture 21 - Concluding Lesson on Process Control (Self-study)
- Lecture 22 - Introduction to Sequence Control, PLC, RLL
- Lecture 23 - Introduction to Sequence Control, PLC, RLL (Continued...)
- Lecture 24 - Sequence Control, Scan Cycle, Simple RLL Programs
- Lecture 25 - Sequence Control, Scan Cycle, Simple RLL Programs (Continued...)
- Lecture 26 - Sequence Control, More RLL Elements, RLL Syntax
- Lecture 27 - Sequence Control, More RLL Elements, RLL Syntax (Continued...)
- Lecture 28 - A Structured Design Approach to Sequence Control
- Lecture 29 - A Structured Design Approach to Sequence Control (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - PLC Hardware Environment
- Lecture 31 - PLC Hardware Environment (Continued...)
- Lecture 32 - Flow Control Valves
- Lecture 33 - Flow Control Valves (Continued...)
- Lecture 34 - Hydraulic Control Systems - I
- Lecture 35 - Hydraulic Control Systems - I (Continued...)
- Lecture 36 - Hydraulic Control Systems - II
- Lecture 37 - Hydraulic Control Systems - II (Continued...)
- Lecture 38 - Industrial Hydraulic Circuit
- Lecture 39 - Industrial Hydraulic Circuit (Continued...)
- Lecture 40 - Pneumatic Control Systems - I
- Lecture 41 - Pneumatic Control Systems - I (Continued...)
- Lecture 42 - Pneumatic Systems - II
- Lecture 43 - Pneumatic Systems - II (Continued...)
- Lecture 44 - Energy Savings with Variable Speed Drives
- Lecture 45 - Energy Savings with Variable Speed Drives (Continued...)
- Lecture 46 - Introduction To CNC Machines
- Lecture 47 - Introduction To CNC Machines
- Lecture 48 - The Fieldbus Network - I
- Lecture 49 - The Fieldbus Network - I (Continued...)
- Lecture 50 - Higher Level Automation Systems
- Lecture 51 - Higher Level Automation Systems (Continued...)
- Lecture 52 - Course Review and Conclusion (Self Study)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Medical Image Analysis

Subject Co-ordinator - Prof. Debdoot Sheet

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Medical Image Analysis
- Lecture 2 - X Ray and CT Imaging
- Lecture 3 - Magnetic Resonance Imaging
- Lecture 4 - Ultrasound Imaging
- Lecture 5 - Optical Microscopy and Molecular Imaging
- Lecture 6 - Texture in Medical Images
- Lecture 7 - Region Growing and Clustering
- Lecture 8 - Random Walks for Segmentation
- Lecture 9 - Active Contours for Segmentation
- Lecture 10 - Systematic Evaluation and Validation
- Lecture 11 - Decision Trees for Segmentation and Classification
- Lecture 12 - Random Forests for Segmentation and Classification
- Lecture 13 - Neural Networks for Segmentation and Classification
- Lecture 14 - Deep Learning for Medical Image Analysis
- Lecture 15 - Deep Learning for Medical Image Analysis (Continued...)
- Lecture 16 - Retinal Vessel Segmentation
- Lecture 17 - Vessel Segmentation in Computed Tomography Scan of Lungs
- Lecture 18
- Lecture 19 - Tissue Characterization in Ultrasound
- Lecture 20

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Biomedical Signal Processing

Subject Co-ordinator - Prof. Sudipta Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Motivation

Lecture 2 - Preliminaries

Lecture 3 - Biomedical Signal Origin and Dynamics

Lecture 4 - Biomedical Signal Origin and Dynamics (Continued...)

Lecture 5 - Biomedical Signal Origin and Dynamics (Continued...)

Lecture 6 - Biomedical Signal Origin and Dynamics (Continued...)

Lecture 7 - Artifact Removal

Lecture 8 - Artifact Removal (Continued...)

Lecture 9 - Artifact Removal (Continued...)

Lecture 10 - Artifact Removal (Continued...)

Lecture 11 - Artifact Removal (Continued...)

Lecture 12 - Artifact Removal (Continued...)

Lecture 13 - Artifact Removal (Continued...)

Lecture 14 - Artifact Removal (Continued...)

Lecture 15 - Artifact Removal (Continued...)

Lecture 16 - Artifact Removal (Continued...)

Lecture 17 - Artifact Removal (Continued...)

Lecture 18 - Event Detection

Lecture 19 - Event Detection (Continued...)

Lecture 20 - Event Detection (Continued...)

Lecture 21 - Event Detection (Continued...)

Lecture 22 - Event Detection (Continued...)

Lecture 23 - Event Detection (Continued...)

Lecture 24 - Event Detection (Continued...)

Lecture 25 - Homomorphic Processing

Lecture 26 - Homomorphic Processing (Continued...)

Lecture 27 - Waveform Analysis

Lecture 28 - Waveform Analysis (Continued...)

Lecture 29 - Waveform Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Waveform Analysis (Continued...)
- Lecture 31 - Waveform Analysis (Continued...)
- Lecture 32 - Waveform Analysis (Continued...)
- Lecture 33 - Waveform Analysis (Continued...)
- Lecture 34 - Frequency Domain Characterisation
- Lecture 35 - Frequency Domain Characterisation (Continued...)
- Lecture 36 - Frequency Domain Characterisation (Continued...)
- Lecture 37 - Frequency Domain Characterisation (Continued...)
- Lecture 38 - Frequency Domain Characterisation (Continued...)
- Lecture 39 - Frequency Domain Characterisation (Continued...)
- Lecture 40 - Modelling of Biomedical Systems
- Lecture 41 - Modelling of Biomedical Systems (Continued...)
- Lecture 42 - Modelling of Biomedical Systems (Continued...)
- Lecture 43 - Modelling of Biomedical Systems (Continued...)
- Lecture 44 - Modelling of Biomedical Systems (Continued...)
- Lecture 45 - Modelling of Biomedical Systems (Continued...)
- Lecture 46 - Modelling of Biomedical Systems (Continued...)
- Lecture 47 - Tutorial - I
- Lecture 48 - Tutorial - I (Continued...)
- Lecture 49 - Tutorial - I (Continued...)
- Lecture 50 - Tutorial - II
- Lecture 51 - Tutorial - II (Continued...)
- Lecture 52 - Tutorial - II (Continued...)
- Lecture 53 - Tutorial - III
- Lecture 54 - Tutorial - III (Continued...)
- Lecture 55 - Tutorial - III (Continued...)
- Lecture 56 - Tutorial - III (Continued...)
- Lecture 57 - Tutorial - IV
- Lecture 58 - Tutorial - IV (Continued...)
- Lecture 59 - Tutorial - IV (Continued...)
- Lecture 60 - Tutorial - IV (Continued...)
- Lecture 61 - Tutorial - IV (Continued...)
- Lecture 62 - Tutorial - IV (Continued...)
- Lecture 63 - Tutorial - V
- Lecture 64 - Tutorial - V (Continued...)
- Lecture 65 - Tutorial - V (Continued...)
- Lecture 66 - Tutorial - V (Continued...)
- Lecture 67 - Tutorial - V (Continued...)
- Lecture 68 - Live Session

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Microprocessors and Microcontrollers

Subject Co-ordinator - Prof. Santanu Chattopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Introduction (Continued...)  
Lecture 4 - Basic Computer Organization  
Lecture 5 - Basic computer organization  
Lecture 6 - Basic Computer Organization  
Lecture 7 - 8085 Microprocessors  
Lecture 8 - 8085 Microprocessors (Continued...)  
Lecture 9 - 8085 Microprocessors (Continued...)  
Lecture 10 - 8085 Microprocessors (Continued...)  
Lecture 11 - 8085 Microprocessors (Continued...)  
Lecture 12 - 8085 Microprocessors (Continued...)  
Lecture 13 - 8085 Microprocessors (Continued...)  
Lecture 14 - 8085 Microprocessors (Continued...)  
Lecture 15 - 8085 Microprocessors (Continued...)  
Lecture 16 - 8085 Microprocessors (Continued...)  
Lecture 17 - 8085 Microprocessors (Continued...)  
Lecture 18 - 8085 Microprocessors (Continued...)  
Lecture 19 - 8085 Microprocessors (Continued...)  
Lecture 20 - 8085 Microprocessors (Continued...)  
Lecture 21 - 8085 Microprocessors (Continued...)  
Lecture 22 - 8085 Microprocessors (Continued...)  
Lecture 23 - 8051 Microcontroller  
Lecture 24 - 8051 Microcontroller (Continued...)  
Lecture 25 - 8051Microcontroller (Continued...)  
Lecture 26 - 8051 Microcontroller (Continued...)  
Lecture 27 - 8051 Microcontroller (Continued...)  
Lecture 28 - 8051 Microcontroller (Continued...)  
Lecture 29 - 8051 Microcontroller (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - 8051 Microcontroller (Continued...)  
Lecture 31 - 8051 Microcontroller (Continued...)  
Lecture 32 - 8051 Microcontroller (Continued...)  
Lecture 33 - 8051 Microcontroller (Continued...)  
Lecture 34 - 8051 Microcontroller (Continued...)  
Lecture 35 - 8051 Microcontroller (Continued...)  
Lecture 36 - 8051 Programming Examples  
Lecture 37 - 8051 Programming Examples (Continued...)  
Lecture 38 - 8051 Programming Examples (Continued...)  
Lecture 39 - 8051 Programming Examples (Continued...)  
Lecture 40 - 8051 Programming Examples (Continued...)  
Lecture 41 - ARM  
Lecture 42 - ARM (Continued...)  
Lecture 43 - ARM (Continued...)  
Lecture 44 - ARM (Continued...)  
Lecture 45 - ARM (Continued...)  
Lecture 46 - ARM (Continued...)  
Lecture 47 - ARM (Continued...)  
Lecture 48 - ARM (Continued...)  
Lecture 49 - PIC  
Lecture 50 - PIC, AVR  
Lecture 51 - AVR (Continued...)  
Lecture 52 - AVR (Continued...)  
Lecture 53 - Interfacing  
Lecture 54 - Interfacing (Continued...)  
Lecture 55 - Interfacing (Continued...)  
Lecture 56 - Interfacing (Continued...)  
Lecture 57 - Interfacing (Continued...)  
Lecture 58 - Interfacing (Continued...)  
Lecture 59 - 8086  
Lecture 60 - 8086 (Continued...)  
Lecture 61 - 8086 (Continued...)  
Lecture 62 - 8086 (Continued...)  
Lecture 63 - 8086 (Continued...)  
Lecture 64 - 8087

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Deep Learning For Visual Computing

Subject Co-ordinator - Prof. Debdoot Sheet

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Visual Computing
- Lecture 2 - Feature Extraction for Visual Computing
- Lecture 3 - Feature Extraction with Python
- Lecture 4 - Neural Networks for Visual Computing
- Lecture 5 - Classification with Perceptron Model
- Lecture 6 - Introduction to Deep Learning with Neural Networks
- Lecture 7 - Introduction to Deep Learning with Neural Networks
- Lecture 8 - Multilayer Perceptron and Deep Neural Networks
- Lecture 9 - Multilayer Perceptron and Deep Neural Networks
- Lecture 10 - Classification with Multilayer Perceptron
- Lecture 11 - Autoencoder for Representation Learning and MLP Initialization
- Lecture 12 - MNIST handwritten digits classification using autoencoders
- Lecture 13 - Fashion MNIST classification using autoencoders
- Lecture 14 - ALL-IDB Classification using autoencoders
- Lecture 15 - Retinal Vessel Detection using autoencoders
- Lecture 16 - Stacked Autoencoders
- Lecture 17 - MNIST and Fashion MNIST with Stacked Autoencoders
- Lecture 18 - Denoising and Sparse Autoencoders
- Lecture 19 - Sparse Autoencoders for MNIST classification
- Lecture 20 - Denoising Autoencoders for MNIST classification
- Lecture 21 - Cost Function
- Lecture 22 - Classification cost functions
- Lecture 23 - Optimization Techniques and Learning Rules
- Lecture 24 - Gradient Descent Learning Rule
- Lecture 25 - SGD and ADAM Learning Rules
- Lecture 26 - Convolutional Neural Network Building Blocks
- Lecture 27 - Simple CNN Model
- Lecture 28 - LeNet Definition
- Lecture 29 - Training a LeNet for MNIST Classification

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Modifying a LeNet for CIFAR
- Lecture 31 - Convolutional Autoencoder and Deep CNN
- Lecture 32 - Convolutional Autoencoder for Representation Learning
- Lecture 33 - AlexNet
- Lecture 34 - VGGNet
- Lecture 35 - Revisiting AlexNet and VGGNet for Computational Complexity
- Lecture 36 - GoogLeNet - Going very deep with convolutions
- Lecture 37 - GoogLeNet
- Lecture 38 - ResNet - Residual Connections within Very Deep Networks and DenseNet - Densely connected networks
- Lecture 39 - ResNet
- Lecture 40 - DenseNet
- Lecture 41 - Space and Computational Complexity in DNN
- Lecture 42 - Assessing the space and computational complexity of very deep CNNs
- Lecture 43 - Domain Adaptation and Transfer Learning in Deep Neural Networks
- Lecture 44 - Transfer Learning a GoogLeNet
- Lecture 45 - Transfer Learning a ResNet
- Lecture 46 - Activation pooling for object localization
- Lecture 47 - Region Proposal Networks (rCNN and Faster rCNN)
- Lecture 48 - GAP + rCNN
- Lecture 49 - Semantic Segmentation with CNN
- Lecture 50 - UNet and SegNet for Semantic Segmentation
- Lecture 51 - Autoencoders and Latent Spaces
- Lecture 52 - Principle of Generative Modeling
- Lecture 53 - Adversarial Autoencoders
- Lecture 54 - Adversarial Autoencoder for Synthetic Sample Generation
- Lecture 55 - Adversarial Autoencoder for Classification
- Lecture 56 - Understanding Video Analysis
- Lecture 57 - Recurrent Neural Networks and Long Short-Term Memory
- Lecture 58 - Spatio-Temporal Deep Learning for Video Analysis
- Lecture 59 - Activity recognition using 3D-CNN
- Lecture 60 - Activity recognition using CNN-LSTM



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Power System Engineering

Subject Co-ordinator - Prof. Debapriya Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11 - Cables (Continued...)

Lecture 12 - Transient over voltages and Insulation coordination

Lecture 13 - Transient over voltages and Insulation coordination (Continued...)

Lecture 14 - Transient over voltages and Insulation coordination (Continued...)

Lecture 15 - Transient over voltages and Insulation coordination (Continued...)

Lecture 16 - Transient over voltages and Insulation coordination (Continued...)

Lecture 17 - Transient over voltages and Insulation coordination (Continued...)

Lecture 18 - Transient over voltages and Insulation coordination (Continued...)

Lecture 19 - Transient over voltages and Insulation coordination (Continued...)

Lecture 20 - Corona

Lecture 21 - Corona (Continued...)

Lecture 22 - Corona (Continued...)

Lecture 23 - Corona (Continued...), Sag and Tension Analysis

Lecture 24 - Sag and Tension Analysis (Continued...)

Lecture 25 - Sag and Tension Analysis (Continued...)

Lecture 26 - Sag and Tension Analysis (Continued...)

Lecture 27 - Sag and Tension Analysis (Continued...)

Lecture 28 - Sag and Tension Analysis (Continued...)

Lecture 29 - Load flow of radial distribution networks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Load flow of radial distribution networks (Continued...)
- Lecture 31 - Load flow of radial distribution networks (Continued...)
- Lecture 32 - Load flow of radial distribution networks (Continued...)
- Lecture 33 - Load flow of radial distribution networks (Continued...)
- Lecture 34 - Load flow of radial distribution networks (Continued...)
- Lecture 35 - Load flow of radial distribution networks (Continued...)
- Lecture 36 - Load flow of radial distribution networks (Continued...)
- Lecture 37 - Load flow of radial distribution networks (Continued...), Voltage stability of distribution network
- Lecture 38 - Voltage stability of distribution network, Approximate method
- Lecture 39 - Application of capacitors in distribution system
- Lecture 40 - Application of capacitors in distribution system (Continued...)
- Lecture 41 - Application of capacitors in distribution system (Continued...)
- Lecture 42 - Application of capacitors in distribution system (Continued...)
- Lecture 43 - Application of capacitors in distribution system (Continued...)
- Lecture 44 - Application of capacitors in distribution system (Continued...), Load frequency control
- Lecture 45 - Load frequency control (Continued...)
- Lecture 46 - Load frequency control (Continued...)
- Lecture 47 - Load frequency control (Continued...)
- Lecture 48 - Load frequency control (Continued...)
- Lecture 49 - Load frequency control (Continued...)
- Lecture 50 - Load frequency control (Continued...)
- Lecture 51 - Load frequency control (Continued...)
- Lecture 52 - Load frequency control (Continued...)
- Lecture 53 - Load frequency control (Continued...)
- Lecture 54 - Load frequency control (Continued...)
- Lecture 55 - Load frequency control (Continued...)
- Lecture 56 - Load frequency control (Continued...)
- Lecture 57 - Automatic generation control
- Lecture 58 - Automatic generation control (Continued...)
- Lecture 59 - Automatic generation control (Continued...), Unit commitment
- Lecture 60 - Unit commitment (Continued...)
- Lecture 61 - Live Session

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Electrical Engineering

Subject Co-ordinator - Prof. Debapriya Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Concepts, Examples  
Lecture 2 - Basic Concepts, Examples (Continued...)  
Lecture 3 - Basic Concepts, Examples (Continued...)  
Lecture 4 - Basic Concepts, Examples (Continued...)  
Lecture 5 - Basic Laws  
Lecture 6 - Basic Laws (Continued...)  
Lecture 7 - Basic Laws (Continued...)  
Lecture 8 - Basic Laws (Continued...)  
Lecture 9 - Basic Laws (Continued...)  
Lecture 10 - Basic Laws (Continued...)  
Lecture 11 - Methods of Circuit Analysis  
Lecture 12 - Methods of Circuit Analysis (Continued...)  
Lecture 13 - Methods of Circuit Analysis (Continued...)  
Lecture 14 - Methods of Circuit Analysis (Continued...)  
Lecture 15 - Methods of Circuit Analysis (Continued...)  
Lecture 16 - Methods of Circuit Analysis (Continued...)  
Lecture 17 - Mesh analysis with current sources, Examples  
Lecture 18 - Methods of Circuit Analysis (Continued...) and Circuit Theorems  
Lecture 19 - Circuit Theorems (Continued...)  
Lecture 20 - Circuit Theorems (Continued...)  
Lecture 21 - Circuit Theorems (Continued...)  
Lecture 22 - Circuit Theorems (Continued...)  
Lecture 23 - Circuit Theorems (Continued...)  
Lecture 24 - Circuit Theorems (Continued...)  
Lecture 25 - Circuit Theorems (Continued...) and Capacitors and Inductors  
Lecture 26 - Capacitors and Inductors (Continued...)  
Lecture 27 - Capacitors and Inductors (Continued...)  
Lecture 28 - Capacitors and Inductors (Continued...)  
Lecture 29 - First Order Circuits

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- Lecture 30 - First Order Circuits (Continued...)
- Lecture 31 - First Order Circuits (Continued...)
- Lecture 32 - First Order Circuits (Continued...)
- Lecture 33 - First Order Circuits (Continued...)
- Lecture 34 - First Order Circuits (Continued...)
- Lecture 35 - First Order Circuits (Continued...)
- Lecture 36 - First Order Circuits (Continued...)
- Lecture 37 - Single phase AC circuits
- Lecture 38 - Single phase AC circuits (Continued...)
- Lecture 39 - Single phase AC circuits (Continued...)
- Lecture 40 - Single phase AC circuits (Continued...)
- Lecture 41 - Single phase AC circuits (Continued...)
- Lecture 42 - Single phase AC circuits (Continued...)
- Lecture 43 - Single phase AC circuits (Continued...)
- Lecture 44 - Resonance and Maximum Power Transfer Theorem
- Lecture 45 - Resonance and Maximum Power Transfer Theorem (Continued...)
- Lecture 46 - Resonance and Maximum Power Transfer Theorem (Continued...)
- Lecture 47 - Three phase circuits
- Lecture 48 - Three phase circuits (Continued...)
- Lecture 49 - Three phase circuits (Continued...)
- Lecture 50 - Three phase circuits (Continued...)
- Lecture 51 - Magnetic Circuits
- Lecture 52 - Magnetic Circuits (Continued...)
- Lecture 53 - Magnetic Circuits (Continued...)
- Lecture 54 - Single Phase Transformer
- Lecture 55 - Single Phase Transformer (Continued...)
- Lecture 56 - Single Phase Transformer (Continued...)
- Lecture 57 - Single Phase Transformer (Continued...)
- Lecture 58 - Three phase Induction Motors
- Lecture 59 - Three phase Induction Motors (Continued...)
- Lecture 60 - Three phase Induction Motors (Continued...)
- Lecture 61 - Three phase Induction Motors (Continued...)
- Lecture 62 - DC Motors
- Lecture 63 - DC Motors (Continued...)
- Lecture 64 - DC Motors (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Digital Circuits

Subject Co-ordinator - Prof. Santanu Chattopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Number System  
Lecture 4 - Number System (Continued...)  
Lecture 5 - Number System (Continued...)  
Lecture 6 - Number System (Continued...)  
Lecture 7 - Number System (Continued...)  
Lecture 8 - Boolean Algebra  
Lecture 9 - Boolean Algebra (Continued...)  
Lecture 10 - Boolean Algebra (Continued...)  
Lecture 11 - Boolean Algebra (Continued...)  
Lecture 12 - Boolean Algebra (Continued...)  
Lecture 13 - Boolean Algebra (Continued...)  
Lecture 14 - Logic Gates  
Lecture 15 - Logic Gates (Continued...)  
Lecture 16 - Logic Gates (Continued...)  
Lecture 17 - Logic Gates (Continued...)  
Lecture 18 - Logic Gates (Continued...)  
Lecture 19 - Logic Gates (Continued...)  
Lecture 20 - Arithmetic Circuits  
Lecture 21 - Arithmetic Circuits (Continued...)  
Lecture 22 - Arithmetic Circuits (Continued...)  
Lecture 23 - Decoders, Multiplexers, PLA  
Lecture 24 - Decoders, Multiplexers, PLA (Continued...)  
Lecture 25 - Decoders, Multiplexers, PLA (Continued...)  
Lecture 26 - Decoders, Multiplexers, PLA (Continued...)  
Lecture 27 - Decoders, Multiplexers, PLA (Continued...)  
Lecture 28 - Sequential Circuits  
Lecture 29 - Sequential Circuits (Continued...)

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Lecture 30 - Sequential Circuits (Continued...)  
Lecture 31 - Sequential Circuits (Continued...)  
Lecture 32 - Sequential Circuits (Continued...)  
Lecture 33 - Sequential Circuits (Continued...)  
Lecture 34 - Sequential Circuits (Continued...)  
Lecture 35 - Finite State Machine  
Lecture 36 - Finite State Machine (Continued...)  
Lecture 37 - Data Converters  
Lecture 38 - Data Converters (Continued...)  
Lecture 39 - Data Converters (Continued...)  
Lecture 40 - Data Converters (Continued...)  
Lecture 41 - Memory  
Lecture 42 - Memory (Continued...)  
Lecture 43 - Memory (Continued...)  
Lecture 44 - FPGA  
Lecture 45 - FPGA (Continued...)  
Lecture 46 - VHDL  
Lecture 47 - VHDL(Continued...)  
Lecture 48 - 8085 Microprocessor  
Lecture 49 - 8085 Microprocessor (Continued...)  
Lecture 50 - 8085 Microprocessor (Continued...)  
Lecture 51 - 8085 Microprocessor (Continued...)  
Lecture 52 - 8085 Microprocessor (Continued...)  
Lecture 53 - 8085 Microprocessor (Continued...)  
Lecture 54 - 8085 Microprocessor (Continued...)  
Lecture 55 - 8085 Microprocessor (Continued...)  
Lecture 56 - 8085 Microprocessor (Continued...)  
Lecture 57 - 8085 Microprocessor (Continued...)  
Lecture 58 - 8085 Microprocessor (Continued...)  
Lecture 59 - 8085 Microprocessor (Continued...)  
Lecture 60 - 8085 Microprocessor (Continued...)  
Lecture 61 - 8085 Microprocessor (Continued...)  
Lecture 62 - 8085 Microprocessor (Continued...)  
Lecture 63 - 8086 Microprocessor  
Lecture 64 - 8086 Microprocessor (Continued...)  
Lecture 65 - 8086 Microprocessor (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Analysis and Design Principles of Microwave Antennas

Subject Co-ordinator - Dr. Amitabha Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concept of Scalar and Vector Potentials
- Lecture 2 - Radiation From a Current Element (Hertzian Dipole)
- Lecture 3 - Specific Properties of the Radiated Fields from a Current Element
- Lecture 4 - General Properties of Radiated Fields from an Antenna
- Lecture 5 - Farfield and Radiation Pattern of an Antenna
- Lecture 6 - Directivity and Gain of an Antenna
- Lecture 7 - Idea of Efficiency, Beamwidth, Polarisation and Bandwidth
- Lecture 8 - Polarization of Antenna
- Lecture 9 - Impedance of Antenna
- Lecture 10 - Effective Aperture of an Antenna
- Lecture 11 - Friss Transmission Equation and Antenna Temperature
- Lecture 12 - Dipole And Monopole Antena
- Lecture 13 - Dipole And Monopole Antena (Continued...)
- Lecture 14 - BALUN
- Lecture 15 - Loop Antenna
- Lecture 16 - Folded Dipole Antenna
- Lecture 17 - Introduction to Antenna Array
- Lecture 18 - Antenna Array Theory
- Lecture 19 - Broadside Uniform Linear Array
- Lecture 20 - Endfire Linear Uniform Array
- Lecture 21 - Parasitic Array and Log Periodic Antenna
- Lecture 22 - Analysis Procedures of Aperture Antennas
- Lecture 23 - Analysis Procedures of Aperture Antenna (Continued...)
- Lecture 24 - Horn Antenna
- Lecture 25 - Horn Antenna (Continued...)
- Lecture 26 - Reflector Antennas
- Lecture 27 - Paraboloid Reflector Antenna (Continued...)
- Lecture 28 - Paraboloid Reflector Antenna (Continued...)
- Lecture 29 - Dual Reflector Antenna

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Generalised Analysis of Antenna
- Lecture 31 - Solution of Wave Equation for Electric and Magnetic Current Densities
- Lecture 32 - Farfield Evaluation of Spherical Wave Radiation by Generalised Antenna
- Lecture 33 - Slot Antenna
- Lecture 34 - Open Ended Waveguide Antenna and Microstrip Antenna
- Lecture 35 - Numerical Evaluation of Wire Antenna Currents
- Lecture 36 - Solution of Intregal Equation by Moment Method
- Lecture 37 - Array Pattern Synthesis
- Lecture 38 - Array Pattern Synthesis (Continued...)
- Lecture 39 - Ultra Wideband Antennas
- Lecture 40 - Antenna Measurements



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Architectural Design of Digital Integrated Circuits

Subject Co-ordinator - Prof. Indranil Hatai

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to VLSI Design Flow  
Lecture 2 - Introduction to VLSI Design Flow  
Lecture 3 - Introduction to VLSI Design Flow  
Lecture 4 - Algorithm to Efficient Architecture Mapping  
Lecture 5 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 6 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 7 - Tutorial on Algorithm to Efficient Architecture Mapping  
Lecture 8 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 9 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 10 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 11 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 12 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 13 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 14 - Algorithm to Efficient Architecture Mapping (Continued...)  
Lecture 15 - Efficient Adder Architecture  
Lecture 16 - Efficient Adder Architecture (Continued...)  
Lecture 17 - Efficient Adder Architecture (Continued...)  
Lecture 18 - Efficient Adder Architecture  
Lecture 19 - Efficient Adder Architecture  
Lecture 20 - Efficient Adder Architecture  
Lecture 21 - Efficient Adder Architecture  
Lecture 22 - Efficient Adder Architecture  
Lecture 23 - Efficient Adder Architecture  
Lecture 24 - Efficient Adder Architecture  
Lecture 25 - Pipelining and Parallel Processing  
Lecture 26 - Pipelining and Parallel Processing  
Lecture 27 - Multiplier Architecture  
Lecture 28 - Multiplier Architecture  
Lecture 29 - Multiplier Architecture

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- Lecture 30 - Multiplier Architecture
- Lecture 31 - Multiplier Architecture
- Lecture 32 - Multiplier Architecture
- Lecture 33 - Multiplier Architecture
- Lecture 34 - Multiplier Architecture
- Lecture 35 - Squaring Circuit Design
- Lecture 36 - Reconfigurable Constant Multiplier Design
- Lecture 37 - Reconfigurable Constant Multiplier Design
- Lecture 38 - Reconfigurable Constant Multiplier Design
- Lecture 39 - Fixed Point Number Representation
- Lecture 40 - Fixed Point Number Representation
- Lecture 41 - CORDIC Architecture
- Lecture 42 - CORDIC Architecture
- Lecture 43 - CORDIC Architecture
- Lecture 44 - CORDIC Architecture
- Lecture 45 - Timing Analysis
- Lecture 46 - Timing Analysis
- Lecture 47 - Timing Analysis
- Lecture 48 - Logic Hazard
- Lecture 49 - FFT Architecture
- Lecture 50 - FFT Architecture (Continued...)
- Lecture 51 - Timing analysis Basics
- Lecture 52 - Timing analysis Basics (Continued...)
- Lecture 53 - Timing analysis Basics (Continued...)
- Lecture 54 - Timing Issuesin Digital IC Design
- Lecture 55 - Timing Issuesin Digital IC Design (Continued...)
- Lecture 56 - Timing Issuesin Digital IC Design (Continued...)
- Lecture 57 - Timing Issuesin Digital IC Design (Continued...)
- Lecture 58 - Architectural Design of Digital Integrated Circuits
- Lecture 59 - Design Tips for Basic Circuits Design (Continued...)
- Lecture 60 - Design Tips for Basic Circuits Design (Continued...)
- Lecture 61 - Design Tips for Basic Circuits Design (Continued...)
- Lecture 62 - Low Power Digital Design
- Lecture 63 - Low Power Digital Design (Continued...)
- Lecture 64 - Low Power Digital Design
- Lecture 65 - Low Power Digital Design (Continued...)
- Lecture 66 - Hardware for Machine Learning
- Lecture 67 - Hardware for Machine Learning

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electrical Machines-II

Subject Co-ordinator - Prof.Tapas Kumar Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Inductance, Self and Mutual
- Lecture 2 - Relationship of Inductances in Transformer
- Lecture 3 - Equivalent Circuit from Circuit KVL Equations
- Lecture 4 - Co-efficient of Coupling , Energy Stored in Coupled Coils
- Lecture 5 - A Single Conductor Generator and Motor
- Lecture 6 - Analysis of Single Conductor Generator and Motor
- Lecture 7 - Analysis of Single Conductor Generator and Motor (Continued...)
- Lecture 8 - Flux Density Distribution in Space and Nature emf
- Lecture 9 - Flux Density Distribution in Space and Nature emf (Continued...)
- Lecture 10 - From Linear to Rotating Machine
- Lecture 11 - From Linear to Rotating Machine (Continued...)
- Lecture 12 - Basic Underlying Principle of Operation of Rotating Machine
- Lecture 13 - Basic Underlying Principle of Operation of Rotating Machine (Continued...)
- Lecture 14 - Flux Density Distribution along the Air Gap
- Lecture 15 - Flux Density Distribution along the Air Gap (Continued...)
- Lecture 16 - Induced Voltage in a Coil in a Rotating Machine
- Lecture 17 - Induced Voltage in a Coil in a Rotating Machine (Continued...)
- Lecture 18 - Induced Voltage in a Coil in a Rotating Machine (Continued...)
- Lecture 19 - Induced Voltage due to Fundamental and Harmonic Components of Flux Density Distribution
- Lecture 20 - Distributed Coils Connected in Series Resultant Voltage
- Lecture 21 - Distribution Factor
- Lecture 22 - Pitch Factor and Winding Factor
- Lecture 23 - How to decide about Short Pitch Angle  $\tilde{\alpha} \cdot \hat{\mu}$
- Lecture 24 - Double Layer 3-phase Winding - An Introduction
- Lecture 25 - Winding Table for 3-phase Distributed Winding
- Lecture 26 - Winding Table for 3-phase Distributed Winding with Examples
- Lecture 27 - Winding Table for 3-phase Distributed Winding with Examples (Continued...)
- Lecture 28 - 120 degree Phase Spread Winding with Examples
- Lecture 29 - Winding Table of 120 degree Phase Spread Coils and Group Connection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Rotating Magnetic Field
- Lecture 31 - Rotating Magnetic Field (Continued...), Mechanical and Electrical Speed
- Lecture 32 - Speed and Direction of Rotating Field
- Lecture 33 - Synchronous Speed and How to Calculate Induced Voltage in a Coil
- Lecture 34 - Introduction to Induction Motor
- Lecture 35 - Introduction to Induction Motor (Continued...)
- Lecture 36 - General Expression of Torque in Terms of Stator and Rotor Fields
- Lecture 37 - Torque Angle and Torque Expression
- Lecture 38 - How to Fix Up Positions of Net Field, Rotor Field and Stator Field
- Lecture 39 - Slip
- Lecture 40 - Equivalent Circuit of 3-Phase Induction Motor
- Lecture 41 - Equivalent Circuit of 3-Phase Induction Motor (Continued...)
- Lecture 42 - Equivalent Circuit of 3-Phase Induction Motor (Continued...)
- Lecture 43 - Expression for Electromagnetic Torque in terms of Equivalent Circuit Parameters
- Lecture 44 - Maximum Electromagnetic Torque and Slip at Which it Occurs
- Lecture 45 - Typical Torque Slip Characteristic and Operating Point
- Lecture 46 - Change in Torque-slip Characteristic as Supply Voltage and Rotor Resistance are Varied
- Lecture 47 - Types of Induction Motor - Slip Ring Type
- Lecture 48 - Introduction to Cage Induction Motor
- Lecture 49 - Cage Motor Can Operate for Different Stator Poles
- Lecture 50 - Core Loss in Induction Motor and Simplified Equivalent Circuit
- Lecture 51 - Torque Expression from Simplified Equivalent Circuit and Introduction to Circle Diagram
- Lecture 52 - Circle Diagram (Continued...)
- Lecture 53 - Exact Power Flow Diagram and Circle Diagram
- Lecture 54 - Circle Diagram (Continued...)
- Lecture 55 - Circle Diagram
- Lecture 56 - Circle Diagram from Test Data
- Lecture 57 - Starting of 3 Phase Induction Motor - Introduction
- Lecture 58 - DOL and Reactor Starting
- Lecture 59 - DOL and Auto Transformer Starting
- Lecture 60 - Introduction to Speed Control
- Lecture 61 - Idea of VVVF Speed Control of Induction Motor
- Lecture 62 - Speed Control Using Two Motors
- Lecture 63 - Electrical Braking of 3 Phase Induction Motor
- Lecture 64 - Braking (Continued...)
- Lecture 65 - Introduction to Single Phase Induction Motor - Sequence Currents
- Lecture 66 - Development of Equivalent Circuit
- Lecture 67 - Development of Equivalent Circuit (Continued...)
- Lecture 68 - Torque-slip Ch. of 1 ph. I-M Running on Single Winding

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Introduction to Starting of 1ph. Induction Motor
- Lecture 70 - Expression for Starting Torque and Need for Phase Splitting
- Lecture 71 - Resistor Split 1 ph. Induction Motor
- Lecture 72 - Capacitor Split 1 ph Induction Motor
- Lecture 73 - Starting of 1 ph. Induction Motor (Continued...)
- Lecture 74 - Synchronous Machine Construction
- Lecture 75 - Synchronous Generator - Introduction
- Lecture 76 - Synchronisation
- Lecture 77 - Expression for Induced Voltage and O.C. Phasor Diagram
- Lecture 78 - Loaded Synchronous Generator - Resultant Field
- Lecture 79 - Armature Reaction and Synchronous Reactance. Basic Phasor Diagram
- Lecture 80 - General Mode of Operation - Retro Field, Stator Field and Resultant Field
- Lecture 81 - Complete Phasor Diagram and Expression for Complex Power
- Lecture 82 - Synchronous Motor Operation, Phasor Diagram and Power Expression
- Lecture 83 - Effect of Variation of Field Current in Generator
- Lecture 84 - Effect of Variation Field Current in Synchronous Motor, Introduction to Salient Pole Machine
- Lecture 85 - Analysis of Salient Pole Synchronous Machine
- Lecture 86 - Phasor Diagram of Salient Pole Synchronous Machine for Generator and Motor Mode
- Lecture 87 - Expression for Load Angle and Expression for Power
- Lecture 88 - Phasor Diagrams of Salient Pole Synchronous Generator under Various Conditions
- Lecture 89 - Phasor Diagrams of Salient Pole Synchronous Motor under Various Conditions
- Lecture 90 - O.C and S.C Test on Synchronous Generator

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Digital Electronic Circuits

Subject Co-ordinator - Prof. Goutam Saha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Transistor as a switch
- Lecture 3 - Performance Issues and Introduction to TTL
- Lecture 4 - Transistor Transistor Logic (TTL)
- Lecture 5 - CMOS Logic
- Lecture 6 - Basic Gates and their representations
- Lecture 7 - Fundamentals of Boolean Algebra
- Lecture 8 - Boolean Function to Truth Table and Implementaion Issues
- Lecture 9 - Truth Table to Boolean Function and Implementaion Issues
- Lecture 10 - Karnugh Map and Digital Circuit Realization
- Lecture 11 - Karnaugh Map to Entered Variable Map
- Lecture 12 - Quine - McClusky (QM) Algorithm
- Lecture 13 - Cost Criteria and Minimization of Multiple Output Functions
- Lecture 14 - Static 1 Hazard
- Lecture 15 - Static 0 Hazard and Dynamic Hazard
- Lecture 16 - Multiplexer
- Lecture 17 - Multiplexer
- Lecture 18 - Demultiplexer / Decoder
- Lecture 19 - Decoder with BCD Input and Encoder
- Lecture 20 - Parity Generator and Checker
- Lecture 21 - Number System
- Lecture 22 - Negative Number and 2s Complement Arithmetic
- Lecture 23 - Arithmetic Building Blocks - I
- Lecture 24 - Arithmetic Building Blocks - II
- Lecture 25 - Overflow Detection and BCD Arithmetic
- Lecture 26 - Magnitude Comparator
- Lecture 27 - Arithmetic Logic Unit (ALU)
- Lecture 28 - Unweighted Code
- Lecture 29 - Error Detection and Correction Code

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multiplication and Division
- Lecture 31 - SR Latch and Introduction to Clocked Flip-Flop
- Lecture 32 - Edge-Triggered Flip-Flop
- Lecture 33 - Representations of Flip-Flops
- Lecture 34 - Analysis of Sequential Logic Circuit
- Lecture 35 - Conversion of Flip-Flops and Flip-Flop Timing Parameters
- Lecture 36 - Register and Shift Register
- Lecture 37 - Shift Register
- Lecture 38 - Application of Shift Register
- Lecture 39 - Linear Feedback Shift Register
- Lecture 40 - Serial Addition, Multiplication and Division
- Lecture 41 - Asynchronous Counter
- Lecture 42 - Decoding Logic and Synchronous Counter
- Lecture 43 - Cascading
- Lecture 44 - Counter Design with Asynchronous Reset and Preset
- Lecture 45 - Counter Design as Synthesis Problem and Few Other Uses of Counter
- Lecture 46 - Synthesis of Sequential Logic Circuit
- Lecture 47 - Moore Model and Mealy Model
- Lecture 48 - Algorithmic State Machine (ASM) Chart and Synthesis of Sequential Logic Circuit
- Lecture 49 - Circuit Realization from ASM Chart and State Minimization
- Lecture 50 - State Minimization by Implication Table and Partitioning Method
- Lecture 51 - Digital to Analog Conversion - I
- Lecture 52 - Digital to Analog Conversion - II
- Lecture 53 - Analog to Digital Conversion - I
- Lecture 54 - Analog to Digital Conversion - II
- Lecture 55 - Certain Performance Issue of ADC and DAC
- Lecture 56 - Introduction to Memory
- Lecture 57 - Static Random Access Memory (SRAM)
- Lecture 58 - Dynamic RAM (DRAM) and Memory Expansion
- Lecture 59 - Read Only Memory (ROM)
- Lecture 60 - PAL, PLA, CPLD, FPGA

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Power System Dynamics, Control and Monitoring

Subject Co-ordinator - Prof. Debapriya Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Power System stability
- Lecture 2 - Power System stability (Continued...)
- Lecture 3 - Power System stability (Continued...)
- Lecture 4 - Power System stability (Continued...)
- Lecture 5 - Power System stability (Continued...)
- Lecture 6 - Power System Stability (Continued...)
- Lecture 7 - Power System Stability (Continued...)
- Lecture 8 - Power System Stability (Continued...)
- Lecture 9 - Power System Stability (Continued...)
- Lecture 10 - Power System Stability (Continued...)
- Lecture 11 - Power System Stability (Continued...)
- Lecture 12 - Power System Stability (Continued...)
- Lecture 13 - Power System Stability (Continued...)
- Lecture 14 - Power System Stability (Continued...)
- Lecture 15 - Power System Stability (Continued...)
- Lecture 16 - Power System Stability (Continued...)
- Lecture 17 - Power System Stability (Continued...)
- Lecture 18 - Power System Stability (Continued...)
- Lecture 19 - Power System Stability (Continued...)
- Lecture 20 - Power System Stability (Continued...)
- Lecture 21 - Power System stability (Continued...)
- Lecture 22 - Power System stability, Eigen properties of the state matrix
- Lecture 23 - Power System stability, Eigen properties of the state matrix (Continued...)
- Lecture 24 - Power System stability, Eigen properties of the state matrix (Continued...)
- Lecture 25 - Power System stability, Eigen properties of the state matrix (Continued...)
- Lecture 26 - Power System stability, Eigen properties of the state matrix (Continued...)
- Lecture 27 - Power System stability, Eigen properties of the state matrix, Transient stability
- Lecture 28 - Transient stability
- Lecture 29 - Transient stability (Continued...)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transient stability (Continued...)
- Lecture 31 - Transient stability
- Lecture 32 - Transient stability, Automatic generation control conventional scenario
- Lecture 33 - Automatic generation control conventional scenario
- Lecture 34 - Automatic generation control conventional scenario
- Lecture 35 - Automatic generation control conventional scenario
- Lecture 36 - Automatic generation control conventional scenario
- Lecture 37 - Automatic generation control conventional scenario
- Lecture 38 - Automatic generation control conventional scenario
- Lecture 39 - Automatic generation control conventional scenario
- Lecture 40 - Automatic generation control conventional scenario
- Lecture 41 - AGC in deregulated system
- Lecture 42 - AGC in deregulated system (Continued...)
- Lecture 43 - AGC in deregulated system (Continued...)
- Lecture 44 - AGC in deregulated system (Continued...)
- Lecture 45 - AGC in deregulated system (Continued...)
- Lecture 46 - AGC in deregulated system (Continued...)
- Lecture 47 - AGC in deregulated system (Continued...)
- Lecture 48 - AGC in deregulated system (Continued...)
- Lecture 49 - AGC in deregulated system, Reactive power and voltage control
- Lecture 50 - Reactive power and voltage control
- Lecture 51 - Reactive power and voltage control, State estimation in power system
- Lecture 52 - State estimation in power system
- Lecture 53 - State estimation in power system (Continued...)
- Lecture 54 - State estimation in power system (Continued...)
- Lecture 55 - State estimation in power system (Continued...)
- Lecture 56 - State estimation in power system (Continued...)
- Lecture 57 - Hydraulic turbine modelling
- Lecture 58 - Hydraulic turbine modelling (Continued...)
- Lecture 59 - Subsynchronous oscillation
- Lecture 60 - Subsynchronous oscillation, Windup and non windup limits

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Evolution of Air Interface towards 5G

Subject Co-ordinator - Prof. Suvra Sekhar Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Evolution of wireless Communication
- Lecture 2 - Evolution of wireless Communication Standards From 2G to 5G
- Lecture 3 - Evolution of wireless Communication Standards From 2G to 5G (Continued...)
- Lecture 4 - Evolution of wireless Communication Standards From 2G to 5G (Continued...)
- Lecture 5 - Evolution of wireless Communication Standards From 2G to 5G (Continued...)
- Lecture 6 - Requirements and operating scenarios of 5G
- Lecture 7 - Requirements and operating scenarios of 5G (Continued....)
- Lecture 8 - 5G scenarios
- Lecture 9 - Ultra reliable low latency communication
- Lecture 10 - Designing 5G new radio
- Lecture 11 - Fundamental Framework for waveform analysis
- Lecture 12 - Fundamental Framework for waveform analysis (Continued...)
- Lecture 13 - Waveform Design Aspects of 2G
- Lecture 14 - Waveforms in 3G
- Lecture 15 - Waveforms in 3G (Continued...)
- Lecture 16 - Waveform in 4G and 5G (OFDM)
- Lecture 17 - Waveform in 4G and 5G (OFDM) (Continued...)
- Lecture 18 - Waveform in 4G and 5G (OFDM) (Continued...)
- Lecture 19 - Waveform in 4G and 5G (OFDMA)
- Lecture 20 - Waveform in 4G and 5G (OFDMA, SCFDMA, SCFDE)
- Lecture 21 - Waveform in 4G and 5G (SCFDMA Continued...)
- Lecture 22 - Waveform in 5G
- Lecture 23 - Waveform in 5G Numerology
- Lecture 24 - Frame Structure in 5G NR
- Lecture 25 - Numerology in 5G and adaptive subcarrier bandwidth
- Lecture 26 - Numerology in 5G (Continued...)
- Lecture 27 - Waveforms beyond 5G
- Lecture 28 - Waveforms beyond 5G (Continued...)
- Lecture 29 - Waveforms beyond 5G (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Waveforms beyond 5G (Continued...)
- Lecture 31 - Waveform beyond 5G (Precoded GFDM)
- Lecture 32 - Comparison of waveforms
- Lecture 33 - Channel models for performance evaluation - Part I
- Lecture 34 - Channel models for performance evaluation - Part II
- Lecture 35 - Channel models for performance evaluation - Part III
- Lecture 36 - MIMO Signal Processing (Receive Diversity)
- Lecture 37 - MIMO Signal Processing
- Lecture 38 - MIMO Signal Processing (Capacity)
- Lecture 39 - MIMO Signal Processing (Capacity and Massive MIMO)
- Lecture 40 - Hybrid beamforming (mmWave)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electrical Measurement and Electronic Instruments

Subject Co-ordinator - Prof. Avishek Chatterjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - PMMC Instruments
- Lecture 2 - Electrodynamic Instrument
- Lecture 3 - Demonstration of PMMC and Electrodynamic Instruments
- Lecture 4 - Features of PMMC and Electrodynamic Instruments
- Lecture 5 - Moving Iron Instruments
- Lecture 6 - Demonstration of Moving Iron Instrument
- Lecture 7 - Electrostatic Instrument
- Lecture 8 - Derivation of Deflecting Torque in Electrodynamic, Electrostatic and Moving Iron Instrument
- Lecture 9 - Damping and Eddy Current Damping
- Lecture 10 - Dynamics of the Moving Coil and Damping
- Lecture 11 - Dynamics of the Moving Coil and Damping (Continued...)
- Lecture 12 - Ballistic Galvanometer
- Lecture 13 - Ammeter - I
- Lecture 14 - Ammeter - II
- Lecture 15 - Voltmeter
- Lecture 16 - Ohmmeters - I
- Lecture 17 - Ohmmeters - II
- Lecture 18 - Rectifier based Voltmeters and Ammeter - I
- Lecture 19 - Rectifier based Voltmeters and Ammeter - II
- Lecture 20 - Resistance measurement with a Voltmeter and an Ammeter
- Lecture 21 - Four-Terminal Resistance
- Lecture 22 - Problems
- Lecture 23 - Error Calculation
- Lecture 24 - Sensitivity, Accuracy, and Resolution of Wheatstone Bridge
- Lecture 25 - Kelvin Double Bridge
- Lecture 26 - High Resistance Measurement
- Lecture 27 - Wattmeter Connection and Compensated Wattmeter
- Lecture 28 - Single Phase Energy Meter
- Lecture 29 - Demonstration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Single Phase Energy Meter (Continued...)
- Lecture 31 - Connection of Energy Meter, Wattmeter, and Three Phase Supply
- Lecture 32 - DC Potentiometer
- Lecture 33 - AC Potentiometer
- Lecture 34 - Polar potentiometer and phase shifter
- Lecture 35 - Polar potentiometer
- Lecture 36 - Co-ordinate potentiometer
- Lecture 37 - Kelvin-Varley potential divider
- Lecture 38 - Impedance measurement
- Lecture 39 - AC bridges - I
- Lecture 40 - AC bridges - II
- Lecture 41 - AC bridges - III
- Lecture 42 - Current transformer and potential transformer
- Lecture 43 - Review of transformer and magnetic circuit
- Lecture 44 - Errors in Instrument transformer
- Lecture 45 - Flux density measurement with Ballistic Galvanometer
- Lecture 46 - Flux density measurement with Ballistic Galvanometer (Continued...)
- Lecture 47 - Background
- Lecture 48 - Background
- Lecture 49 - Background
- Lecture 50 - Background
- Lecture 51 - Background
- Lecture 52 - Background
- Lecture 53 - Inverting amplifier versus Schmitt Trigger
- Lecture 54 - Non-inverting amplifier versus Schmitt Trigger
- Lecture 55 - Difference amplifier - I
- Lecture 56 - Difference amplifier - II
- Lecture 57 - Difference amplifier - III
- Lecture 58 - Digital frequency meter
- Lecture 59 - Digital frequency meter and Schmitt Trigger
- Lecture 60 - Schmitt Trigger
- Lecture 61 - Schmitt Trigger
- Lecture 62 - Digital frequency meter
- Lecture 63 - Linear ramp type digital voltmeter
- Lecture 64 - Dual slope digital voltmeter - I
- Lecture 65 - Dual slope digital voltmeter - II
- Lecture 66 - Dual slope digital voltmeter and Integrator circuit
- Lecture 67 - Digital ramp type voltmeter
- Lecture 68 - Digital ramp type voltmeter and Successive approximation type voltmeter

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - ADC and DAC - I
- Lecture 70 - ADC and DAC - II
- Lecture 71 - Why we need electronic Instruments
- Lecture 72 - Instruments with op-amp based amplifiers - I
- Lecture 73 - Instruments with op-amp based amplifiers - II
- Lecture 74 - Instruments with op-amp based amplifiers - III
- Lecture 75 - Instrumentation Amplifier
- Lecture 76 - Function generator
- Lecture 77 - 555-Timer circuit
- Lecture 78 - Astable and monostable oscillator circuits
- Lecture 79 - Pulse generator
- Lecture 80 - Oscilloscope - I
- Lecture 81 - Oscilloscope - II
- Lecture 82 - Emitter follower voltmeter
- Lecture 83 - Linear ohmmeter
- Lecture 84 - Ramp generator

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Principles and Techniques of Modern Radar Systems

Subject Co-ordinator - Dr. Amitabha Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Historical Development and Application
- Lecture 2 - Radar Bands and System Modeling
- Lecture 3 - Radar Equation
- Lecture 4 - Some Basic Concepts of Pulsed Radar
- Lecture 5 - Some Basic Concepts of Pulsed Radar (Continued...)
- Lecture 6 - Some Basic Concepts of Pulsed Radar (Continued...)
- Lecture 7 - Some Basic Concepts of Pulsed Radar (Continued...)
- Lecture 8 - Tutorial Problems on Basic Concepts of Radar - Part I
- Lecture 9 - Tutorial Problems on Basic Concepts of Radar - Part II
- Lecture 10 - CW Radar
- Lecture 11 - CW Radar Mathematical Model and Applications
- Lecture 12 - FM-CW Radar
- Lecture 13 - Double Frequency CW Radar
- Lecture 14 - Pulsed Radar
- Lecture 15 - MTI Filter
- Lecture 16 - Clutter and Single DLC
- Lecture 17 - Double DLC and Recursive MTI Filter
- Lecture 18 - Multiple prf MTI Radar
- Lecture 19 - Multiple prf MTI Radar and Clutter Attenuation
- Lecture 20 - MTI Improvement Factor
- Lecture 21 - Tutorial Problems on CW and Pulsed Radar - Part I
- Lecture 22 - Tutorial Problems on CW and Pulsed Radar - Part II
- Lecture 23 - Pulsed Doppler Radar
- Lecture 24 - Pulsed Doppler Radar (Continued...) and Search Radar
- Lecture 25 - Tracking Radar
- Lecture 26 - Tracking Radar (Continued...)
- Lecture 27 - Tracking Radar (Continued...)
- Lecture 28 - Tracking Radar (Continued...)
- Lecture 29 - Tracking Radar (Continued...)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tracking Radar (Continued...)
- Lecture 31 - Tracking Radar (Continued...)
- Lecture 32 - Tutorial Problems on Search and Tracking Radar
- Lecture 33 - Detection in Radar Receiver
- Lecture 34 - Detection in Radar Receiver (Continued...)
- Lecture 35 - Detection in Radar Receiver (Continued...)
- Lecture 36 - Detection in Radar Receiver (Continued...)
- Lecture 37 - Detection in Radar Receiver (Continued...)
- Lecture 38 - Detection in Radar Receiver (Continued...)
- Lecture 39 - Detection in Radar Receiver (Continued...)
- Lecture 40 - Detection in Radar Receiver (Continued...)
- Lecture 41 - Detection in Radar Receiver (Continued...)
- Lecture 42 - Detection in Radar Receiver (Continued...)
- Lecture 43 - Detection in Radar Receiver (Continued...)
- Lecture 44 - Detection in Radar Receiver (Continued...)
- Lecture 45 - Detection in Radar Receiver (Continued...)
- Lecture 46 - Detection in Radar Receiver (Continued...)
- Lecture 47 - Tutorial Problems on Detection in Radar Receiver
- Lecture 48 - SAR Processing
- Lecture 49 - SAR Processing (Continued...)
- Lecture 50 - SAR Processing (Continued...)
- Lecture 51 - SAR Processor
- Lecture 52 - Tutorial
- Lecture 53 - Statistical Detection Theory
- Lecture 54 - Statistical Detection Theory (Continued...)
- Lecture 55 - Statistical Detection Theory (Continued...)
- Lecture 56 - Statistical Detection Theory (Continued...)
- Lecture 57 - Statistical Detection Theory (Continued...)
- Lecture 58 - Tutorial
- Lecture 59 - Ground Penetrating Radar
- Lecture 60 - GPR Measurements and Microwave Tomography



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electrical Machines-I

Subject Co-ordinator - Prof.Tapas Kumar Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Magnetic Circuit and Transformer
- Lecture 2 - Magnetising Current from B-H Curve
- Lecture 3 - Ideal Transformer, Dot Convention and Phasor Diagram
- Lecture 4 - Operation of Ideal Operation with Load Connected
- Lecture 5 - Equivalent Circuit of Ideal Transformer
- Lecture 6 - Rating of Single Phase Transformer
- Lecture 7 - Transformer with Multiple Coils
- Lecture 8 - Modelling of Practical Transformer - I
- Lecture 9 - Modelling of Practical Transformer - II
- Lecture 10 - Modelling of Practical Transformer - III
- Lecture 11 - Core Loss - Eddy Current Loss
- Lecture 12 - Factors on Eddy Current Loss Depends
- Lecture 13 - Hysteresis Loss
- Lecture 14 - Exact Equivalent Circuit
- Lecture 15 - Approximate Equivalent Circuit
- Lecture 16 - Determination of Equivalent Circuit Parameters - No Load Test
- Lecture 17 - Short Circuit Test
- Lecture 18 - Choosing Sides to Carry Out O.C / S.C Test
- Lecture 19 - Efficiency of Transformer - Losses
- Lecture 20 - Efficiency (Continued...)
- Lecture 21 - Condition for Maximum Efficiency When Load Power Factor Constant
- Lecture 22 - Family of Efficiency Curve at Various Power Factor and Energy Efficiency
- Lecture 23 - Load Description and Energy Efficiency
- Lecture 24 - Regulation
- Lecture 25 - Regulation
- Lecture 26 - Auto Transformer - Introduction
- Lecture 27 - AutoTransformer versus Two Winding Transformer
- Lecture 28 - AutoTransformer versus Two Winding Transformer (Continued...)
- Lecture 29 - Numerical Problems on Ideal Auto Transformer

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Two Winding Transformer Connected as Auto Transformer
- Lecture 31 - Practical Auto Transformer
- Lecture 32 - Equivalent Circuit of an Auto Transformer
- Lecture 33 - Polarity Test and Sumpner Test
- Lecture 34 - 3 Phase Transformer Using 3 Single Phase Transformer
- Lecture 35 - Various Connections of 3-Phase Transformer - I
- Lecture 36 - Various Connections of 3-Phase Transformer - II
- Lecture 37 - Vector Group of 3-Phase Transformer
- Lecture 38 - Vector Group (Continued...)
- Lecture 39 - Open Delta Connection
- Lecture 40 - 3-Phase Core Type and Shell Type Transformer
- Lecture 41 - Zig Zag Connection
- Lecture 42 - Effect 3rd Harmonic Exciting Current and Flux
- Lecture 43 - Choosing Transformer Connection
- Lecture 44 - Choosing Transformer Connection (Continued...)
- Lecture 45 - Phase Conversion using Transformer
- Lecture 46 - Scott Connection (Continued...)
- Lecture 47 - 3 Phase to 6 Phase Conversion O.C / S.C Test on 3 Phase Transformer
- Lecture 48 - Parallel Operation of Transformers - I
- Lecture 49 - Parallel Operation of Transformers - II
- Lecture 50 - Parallel Operation of Transformers - III
- Lecture 51 - Specific Magnetic and Electric Loadings
- Lecture 52 - Cooling of Transformer and Fillings of Transformer
- Lecture 53 - Output Equation of 3-Phase Transformer
- Lecture 54 - Introduction to D.C Machine
- Lecture 55 - Single Conductor D.C Generator / Motor Operation
- Lecture 56 - Homopolar D.C Generator
- Lecture 57 - Homopolar D.C Motor
- Lecture 58 - Introduction to Rotating D.C Machines
- Lecture 59 - Armature Winding of D.C Machine - I
- Lecture 60 - Armature Winding of D.C Machine - II
- Lecture 61 - Armature Winding of D.C Machine - III
- Lecture 62 - Generated Voltage Across the Armature
- Lecture 63 - Electromagnetic Torque in D.C Machine
- Lecture 64 - Generator and Motor Operation - Basics
- Lecture 65 - O.C.C and Load Characteristic of Separately Excited Generators
- Lecture 66 - Voltage Build Up in Shunt Generator
- Lecture 67 - Load Characteristic of Shunt Generator
- Lecture 68 - Qualitative Discussion on Armature Reaction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Ill Effects of Armature Reaction
- Lecture 70 - Compensating and Interpoles
- Lecture 71 - Armature Reaction (Continued...)
- Lecture 72 - Field Flux Density, Armature Flux Density and Resultant Field Distribution
- Lecture 73 - Field Patterns for Both Motor and Generators
- Lecture 74 - Demagnetising and Cross Magnetising mmf for Brush Shifted Machine
- Lecture 75 - Calculation of Compensating, Interpole and Series Field Turns
- Lecture 76 - Estimating Armature and Field Resistance from its Rating
- Lecture 77 - Power Flow Diagram, Rotational Loss
- Lecture 78 - Shunt Motor
- Lecture 79 - Starting of D.C Motor - 3-Point Starter
- Lecture 80 - Speed Control of Shunt Motor - I
- Lecture 81 - Speed Control of Shunt Motor - II
- Lecture 82 - Speed Control of Shunt Motor - III
- Lecture 83 - Field Control (Continued...)
- Lecture 84 - D.C Motor Braking
- Lecture 85 - Introduction to Series Motor
- Lecture 86 - Series Motor Characteristics
- Lecture 87 - Series Motor Speed Control
- Lecture 88 - Universal Motor
- Lecture 89 - Swinburne Test
- Lecture 90 - Hopkinson Test
- Lecture 91 - Efficiency Calculation
- Lecture 92 - Field Test on D.C Series Motor
- Lecture 93 - Simplex Wave winding
- Lecture 94 - Wave Winding (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:VLSI Signal Processing

Subject Co-ordinator - Prof. Mrityunjay Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Graphical Representation of Signals
- Lecture 2 - Signal Flow Graph
- Lecture 3 - Data Flow Graph, Critical Path
- Lecture 4 - Dependence Graph, Basics of Retiming
- Lecture 5 - Retiming Theorem
- Lecture 6 - Forward Path and Loop Retiming
- Lecture 7 - Loop Bound and Iteration Bound
- Lecture 8 - Cutset Retiming
- Lecture 9 - Retiming IIR Filters
- Lecture 10 - Adaptive Filter Basics (LMS Algorithm)
- Lecture 11 - Retiming LMS
- Lecture 12 - Retiming Delayed LMS
- Lecture 13 - Parallel Processing in DSP by Unfolding
- Lecture 14 - Basic Unfolding Relation
- Lecture 15 - Retiming for Unfolding
- Lecture 16 - Loop Unfolding
- Lecture 17 - Iteration bound for Loops
- Lecture 18 - Bitserial, Digit serial and Word serial Structures
- Lecture 19 - Unfolding a Switch
- Lecture 20 - Unfolding Bit Serial Systems
- Lecture 21 - Folding of DFG
- Lecture 22 - Folding Examples - IIR Filter
- Lecture 23 - Retiming for Folding
- Lecture 24 - Introduction to Delay Optimization by Folding
- Lecture 25 - Life Time Analysis of Storage Variables
- Lecture 26 - Forward Backward Data Allocation
- Lecture 27 - Life Time Analysis of Storage Variables in a Digital Filter
- Lecture 28 - Delay Folded Realization of a Digital Filter
- Lecture 29 - Polyphase Decomposition of Sequences

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hardware Efficient 2 - Parallel FIR Filters
- Lecture 31 - Hardware Efficient 3 - Parallel FIR Filters
- Lecture 32 - Introduction to First Level Architectures
- Lecture 33 - 2's Complement Number Systems
- Lecture 34 - Multiplication of Two Binary Numbers
- Lecture 35 - Carry Ripple and Carry Save Array
- Lecture 36 - Bit Serial Multipliers
- Lecture 37 - Bit Serial Digital Filters
- Lecture 38 - Baugh Wooley Multiplier
- Lecture 39 - Distributed Arithmetic

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Analog Electronic Circuits

Subject Co-ordinator - Prof. Pradip Mandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Introduction to the constituent topics of the course and the Layout
- Lecture 3 - Revisit to pre-requisite topics
- Lecture 4 - Revisit to pre-requisite topics (Continued...)
- Lecture 5 - Analysis of Simple Non-Linear Circuit
- Lecture 6 - Analysis of Simple Non-linear Circuit (Continued...)
- Lecture 7 - Revisiting BJT Characteristic
- Lecture 8 - Revisiting BJT Characteristics (Continued...)
- Lecture 9 - Revisiting BJT Characteristics (Continued...)
- Lecture 10 - Revisiting MOSFET
- Lecture 11 - Revisiting MOSFET (Continued...)
- Lecture 12 - Revisiting MOSFET (Continued...)
- Lecture 13 - Revisiting MOSFET (Continued...)
- Lecture 14 - Analysis of simple non-linear circuit containing a BJT
- Lecture 15 - Analysis of simple non-linear circuit containing a BJT (Continued...)
- Lecture 16 - Analysis of simple non-linear circuit containing a MOSFET
- Lecture 17 - Analysis of simple non-linear circuit containing a MOSFET (Continued...)
- Lecture 18 - Linearization of non-linear circuit containing BJT
- Lecture 19 - Linearization of non-linear circuit containing BJT (Continued...)
- Lecture 20 - Linearization of non-linear circuit containing MOSFET
- Lecture 21 - Linearization of non-linear circuit containing MOSFET (Continued...)
- Lecture 22 - Linear models of Amplifiers - Part A
- Lecture 23 - Linear models of Amplifiers - Part B
- Lecture 24 - Common Emitter Amplifier - Part A
- Lecture 25 - Common Emitter Amplifier - Part B
- Lecture 26 - Common Emitter Amplifier (Continued...) - Part A
- Lecture 27 - Common Emitter Amplifier (Continued...) - Part B
- Lecture 28 - Common Emitter Amplifier (Continued...) - Numerical examples - Part A
- Lecture 29 - Common Emitter Amplifier (Continued...) - Numerical examples - Part B

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Common Emitter Amplifier (Continued...) - Design guidelines - Part A
- Lecture 31 - Common Emitter Amplifier (Continued...) - Design guidelines - Part B
- Lecture 32 - Common Source Amplifier - Part A
- Lecture 33 - Common Source Amplifier - Part B
- Lecture 34 - Common Source Amplifier (Continued...) Numerical examples and design guidelines - Part B
- Lecture 35 - Frequency Response of CE and CS Amplifiers - Part A
- Lecture 36 - Frequency Response of CE and CS Amplifiers - Part B
- Lecture 37 - Frequency Response of CE and CS Amplifiers - Part C
- Lecture 38 - Frequency Response of CE and CS Amplifiers (Continued...) - Part A
- Lecture 39 - Frequency Response of CE And CS Amplifiers (Continued...) - Part B
- Lecture 40 - Frequency Response of CE/CS Amplifiers Considering High Frequency Models of BJT and MOSFET - Part A
- Lecture 41 - Frequency Response of CE/CS Amplifiers Considering High Frequency Models of BJT and MOSFET - Part B
- Lecture 42 - Frequency Response of CE/CS Amplifiers Considering High Frequency Models of BJT And MOSFET - Part C
- Lecture 43 - Limitation of CE and CS Amplifiers in Cascading
- Lecture 44 - Common Collector and Common Drain Amplifiers
- Lecture 45 - Common Collector and Common Drain Amplifiers (Continued...)
- Lecture 46 - Common Collector and Common Drain Amplifiers (Continued...)
- Lecture 47 - Common Collector and Common Drain Amplifiers (Continued...)
- Lecture 48 - Common Collector and Common Drain Amplifiers (Continued...)
- Lecture 49 - Common Base and Common Gate Amplifiers
- Lecture 50 - Common Base and Common Gate Amplifiers
- Lecture 51 - Common Base and Common Gate Amplifiers (Continued...)
- Lecture 52 - Common Base and Common Gate Amplifiers (Continued...)
- Lecture 53 - Common Base and Common Gate Amplifiers (Continued...)
- Lecture 54 - Common Base and Common Gate Amplifiers (Continued...)
- Lecture 55 - Multi-Transistor Amplifiers
- Lecture 56 - Multi-Transistor Amplifiers
- Lecture 57 - Multi-Transistor Amplifiers
- Lecture 58 - Multi-Transistor Amplifiers (Continued...)
- Lecture 59 - Multi-Transistor Amplifiers (Continued...)
- Lecture 60 - Multi-Transistor Amplifiers (Continued...)
- Lecture 61 - Multi-Transistor Amplifiers
- Lecture 62 - Multi-Transistor Amplifiers
- Lecture 63 - Multi-Transistor Amplifiers
- Lecture 64 - Multi-Transistor Amplifiers
- Lecture 65 - Multi-Transistor Amplifiers
- Lecture 66 - Multi-Transistor Amplifiers
- Lecture 67 - Multi-Transistor Amplifiers
- Lecture 68 - Multi-Transistor Amplifiers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Multi-Transistor Amplifiers
- Lecture 70 - Single-ended Vs Differential Signaling and Basic Model of a Differential Amplifier
- Lecture 71 - Single-ended Vs Differential Signaling and Basic Model of a Differential Amplifier (Continued...)
- Lecture 72 - Single-ended Vs Differential Signaling and Basic Model of a Differential Amplifier (Continued...)
- Lecture 73 - Single-ended Vs Differential Signaling and Basic Model of a Differential Amplifier (Continued...)
- Lecture 74 - Single-ended Vs Differential Signaling and Basic Model of a Differential Amplifier (Continued...)
- Lecture 75 - Differential Amplifier
- Lecture 76 - Differential Amplifier
- Lecture 77 - Differential Amplifier
- Lecture 78 - Differential Amplifier
- Lecture 79 - Differential Amplifier
- Lecture 80 - Differential Amplifier
- Lecture 81 - Current mirror circuits - Part A
- Lecture 82 - Current mirror circuits - Part B
- Lecture 83 - Usage of current mirror - Part A
- Lecture 84 - Usage of current mirror - Part B
- Lecture 85 - Usage of current mirror - Part C
- Lecture 86 - Numerical examples on current mirror and its applications - Part A
- Lecture 87 - Numerical examples on current mirror and its applications - Part B
- Lecture 88 - Numerical examples on current mirror and its applications - Part C
- Lecture 89 - Numerical examples on current mirror and its applications - Part D
- Lecture 90 - Feedback system - Part A
- Lecture 91 - Feedback system - Part B
- Lecture 92 - Feedback system - Part C
- Lecture 93 - Feedback system - Part D
- Lecture 94 - Feedback system - Part E
- Lecture 95 - Effect of feedback on frequency response - Part A
- Lecture 96 - Effect of feedback on frequency response - Part B
- Lecture 97 - Applications of feedback in amplifier circuits - Part A
- Lecture 98 - Applications of feedback in amplifier circuits - Part B
- Lecture 99 - Applications of feedback in amplifier circuits - Part C



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Network Analysis

Subject Co-ordinator - Prof. T.K. Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Voltage and Current Sources
- Lecture 3 - Simple Networks with Voltage and Current Sources
- Lecture 4 - Mesh Analysis - I
- Lecture 5 - Mesh Analysis - II
- Lecture 6 - Nodal Analysis - I
- Lecture 7 - Nodal Analysis - II
- Lecture 8 - Nodal Analysis - III
- Lecture 9 - Inductor - I
- Lecture 10 - Initial Condition for Inductor
- Lecture 11 - Energy Stored in Inductor with Example
- Lecture 12 - R-L Series Circuit Analysis
- Lecture 13 - Retrieving Energy or Discharging of Inductor Energy
- Lecture 14 - Capacitor
- Lecture 15 - Charging of a Capacitor - Voltage, Current and Energy During Charging
- Lecture 16 - Discharge of a Charged Capacitor
- Lecture 17 - Linearity of R,L,C - Inductor with Initial Current and Capacitor with Initial Voltage
- Lecture 18 - General Method for Solving Linear Differential Equation - I
- Lecture 19 - General Method for Solving Linear Differential Equation - II
- Lecture 20 - General Method for Solving Linear Differential Equation - III
- Lecture 21 - Problem Solving
- Lecture 22 - R-L Circuit with Sinusoidal Excitation
- Lecture 23 - R-C Circuit with Sinusoidal Exponential
- Lecture 24 - Solution Due to Exponential Forcing Function
- Lecture 25 - Mesh and Nodal Analysis with Time Varying Source
- Lecture 26 - Circuit Analysis with Phasor - I
- Lecture 27 - Circuit Analysis with Phasor - II
- Lecture 28 - Circuit Analysis with Phasor - III
- Lecture 29 - Concept of Active and Reactive Power in A.C Circuit - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Concept of Active and Reactive Power in A.C Circuit - II
- Lecture 31 - Expression for Complex Power in A.C Circuit
- Lecture 32 - Numerical Example
- Lecture 33 - Mesh and Nodal Analysis in A.C Circuit, Introduction to Impulse Function
- Lecture 34 - Odd and Even Functions, Relation between Unit Step and Impulse Function
- Lecture 35 - Solution of Differential Equation with Impulse Excitation
- Lecture 36 - Numerical Example when Excitation is Impulse
- Lecture 37 - Self and Mutual Inductances - I
- Lecture 38 - Dot Convention in Mutually Coupled Coils
- Lecture 39 - Mutually Coupled Coils in Series and Parallel
- Lecture 40 - Energy Stored in Mutually Coupled Coils
- Lecture 41 - Steady State Response with Sinusoidal Excitation when the Coils are Mutually Coupled
- Lecture 42 - Basics of Signals in Brief
- Lecture 43 - Laplace Transform - I
- Lecture 44 - Laplace Transform - II
- Lecture 45 - Laplace Transform Applied to Circuit Analysis - I
- Lecture 46 - Laplace Transform Applied to Circuit Analysis - II
- Lecture 47 - Numerical Examples - I
- Lecture 48 - Numerical Examples - II
- Lecture 49 - General Second Order Circuit Analysis with L.T - I
- Lecture 50 - General Second Order Circuit Analysis with L.T - II
- Lecture 51 - Network Theorem - I
- Lecture 52 - Network Theorem - II
- Lecture 53 - Norton's Theorem
- Lecture 54 - Thevenin Theorem
- Lecture 55 - Star-Delta and Delta-Star Transformation
- Lecture 56 - Telligem's Theorem
- Lecture 57 - Reciprocity Theorem
- Lecture 58 - Maximum Power Transfer Theorem
- Lecture 59 - Graph Theory Applied to Network Analysis - I
- Lecture 60 - Graph Theory Applied to Network Analysis - II
- Lecture 61 - Graph Theory Applied to Network Analysis - III
- Lecture 62 - Graph Theory Applied to Network Analysis - IV
- Lecture 63 - Graph Theory Applied to Network Analysis - V
- Lecture 64 - Mesh Analysis with Graph Theory
- Lecture 65 - Nodal Analysis with Graph Theory
- Lecture 66 - Cut-Set Analysis with Graph Theory
- Lecture 67 - Numerical Examples of Network Analysis with Graph Theory
- Lecture 68 - Circuit Analysis with Dependent Sources - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Circuit Analysis with Dependent Sources - II
- Lecture 70 - Circuit Analysis with Dependent Sources - III
- Lecture 71 - Two Port Network - I
- Lecture 72 - Two Port Network - II
- Lecture 73 - Two Port Network - III
- Lecture 74 - Two Port Network - IV
- Lecture 75 - Two Port Network - V
- Lecture 76 - Two Port Network - VI
- Lecture 77 - Two Port Network - VII
- Lecture 78 - Gyrator
- Lecture 79 - Ideal Op - Amp
- Lecture 80 - Examples of Ideal Op-Amp Circuits - I
- Lecture 81 - Examples of Ideal Op-Amp Circuits - II
- Lecture 82 - General Impedance Transfer Circuit and Concluding Remarks

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Power System Protection

Subject Co-ordinator - Prof. Ashok Kumar Pradhan

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Faults in Power System
- Lecture 2 - Elements and Features of Protection Scheme
- Lecture 3 - Fault Analysis Review - Sequence Components
- Lecture 4 - Fault Analysis Review - Sequence Components (Continued...)
- Lecture 5 - Numerical Relaying Concept
- Lecture 6 - Discrete Fourier Transform
- Lecture 7 - Recursive and Half Cycle DFT and Cosine Filter
- Lecture 8 - Least Square Technique
- Lecture 9 - Frequency Response of Phasor Estimation techniques
- Lecture 10 - In the Presence of Decaying DC
- Lecture 11 - Overcurrent Relay Characteristics
- Lecture 12 - Overcurrent Relay Coordination
- Lecture 13 - Relay Coordination with Fuse
- Lecture 14 - Introduction to Directional Relaying
- Lecture 15 - Positive Sequence Directional Relay
- Lecture 16 - Negative and Zero Sequence Directional Relay
- Lecture 17 - Superimposed Component Based Directional Relaying
- Lecture 18 - Introduction to Distance Relay
- Lecture 19 - Fault Classification
- Lecture 20 - Apparent Impedance Calculation
- Lecture 21 - Distance Relay Implementation
- Lecture 22 - Application to Double Circuit Line
- Lecture 23 - Multi-terminal Lines
- Lecture 24 - Protection of series compensated lines - Part I
- Lecture 25 - Protection of series compensated lines - Part II
- Lecture 26 - Effect of Fault Resistance
- Lecture 27 - Load Encroachment
- Lecture 28 - Power Swing
- Lecture 29 - Power Swing Detection Techniques - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Power Swing Detection Techniques - Part II
- Lecture 31 - Adaptive Distance Relaying
- Lecture 32 - Communication Assisted Relaying Scheme
- Lecture 33 - Current Transformer - Part I
- Lecture 34 - Current Transformer - Part II
- Lecture 35 - Capacitor Voltage Transformer
- Lecture 36 - Fiber Optic Sensors
- Lecture 37 - Introduction to Transformer Protection
- Lecture 38 - Differential Relay
- Lecture 39 - Steps in Differential Relay Processing
- Lecture 40 - Inrush Detection
- Lecture 41 - CT Saturation, Negative Sequence Differential and Restricted Earth Fault Relay
- Lecture 42 - Line Differential - Part I
- Lecture 43 - Line Differential - Part II
- Lecture 44 - Busbar Protection
- Lecture 45 - Fault Characteristics of Renewable Sources
- Lecture 46 - Protection Challenges of Distribution Systems with Renewables
- Lecture 47 - Protection challenges of transmission systems with renewables
- Lecture 48 - Traveling Wave Basics
- Lecture 49 - Protection using Travelling Waves
- Lecture 50 - Fault Location using Travelling Wave
- Lecture 51 - Wide Area Measurement Basics
- Lecture 52 - Wide Area Measurement for Protection

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Signal Processing for mm Wave communication for 5G and beyond

Subject Co-ordinator - Prof. Amit Kumar Dutta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Tx- Rx Structure

Lecture 2 - Rx -Structure

Lecture 3 - Fundamental of Ray-Tracing model

Lecture 4 - General channel model - Part I

Lecture 5 - General channel model - Part I (Continued...)

Lecture 6 - General channel model - Part I (Continued...)

Lecture 7 - General channel model - Part II

Lecture 8 - Wireless channel-A ray tracing model - Part II

Lecture 9 - Wireless channel-A ray tracing model - Part II (Continued...)

Lecture 10 - Wireless channel-A ray tracing model - Part II (Continued...)

Lecture 11 - Wireless channel-A ray tracing model - Part II (Continued...)

Lecture 12 - RMS Delay spread and Doppler Effect on channel

Lecture 13 - Time Varing Model

Lecture 14 - Doppler Impact on coherence BW

Lecture 15 - Introduction to time series

Lecture 16 - AR,ARMA,MA process

Lecture 17 - Doppler with AR process model

Lecture 18 - Coherence time and parameter summery

Lecture 19 - Basic ISI channel

Lecture 20 - Channel estimation and Equalizer

Lecture 21 - precoder and MIMO

Lecture 22 - precoder and MIMO (Continued...)

Lecture 23 - Basics of mmwave spectrum

Lecture 24 - Angle of arrival and angle of departure

Lecture 25 - 3D concepts, AoA,AoD

Lecture 26 - mmWave channel model with RX beaming

Lecture 27 - mmWave channel model with RX beaming (Continued...)

Lecture 28 - mmWave channel model with RX beaming (Continued...)

Lecture 29 - mmWave channel model with RX beaming (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - mmwave channel model (Continued...)
- Lecture 31 - mmWave channel model (Continued...) -Tx side multiple antenna
- Lecture 32 - Basics of Beamforming
- Lecture 33 - Single Antenna beamforming
- Lecture 34 - Concept of antenna many fold vector
- Lecture 35 - 3D Concept of antenna many fold vector
- Lecture 36 - Different Geometry of antenna from electrical point of view
- Lecture 37 - Basics of Beamforming pattern - Part I
- Lecture 38 - Basics of Beamforming pattern - Part II
- Lecture 39 - SISO Beamforming
- Lecture 40 - MIMO Beamforming
- Lecture 41 - Structural implementation of MIMO Beamforming
- Lecture 42 - Different Level of Beamforming
- Lecture 43 - MIMO Beamforming in Transmitter side
- Lecture 44 - MIMO Beamforming in Receiver side - Part I
- Lecture 45 - MIMO Beamforming in Receiver side - Part II
- Lecture 46 - Mathematical description of MIMO Beamforming (Continued...)
- Lecture 47 - Equalizer based detector
- Lecture 48 - Parameter to be designed in MIMO Beamforming
- Lecture 49 - OFDM Data Model
- Lecture 50 - OFDM Data model (Continued...)
- Lecture 51 - General OFDM
- Lecture 52 - OFDM spectrum and CFO
- Lecture 53 - MIMO OFDM structure
- Lecture 54 - MIMO OFDM decode and beamforming
- Lecture 55 - Design parameter estimation - Part 1
- Lecture 56 - Design parameter estimation - Part 2
- Lecture 57 - Design parameter estimation - Part 3
- Lecture 58 - Design parameter estimation - Part 4
- Lecture 59 - Design parameter estimation - Part 5
- Lecture 60 - MU System
- Lecture 61 - CFO and other impairment and their effects
- Lecture 62 - Multi User Hybrid beam and impairment and analysis - Part 3
- Lecture 63 - Multi User Hybrid beam and Impairment and analysis - Part 4
- Lecture 64 - Multi User Hybrid beam and Impairment and analysis - Part 5

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Control and Tuning Methods in Switched Mode Power Converter

Subject Co-ordinator - Prof. Santanu Kapat

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - DC Power Conversion Systems - Introduction
- Lecture 2 - Overview of voltage regulators
- Lecture 3 - Switched mode power converter (SMPC)
- Lecture 4 - Model Development for MATLAB Simulation
- Lecture 5 - Demonstration of MATLAB Simulation
- Lecture 6 - Demonstration of MATLAB Simulation (Continued...)
- Lecture 7 - Power Stage Design of Basic SMPCs: Summary
- Lecture 8 - Fixed Frequency Modulation Techniques
- Lecture 9 - Variable Frequency Modulation Techniques
- Lecture 10 - Modulation in Discontinuous Conduction Mode (DCM)
- Lecture 11 - Synchronizing Simulation and Script files in MATLAB
- Lecture 12 - Interactive MATLAB Simulation and Case Studies
- Lecture 13 - Converter's Objectives and Control Implications
- Lecture 14 - Feedforward Control in SMPC
- Lecture 15 - Single and Multi Loop Feedback Control Methods
- Lecture 16 - Feedback Control of Cascaded SMPCs
- Lecture 17 - Combined feedback and feedforward control
- Lecture 18 - State feedback control
- Lecture 19 - Variable Frequency Control - Understanding Opportunities and Challenges
- Lecture 20 - Constant On-time Control Methods
- Lecture 21 - Constant Off-time Control Methods
- Lecture 22 - Hysteresis Control Methods in SMPCs
- Lecture 23 - Stability and Performance Comparison using MATLAB Simulation
- Lecture 24 - Light Load Control Methods and Interactive MATLAB Simulation
- Lecture 25 - Overview of Modeling Techniques
- Lecture 26 - State space averaging and model validation
- Lecture 27 - Circuit Averaging Techniques and Equivalent Circuit
- Lecture 28 - DC Analysis using Equivalent Circuit Model
- Lecture 29 - Derivation of Small-Signal Transfer Functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Small-Signal Model Validation using MATLAB and Time Domain Correlation
- Lecture 31 - Small-signal Modeling with Closed Current Loop
- Lecture 32 - Impedance Analysis and Stability
- Lecture 33 - Loop Gain Analysis and Understanding Model Limits using MATLAB
- Lecture 34 - PID Control Design and Tuning under VMC with MATLAB Case Studies
- Lecture 35 - Shaping Output Impedance of a Buck Converter under VMC
- Lecture 36 - Design of VMC Boost Converter and MATLAB Design Case Studies
- Lecture 37 - Accurate Small-signal Modelling under CMC and Verification using MATLAB
- Lecture 38 - Design CMC in a Buck Converter and MATLAB based Model Validation
- Lecture 39 - Design of CMC Boost Converter - Output and State Feedback Approaches
- Lecture 40 - Loop Interactions in CMC and Design of Average CMC
- Lecture 41 - Dynamics of SMPCs and Overview of Model-based Nonlinear Control
- Lecture 42 - Dynamics of LTIs and Vector Field with MATLAB Demonstration
- Lecture 43 - Geometric Perspectives of Eigenvalues and Eigenvectors in SMPCs
- Lecture 44 - Small-signal and Large-signal Model based Nonlinear Control
- Lecture 45 - Introduction to Sliding Mode Control in SMPCs
- Lecture 46 - Sliding Mode Control Design in a Buck Converter
- Lecture 47 - Boundary Control Techniques and Selection of Switching Surfaces
- Lecture 48 - Time Optimal Control and Identifying Physical Limits in SMPCs
- Lecture 49 - Linking Switching Boundary and PID Controller Structure in SMPCs
- Lecture 50 - Large-Signal Controller Tuning in Buck Converter: Objectives and Derivations
- Lecture 51 - Large-Signal Controller Tuning in Boost and Buck-Boost Converters
- Lecture 52 - Large-Signal Controller Tuning in Fixed- and Variable-Frequency Control
- Lecture 53 - Critical Performance Limits in Dynamic Voltage Scaling and Possible Solutions
- Lecture 54 - Nonlinear Control vs. Large-Signal Tuning: Comparative Study using MATLAB
- Lecture 55 - Small-Signal vs. Large-Signal Tuning: Comparison using MATLAB Simulation
- Lecture 56 - Performance Improvement and Size Reduction using Large-Signal based Control
- Lecture 57 - Digital Control in High Frequency SMPCs - Introduction and Motivations
- Lecture 58 - Overview of Fixed and Variable Frequency Digital Control Architectures
- Lecture 59 - Challenges and Opportunities in Digitally Controlled High Frequency SMPCs
- Lecture 60 - Course Summary, Key Takeaways, Few Emerging Applications and Future Scopes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Advanced Microwave Guided-Structures and Analysis

Subject Co-ordinator - Prof. Bratin Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Scattering Matrix Concepts
- Lecture 2 - Scattering Matrix Concepts (Continued...)
- Lecture 3 - Scattering Matrix Concepts (Continued...)
- Lecture 4 - Scattering Matrix Concepts (Continued...)
- Lecture 5 - Scattering Matrix Concepts Tutorials
- Lecture 6 - Scattering Matrix Concepts Tutorials (Continued...)
- Lecture 7 - Scattering Matrix Concepts Tutorials (Continued...)
- Lecture 8 - Instantaneous form of Maxwell's equations
- Lecture 9 - Instantaneous form of Maxwell's equations (Continued...)
- Lecture 10 - Instantaneous form of Maxwell's equations (Continued...)
- Lecture 11 - Instantaneous form of Maxwell's equations (Continued...)
- Lecture 12 - Instantaneous form of Maxwell's equations (Continued...)
- Lecture 13 - Instantaneous form of Maxwell's equations Tutorials
- Lecture 14 - Instantaneous form of Maxwell's equations Tutorials (Continued...)
- Lecture 15 - Harmonic form of Maxwell's equations
- Lecture 16 - Harmonic form of Maxwell's equations (Continued...)
- Lecture 17 - Harmonic form of Maxwell's equations (Continued...)
- Lecture 18 - Harmonic form of Maxwell's equations Tutorials
- Lecture 19 - Wave Equation and Solution
- Lecture 20 - Relation between wavenumbers
- Lecture 21 - Radiation from an electric current source (Continued...)
- Lecture 22 - Radiation from an electric current source (Continued...)
- Lecture 23 - Radiation from an electric current source (Continued...)
- Lecture 24 - Wave Equation and Solution Tutorials
- Lecture 25 - Radiation from an electric current source Tutorials
- Lecture 26 - Radiation from a magnetic current source
- Lecture 27 - Radiation from a magnetic current source (Continued...)
- Lecture 28 - Radiation from a magnetic current source (Continued...)
- Lecture 29 - Application of the magnetic current source (Continued...)

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- Lecture 30 - Radiation from a magnetic current source Tutorials
- Lecture 31 - Radiation from a magnetic current source Tutorials (Continued....)
- Lecture 32 - Rectangular waveguide - I
- Lecture 33 - Rectangular waveguide - I Tutorials
- Lecture 34 - Rectangular waveguide - II
- Lecture 35 - Rectangular waveguide - II (Continued...)
- Lecture 36 - Rectangular waveguide - II Tutorials
- Lecture 37 - Rectangular waveguide - II Tutorials (Continued...)
- Lecture 38 - Rectangular cavity resonator
- Lecture 39 - Rectangular cavity resonator Tutorials
- Lecture 40 - Rectangular cavity resonator Tutorials (Continued...)
- Lecture 41 - The Reciprocity Theorem, Computation of Amplitudes of Forward and Backward (Continued...)
- Lecture 42 - The Reciprocity Theorem, Computation of Amplitudes of Forward and Backward (Continued...)
- Lecture 43 - The Reciprocity Theorem, Computation of Amplitudes Tutorials
- Lecture 44 - The Reciprocity Theorem, Computation of Amplitudes Tutorials (Continued...)
- Lecture 45 - Analysis of Guided Structures
- Lecture 46 - Analysis of Guided Structures (Continued...)
- Lecture 47 - Analysis of Guided Structures (Continued...)
- Lecture 48 - Analysis of Guided Structures (Continued...)
- Lecture 49 - Analysis of Guided Structures (Continued...)
- Lecture 50 - Analysis of Guided Structures (Continued...)
- Lecture 51 - Analysis of Guided Structures (Continued...)
- Lecture 52 - Analysis of Guided Structures (Continued...)
- Lecture 53 - Analysis of Guided Structures (Continued...)
- Lecture 54 - Analysis of Guided Structures (Continued...)
- Lecture 55 - Analysis of Guided Structures (Continued...)
- Lecture 56 - Analysis of Guided Structures (Continued...)
- Lecture 57 - Analysis of Guided Structures Tutorials
- Lecture 58 - Analysis of Guided Structures Tutorials (Continued...)
- Lecture 59 - Cylindrical Wave Functions
- Lecture 60 - Cylindrical Wave Functions (Continued...)
- Lecture 61 - Cylindrical Wave Functions (Continued...)
- Lecture 62 - Circular Waveguide
- Lecture 63 - Circular Cavity
- Lecture 64 - Cylindrical Wave Functions Tutorials
- Lecture 65 - Cylindrical Wave Functions Tutorials (Continued...)
- Lecture 66 - Application to the Coupling Problem : Aperture-Coupled, Probe-Coupled and Waveguide
- Lecture 67 - Application to the Coupling Problem : Aperture-Coupled, Probe-Coupled and Waveguide (Continued...)
- Lecture 68 - Application to the Coupling Problem : Aperture-Coupled, Probe-Coupled and Waveguide (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Application to the Coupling Problem : Aperture-Coupled, Probe-Coupled and Waveguide (Continued..)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Cognition and its Computation

Subject Co-ordinator - Prof. Rajlakshmi Guha, Prof. Sharba Bandyopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Historical Origin of Cognition Studies
- Lecture 3 - The Cognitive Revolution
- Lecture 4 - Anatomical Structures of the Brain
- Lecture 5 - Frontal Lobes and Cognition
- Lecture 6 - Neuropsychological Testing
- Lecture 7 - Eye Tracking and Cognition
- Lecture 8 - EEG, fMRI, MEG
- Lecture 9 - Single neuron level measurements
- Lecture 10 - Single Neuron Imaging and Manipulation of Neural Activity
- Lecture 11 - Introduction to Computation
- Lecture 12 - Currency of Computation in Neurobiology - Action Potential
- Lecture 13 - Synapse and Synaptic Transmission
- Lecture 14 - Synaptic Plasticity
- Lecture 15 - Short Term Plasticity and STDP
- Lecture 16 - Coding by neurons
- Lecture 17 - Sensory Circuits: Visual - I
- Lecture 18 - Sensory Circuits: Visual - II
- Lecture 19 - Sensory Circuits: Auditory - I
- Lecture 20 - Sensory Circuits: Auditory - II
- Lecture 21 - Sensory Circuits: Somatosensory
- Lecture 22 - Sensory Circuits: Olfactory and Gustatory
- Lecture 23 - Motor circuits - Sensory-motor
- Lecture 24 - Reward Circuits
- Lecture 25 - Executive Circuits
- Lecture 26 - Types of Attention, Theories Broadbent Triessman
- Lecture 27 - Alerting Orientation and Executive Network
- Lecture 28 - Disorders of Attention
- Lecture 29 - Basics of Perception - Object, Depth and Movement

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- Lecture 30 - Constancy and Illusions
- Lecture 31 - Neurobiology of attention, Working Memory
- Lecture 32 - Cholinergic System, Bottom up and Top down
- Lecture 33 - Object Recognition
- Lecture 34 - Visual Search and Pattern Recognition
- Lecture 35 - Auditory Scene Analysis, McGurk Effect
- Lecture 36 - Learning Processes
- Lecture 37 - Learning Processes (Continued...)
- Lecture 38 - Memory
- Lecture 39 - Learning Disorders
- Lecture 40 - Memory Failure - Forgetting
- Lecture 41 - Learning in biological neural networks
- Lecture 42 - Examples
- Lecture 43 - Different types of Plasticity
- Lecture 44 - Developmental Plasticity/Learning/Critical Period
- Lecture 45 - Examples of Disorders in Plasticity
- Lecture 46 - Introduction to speech and language (Development)
- Lecture 47 - Components of Speech, Speech Production
- Lecture 48 - Speech Perception
- Lecture 49 - Lessons from Animal Communication
- Lecture 50 - Language and Thought - Speech Language Disorders
- Lecture 51 - Theories of Emotion
- Lecture 52 - Neurophysiology of emotions - Limbic System
- Lecture 53 - Problem Solving
- Lecture 54 - Decision Making
- Lecture 55 - Frontal cortex in decision making
- Lecture 56 - Topics in current research - I
- Lecture 57 - Topics in current research - II
- Lecture 58 - Topics in current research - III
- Lecture 59 - Topics in current research - IV
- Lecture 60 - Topics in current research - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Digital Control in Switched Mode Power Converters and FPGA-

Subject Co-ordinator - Prof. Santanu Kapat

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Digital Control in Switched Mode Power Converters - Course Introduction
- Lecture 2 - Digital Control of SMPCs - Course Instructions, Guidelines and Resources
- Lecture 3 - Examples of Some Commercial Digital Control Solutions
- Lecture 4 - Overview of Digital Control Implementation Platforms
- Lecture 5 - Introducing Basic Digitization in Power Electronic Converters
- Lecture 6 - Recap of Feedback and Feedforward Control Methods in SMPCs
- Lecture 7 - Recap of Fixed and Variable Frequency Modulation Techniques
- Lecture 8 - Levels of Digitization in Single-loop Feedback Control in SMPCs
- Lecture 9 - Levels of Digitization in Multi-loop Feedback Control in SMPCs
- Lecture 10 - SMPC Topologies and Power Stage Design for Hardware Demonstrations
- Lecture 11 - Basics of Sampling under Fixed and Variable Frequency Modulation
- Lecture 12 - Voltage Mode Digital Pulse Width Modulators and Sampling Methods
- Lecture 13 - Overview of Digital Pulse Width Modulator Architectures
- Lecture 14 - Sampling Methods under Fixed Frequency Current Mode Control
- Lecture 15 - Overview of Fixed Frequency Current Mode Control Architectures
- Lecture 16 - Sampling Methods under Constant On/Off - Time Digital Modulation
- Lecture 17 - Constant On/Off- Time Mixed-Signal Current Mode Control Architectures
- Lecture 18 - Sampling Methods under Digital Hysteresis Control Methods
- Lecture 19 - Overview of Digital Hysteresis Control Architectures
- Lecture 20 - Summary of Digital Current Mode Control Architectures
- Lecture 21 - Recap of Voltage and Current Mode Control Implementation using MATLAB
- Lecture 22 - MATLAB Model Development for Basic Digital Control Blocks
- Lecture 23 - MATLAB Model Development for Fixed Frequency Digital Control
- Lecture 24 - MATLAB Models for Digital Controllers using Difference Equations
- Lecture 25 - MATLAB Model Development for Digital Voltage Mode Control
- Lecture 26 - MATLAB Model Development for Mixed-Signal Current Mode Control
- Lecture 27 - MATLAB Model Development for Fully Digital Current Mode Control
- Lecture 28 - MATLAB Model Development for Constant-On Time Control
- Lecture 29 - MATLAB Model Development for Constant-Off Time Control

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - MATLAB Model Development for Digital Current Hysteresis Control
- Lecture 31 - Continuous-Time Small-Signal Modeling under Digital Control
- Lecture 32 - Discrete Time Modeling with Closed Current Loop
- Lecture 33 - State-Space Modeling and Steps For Deriving Discrete-Time Models
- Lecture 34 - Derivation of Discrete-Time Large-Signal Models
- Lecture 35 - Validation of Discrete-Time Large-Signal Models using MATLAB - Part I
- Lecture 36 - Validation of Discrete-Time Large-Signal Models using MATLAB - Part II
- Lecture 37 - Derivation of Discrete-Time Small-Signal Models - I
- Lecture 38 - Derivation of Discrete-Time Small-Signal Models - II
- Lecture 39 - Discrete-Time Transfer Functions and Closed Loop Block Diagrams
- Lecture 40 - Model Accuracy with MATLAB Case Studies - Comparative Study
- Lecture 41 - Continuous-Time to Discrete-Time Conversion Methods - A Summary
- Lecture 42 - Recap of Frequency Domain Design of Analog VMC and CMC
- Lecture 43 - Design under Digital Voltage Mode Control - Frequency Domain Approaches
- Lecture 44 - Design under Digital Current Mode Control - Frequency Domain Approaches
- Lecture 45 - Design Case Study and MATLAB Simulation of Digital Voltage Mode Control
- Lecture 46 - Design Case Study and MATLAB Simulation of Digital Current Mode Control
- Lecture 47 - Time Optimal Control of a Buck Converter and Identifying Performance Limits
- Lecture 48 - Trajectory based CMC Design for Proximate Time Optimal Recovery
- Lecture 49 - Trajectory based Digital CMC Tuning and MATLAB Case Studies
- Lecture 50 - Digital Pulse Skipping Control and MATLAB Simulation Case Studies
- Lecture 51 - Selection of ADC and DAC in Digitally Controlled SMPCs
- Lecture 52 - High Frequency Current Sensing Techniques in Digitally Controlled SMPCs
- Lecture 53 - Current Sensing Techniques in Digitally Controlled High Power Converters
- Lecture 54 - Signal Conditioning Circuits and PCB Design for Mixed-Signal Implementation
- Lecture 55 - Reference Power Stage Design and Schematic for Buck and Boost Converters - I
- Lecture 56 - Reference Power Stage Design and Schematic for Buck and Boost Converters - II
- Lecture 57 - Step-by-Step Guidelines for Digital Control Implementation using FPGA
- Lecture 58 - Test and Measurement of a Buck Converter using Digital Storage Oscilloscope
- Lecture 59 - Functionalities in Mixed Signal Oscilloscope for Validating Digital Control
- Lecture 60 - Power Spectrum Analysis of SMPCs using Mixed-Signal Oscilloscope
- Lecture 61 - Introduction to Verilog Hardware Description Language (HDL)
- Lecture 62 - Guidelines for Verilog HDL Programming - Some Key Rules
- Lecture 63 - Structural and Dataflow Modeling in Verilog HDL for Combinational Logics
- Lecture 64 - Behavioral Modeling in Verilog HDL for Sequential Digital Circuits
- Lecture 65 - Simulation of Verilog-HDL based Design using Xilinx Webpack - I
- Lecture 66 - Simulation of Verilog-HDL based Design using Xilinx Webpack - II
- Lecture 67 - Fixed Point Implementation in Embedded Control System
- Lecture 68 - Fixed Point Arithmetic and Concept of Q Format

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Counter-based DPWM with Deadtime and Verilog HDL Programming
- Lecture 70 - Simulating Counter-based DPWM with Deadtime using Xilinx ISE Simulator
- Lecture 71 - Top Down Design Methodology in Digital Voltage Mode Control - I
- Lecture 72 - Top Down Design Methodology in Digital Voltage Mode Control - II
- Lecture 73 - Digital PID Control Implementation using Verilog HDL Programming
- Lecture 74 - Digital PID Controller - Hardware Implementation and Experimental Results
- Lecture 75 - Top Down Design Methodology in Mixed-Signal Current Mode Control
- Lecture 76 - Top Down Design Method and Verilog HDL Programming of Mixed-Signal CMC
- Lecture 77 - Verilog HDL based Digital PI Control Implementation of Mixed-Signal CMC
- Lecture 78 - Hardware Implementation of Mixed-Signal CMC and Experimental Results
- Lecture 79 - Voltage based Digital Pulse Skip Modulation and Top Down Design Method
- Lecture 80 - Implementing Digital Pulse Skip Modulation and Experimental Results
- Lecture 81 - STM32 Overview and STM32G4x ecosystem
- Lecture 82 - Getting started with STM32CubeMX - Part I
- Lecture 83 - Getting started with STM32CubeMX - Part II
- Lecture 84 - Practical implementation of LLC converters - Part I
- Lecture 85 - Practical implementation of LLC converters - Part II
- Lecture 86 - Texas Instruments C2000 Real-time Microcontroller Devices
- Lecture 87 - Getting Started with C2000 - Software and Hardware Development
- Lecture 88 - Texas Instruments C2000 key peripheral differentiations
- Lecture 89 - Texas Instruments TIDM-02008 Reference Design Overview
- Lecture 90 - Texas Instruments TIDM-02008 Reference Design Software Overview
- Lecture 91 - Steps for FPGA Implementation of Digital Voltage Mode Control
- Lecture 92 - Steps for FPGA Implementation of Mixed-Signal Current Mode Control
- Lecture 93 - Instability in Digital CMC and Ramp Compensation with Experimental Results
- Lecture 94 - Benefits of Constant Off-Time and On-Time Digital CMC Techniques
- Lecture 95 - Top Down Design Methodology of Constant On/Off-Time Control
- Lecture 96 - Verilog HDL Implementation of Voltage based Constant On-Time Control
- Lecture 97 - FPGA Implementation of Constant On/Off-Time Mixed-Signal CMC
- Lecture 98 - Stability Comparison of Fixed and Variable Freq. Digital CMC with Experimental Results
- Lecture 99 - Assessment of Digital Control Techniques for Light Load DC-DC Converters
- Lecture 100 - Adaptive On-Time Digital Control in DCM with Verilog HDL Implementation
- Lecture 101 - MATLAB Simulation of a Practical Digital VMC Buck Converter in CCM
- Lecture 102 - Data Acquisition and Steps for Validating Simulation and Experimental Results
- Lecture 103 - Loop Shaping and Design of Digital Voltage Mode Control in a Buck Converter
- Lecture 104 - Digital VMC Design for Shaping Output Impedance in a Buck Converter
- Lecture 105 - Hardware Case Studies and Transient Performance in Digital VMC Buck Converter
- Lecture 106 - Design and Simulation Case Studies in a Mixed-Signal CMC Buck Converter
- Lecture 107 - Hardware Case Studies and Transient Performance in a Digital CMC Buck Converter

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Analysis of Output Impedance in Digital CMC with Load Current Feedforward
- Lecture 109 - Load Current Feedforward in Digital CMC Buck Converter: Experimental Results
- Lecture 110 - Need for Multi-Mode Digital Control and Design Requirements in SMPCs
- Lecture 111 - Implementing Bi-frequency Spread Spectrum in Digital VMC using Verilog HDL
- Lecture 112 - Performance of Bi-frequency Spread Spectrum DPWM and Experimental Results
- Lecture 113 - Top Down Design Methodology of PWM/PSM Multi-Mode Digital Control
- Lecture 114 - Verilog HDL based FPGA Prototyping of PWM/PSM Multi-Mode Digital Control
- Lecture 115 - FPGA Prototyping of Peak Current based PWM/PFM Multi-Mode Digital Control - I
- Lecture 116 - FPGA Prototyping of Peak Current based PWM/PFM Multi-Mode Digital Control - II
- Lecture 117 - Industry-Driven Architectures for Digital Control IC in High Frequency SMPC
- Lecture 118 - Industry-Driven Architectures for Digital Control System Solutions in SMPCs
- Lecture 119 - Exploration of Architectures, Modeling, Design, and Control - Course Summary
- Lecture 120 - Key Takeaways and Course Usefulness for Skilled Manpower Development

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:VLSI Interconnects

Subject Co-ordinator - Prof. Sarang Pendharker

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to VLSI interconnects
- Lecture 2 - The distributed RC interconnect model
- Lecture 3 - The Elmore delay
- Lecture 4 - Elmore delay in interconnects
- Lecture 5 - Elmore delay in branched RC interconnects
- Lecture 6 - Equivalent circuit for RC interconnects
- Lecture 7 - Scaling effects in interconnects
- Lecture 8 - Delay mitigation in RC interconnects
- Lecture 9 - RC interconnect simulation
- Lecture 10 - Inductive effects in interconnects
- Lecture 11 - Distributed RLC interconnect model
- Lecture 12 - Transmission line equations
- Lecture 13 - When to consider the inductive effects?
- Lecture 14 - The transfer function of an RLC interconnect
- Lecture 15 - Time domain response of a lumped RLC circuit
- Lecture 16 - Equivalent Elmore model for RLC interconnects
- Lecture 17 - Two-pole model of RLC interconnects from ABCD parameters
- Lecture 18 - RLC interconnect simulation
- Lecture 19 - Origin of the skin effect
- Lecture 20 - Effective resistance at high frequencies
- Lecture 21 - Equivalent circuit to simulate skin effect
- Lecture 22 - Power dissipation due to interconnects
- Lecture 23 - Optimum interconnect width for minimizing total power dissipation
- Lecture 24 - Heating effects and thermal modeling
- Lecture 25 - Compact thermal modeling with equivalent electrical circuits
- Lecture 26 - Electromigration in interconnects
- Lecture 27 - Mitigation of electromigration
- Lecture 28 - Capacitive coupling in interconnects
- Lecture 29 - Cross-talk and timing jitters in two identical interconnects

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Coupling effects and mitigation techniques
- Lecture 31 - Matrix formulation of coupled interconnects
- Lecture 32 - Coupled RLC interconnects
- Lecture 33 - Decoupling of interconnects by diagonalization of matrix
- Lecture 34 - Analysis of coupled interconnects: Examples - 1
- Lecture 35 - Analysis of coupled interconnects: Examples - 2
- Lecture 36 - Simulation of RC coupled interconnects
- Lecture 37 - Extraction of capacitance - Part 1
- Lecture 38 - Extraction of capacitance - Part 2
- Lecture 39 - Extraction of inductance - Part 1
- Lecture 40 - Extraction of inductance - Part 2
- Lecture 41 - Estimation of interconnect parameters from S-parameters

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Semiconductor Device Modeling and Simulation

Subject Co-ordinator - Prof. Vivek Dixit

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Crystal Concept  
Lecture 4 - Crystal Concept  
Lecture 5 - Crystal Concept  
Lecture 6 - Reciprocal Space  
Lecture 7 - Problem Session - 1  
Lecture 8 - Doping In Semiconductors  
Lecture 9 - Bandstructure  
Lecture 10 - Effective Mass  
Lecture 11 - Density of States  
Lecture 12 - Mobility  
Lecture 13 - Problem Session - 2  
Lecture 14 - Semiconductor statistics  
Lecture 15 - Semiconductor statistics (Continued...)  
Lecture 16 - P-N Junction  
Lecture 17 - P-N Junction (Continued...)  
Lecture 18 - P-N Junction (Continued...)  
Lecture 19 - Problem Session - 3  
Lecture 20 - BJT  
Lecture 21 - Bipolar Junction Transistor  
Lecture 22 - Bipolar Junction Transistor (Continued...)  
Lecture 23 - Bipolar Junction Transistor (Continued...)  
Lecture 24 - Problem Session - 4  
Lecture 25 - Metal- Semiconductor Interface  
Lecture 26 - Schottky junction  
Lecture 27 - Field Effect Transistor  
Lecture 28 - MOS Capacitor  
Lecture 29 - MOS-CV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - REAL MOS (Continued...)
- Lecture 31 - MOSFET
- Lecture 32 - MOSFET (Continued...)
- Lecture 33 - Problem Session - 5
- Lecture 34 - Semiclassical Transport
- Lecture 35 - Semiclassical Transport (Continued...)
- Lecture 36 - Semiclassical Transport (Continued...)
- Lecture 37 - Semiclassical Transport (Continued...)
- Lecture 38 - Semiclassical Transport (Continued...)
- Lecture 39 - Problem Session - 6
- Lecture 40 - Drift-diffusion model
- Lecture 41 - Drift-diffusion model (Continued...)
- Lecture 42 - Drift-diffusion model (Continued...)
- Lecture 43 - Drift-diffusion model (Continued...)
- Lecture 44 - Generation-Recombination
- Lecture 45 - Generation-Recombination (Continued...)
- Lecture 46 - Solving DD Equations (Continued...)
- Lecture 47 - Solving DD Equations (Continued...)
- Lecture 48 - Problem Session - 7
- Lecture 49 - Hydrodynamic Model
- Lecture 50 - Hydrodynamic Model (Continued...)
- Lecture 51 - Hydrodynamic Model (Continued...)
- Lecture 52 - Monte Carlo simulations
- Lecture 53 - Problem Session - 8
- Lecture 54 - Quantum Mechanics
- Lecture 55 - Solving Schrodinger Equation
- Lecture 56 - Quantum Correction Models
- Lecture 57 - Quantum Transport
- Lecture 58 - Transfer Matrix Approach
- Lecture 59 - TCAD Tools
- Lecture 60 - ATLAS SILVACO
- Lecture 61 - Simulating Junctions
- Lecture 62 - Models and Simulation Concepts
- Lecture 63 - Mixed-mode Simulation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:RF and Microwave Networks

Subject Co-ordinator - Prof. Bratin Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The network concept
- Lecture 2 - One-port network
- Lecture 3 - One-port network, Two-port network
- Lecture 4 - Two-port network, Signal flow graph
- Lecture 5 - Tutorial - 1
- Lecture 6 - General analysis of cylindrical waveguides
- Lecture 7 - TE to z mode analysis of cylindrical waveguides
- Lecture 8 - TE to z mode analysis of cylindrical waveguides (Continued...), TM to z mode analysis
- Lecture 9 - Normalization of mode vectors, Characteristics of eigen values and eigen functions
- Lecture 10 - Wave impedance for TE and TM to z modes, Transmission line analogy for mode voltage
- Lecture 11 - Transmission line equivalence for TE and TM modes, Power calculation using
- Lecture 12 - Tutorial - 2
- Lecture 13 - Modal expansion in cylindrical waveguides, Concept of mode orthogonality
- Lecture 14 - Concept of mode orthogonality (continued), Determination of arbitrary mode
- Lecture 15 - Power orthogonality in cylindrical waveguides
- Lecture 16 - Tutorial - 3
- Lecture 17 - Modal expansion of fields in rectangular waveguides
- Lecture 18 - Modal expansion of fields in rectangular waveguides (Continued), Capacitive rectangular
- Lecture 19 - Capacitive rectangular waveguide junction (Continued...)
- Lecture 20 - Inductive rectangular waveguide junction (Continued...)
- Lecture 21 - Inductive rectangular waveguide junction (Continued...), Construction of solutions
- Lecture 22 - Cylindrical waveguide junctions (Continued...)
- Lecture 23 - Cylindrical waveguide junctions (Continued...)
- Lecture 24 - Cylindrical waveguide junctions (Continued...), Example of capacitive rectangular
- Lecture 25 - Cylindrical waveguide junctions (Continued...), Example of capacitive rectangular
- Lecture 26 - Example of inductive waveguide junction (Continued...), Alternative equivalent circuit
- Lecture 27 - Tutorial - 4
- Lecture 28 - Obstacles in waveguides
- Lecture 29 - Obstacles in waveguides (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Obstacles in waveguides (Continued...)
- Lecture 31 - Small obstacles in waveguides
- Lecture 32 - Small obstacles in waveguides (Continued...)
- Lecture 33 - Small obstacles in waveguides, Reciprocity
- Lecture 34 - Reciprocity
- Lecture 35 - Reciprocity (Continued...)
- Lecture 36 - Tutorial - 5
- Lecture 37 - Posts in rectangular waveguide
- Lecture 38 - Posts in rectangular waveguide (Continued...)
- Lecture 39 - Posts in rectangular waveguide (Continued...)
- Lecture 40 - Posts in rectangular waveguide (Continued...)
- Lecture 41 - Diaphragms in waveguide
- Lecture 42 - Diaphragms in waveguide (Continued...)
- Lecture 43 - Diaphragms in waveguide (Continued...)
- Lecture 44 - Diaphragms in waveguide (Continued...)
- Lecture 45 - Tutorial - 6
- Lecture 46 - Currents in Waveguides
- Lecture 47 - Currents in Waveguides (Continued...)
- Lecture 48 - Coaxial to waveguide junction with matched termination
- Lecture 49 - Coaxial to waveguide feeds with arbitrary termination
- Lecture 50 - Coaxial to waveguide feeds with arbitrary termination (Continued...)
- Lecture 51 - Coaxial to waveguide feeds with arbitrary termination (Continued...)
- Lecture 52 - Coaxial to waveguide feeds with arbitrary termination (Continued...)
- Lecture 53 - Tutorial - 7
- Lecture 54 - Apertures in the ground plane
- Lecture 55 - Apertures in the ground plane (Continued...)
- Lecture 56 - Apertures in the ground plane (Continued...)
- Lecture 57 - Apertures in the ground plane (Continued...), Plane current sheets
- Lecture 58 - Plane current sheets (Continued...)
- Lecture 59 - Tutorial - 8
- Lecture 60 - Excitation of Apertures
- Lecture 61 - Tutorial - 9
- Lecture 62 - Modal expansion in cavities
- Lecture 63 - Probes in cavities
- Lecture 64 - Tutorial - 10
- Lecture 65 - Aperture coupling to cavities
- Lecture 66 - Aperture coupling to cavities (Continued...)
- Lecture 67 - Wave interaction with cylindrical structures
- Lecture 68 - Wave interaction with cylindrical structures (Continued...)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Wave interaction with cylindrical structures (Continued...)
- Lecture 70 - Wave interaction with cylindrical structures (Continued...)
- Lecture 71 - Wave interaction with cylindrical structures (Continued...)
- Lecture 72 - Wave interaction with cylindrical structures (Continued...)
- Lecture 73 - Wave interaction with cylindrical structures (Continued...)
- Lecture 74 - Wave interaction with cylindrical structures (Continued...)
- Lecture 75 - Tutorial - 12

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Introduction to Adaptive Signal Processing

Subject Co-ordinator - Prof. Mrityunjay Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Adaptive Filters  
Lecture 2 - Probability and Random Variables  
Lecture 3 - General Set of Random Variables  
Lecture 4 - Statistical Impedance, Covariance Matrices  
Lecture 5 - Multivariate Gaussian Density  
Lecture 6 - Complex Random Variables  
Lecture 7 - Introduction to Hermitian Matrices  
Lecture 8 - Eigenvalues and eigenvectors of Hermitian Matrices  
Lecture 9 - Spectral Decomposition of Hermitian Matrices  
Lecture 10 - Positive Definite and Semidefinite Matrices  
Lecture 11 - Introduction to Discrete Time Random Processes  
Lecture 12 - Power Spectral Density (PSD)  
Lecture 13 - PSD and Linear Time Invariant Systems  
Lecture 14 - Optimal FIR Filter  
Lecture 15 - Optimal FIR Filter (Continued...)  
Lecture 16 - LMS Algorithm  
Lecture 17 - Convergence Proof of LMS Algorithm  
Lecture 18 - Convergence Proof of LMS Algorithm (Continued...)  
Lecture 19 - Application of Adaptive Filter  
Lecture 20 - Application of Adaptive Filter (Continued...)  
Lecture 21 - Application of Adaptive Filter (Continued...)  
Lecture 22 - Applications of Adaptive Filter  
Lecture 23 - Applications of Adaptive Filter  
Lecture 24 - Second Order Analysis of LMS Algorithm  
Lecture 25 - Second Order Analysis of LMS Algorithm (Continued...)  
Lecture 26 - Second Order Analysis of LMS Algorithm (Continued...)  
Lecture 27 - Second Order Analysis of LMS Algorithm (Continued...)  
Lecture 28 - NLMS Algorithm  
Lecture 29 - NLMS Algorithm

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Affine Projection Algorithm (APA)
- Lecture 31 - Affine Projection Algorithm (APA)
- Lecture 32 - Introduction to RLS Algorithm
- Lecture 33 - Introduction to RLS Algorithm (Continued...)
- Lecture 34 - Introduction to RLS Algorithm (Continued...)
- Lecture 35 - Formulation of the RLS Algorithm
- Lecture 36 - Introduction to RLS Algorithm
- Lecture 37 - Introduction to RLS Algorithm
- Lecture 38 - Formulation of the RLS Algorithm
- Lecture 39 - Derivation of the RLS transversal adaptive filter
- Lecture 40 - Derivation of the RLS transversal adaptive filter
- Lecture 41 - Derivation of the RLS transversal adaptive filter

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Nanobiophotonics: Touching Our Daily Life

Subject Co-ordinator - Dr. Basudev Lahiri

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Nano Bio Photonics?
- Lecture 2 - Why is Nano Bio Photonics?
- Lecture 3 - Why do this?
- Lecture 4 - Why Photonics?
- Lecture 5 - Why Biology?
- Lecture 6 - Nature of Light
- Lecture 7 - Light-Matter Interactions
- Lecture 8 - Introduction to Fluorescence
- Lecture 9 - The Cell
- Lecture 10 - The Central Dogma
- Lecture 11 - Facts of Matter
- Lecture 12 - Introduction to Nanotechnology
- Lecture 13 - Nanotechnology: The art of small
- Lecture 14 - Synthesis of Nanomaterials : Top-Down Approach
- Lecture 15 - Applications of Nanomaterials in Photonics
- Lecture 16 - Interaction of Light with Cells
- Lecture 17 - Light-matter interactions in molecules (Basic of Spectroscopy)
- Lecture 18 - Imaging for Biological Matters
- Lecture 19 - Fluorophores and Fluorescence Microscopy Techniques
- Lecture 20 - Primary Examples
- Lecture 21 - Basics of Flow Cytometry - Part 1
- Lecture 22 - Basics of Flow Cytometry - Part 2
- Lecture 23 - Data manipulation and presentation
- Lecture 24 - Application of Flow cytometry in Biology
- Lecture 25 - Raman Assisted Flow cytometry
- Lecture 26 - Genetic Code
- Lecture 27 - Biosensing Background
- Lecture 28 - Basics of Microarray Technology
- Lecture 29 - DNA Microarray Technology

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- Lecture 30 - Protein Microarray Technology
- Lecture 31 - Laser Principles and Operation
- Lecture 32 - Nonlinear Optical Processes
- Lecture 33 - In Vivo Photoexcitation
- Lecture 34 - Light/Laser Activated Therapy
- Lecture 35 - Laser Tissue Contouring
- Lecture 36 - Metamaterials
- Lecture 37 - Metamaterials as Biosensors
- Lecture 38 - Biosensing with Optical Nano-Antennas
- Lecture 39 - Nanoscale Chemical Imaging
- Lecture 40 - Optical Tweezers
- Lecture 41 - Introduction to Optogenetics
- Lecture 42 - Controlling the Brain with Light
- Lecture 43 - The Nervous System
- Lecture 44 - The Neural Circuits
- Lecture 45 - Optical Neuroimaging and Tomography
- Lecture 46 - Functional Near-Infrared Spectroscopy (fNIRS) of the Brain
- Lecture 47 - Neuro imaging with Light-Sheet Microscopy
- Lecture 48 - Brain imaging with Two Photon Microscopy
- Lecture 49 - Brain imaging with functional optoacoustic Imaging
- Lecture 50 - Tomographic technique for Brain imaging
- Lecture 51 - Optogenetic Modulation of Neural Circuits
- Lecture 52 - Nanoparticles for Optical Modulation of Neuronal Behavior
- Lecture 53 - Optical Stimulation of Neural Circuits in Freely Moving Animals
- Lecture 54 - Higher Harmonic Generation Imaging for Neuropathology
- Lecture 55 - Multi-Photon Nanosurgery
- Lecture 56 - Bioinspired materials for photonics
- Lecture 57 - Bioderived Materials
- Lecture 58 - Bioinspired Materials
- Lecture 59 - Biotemplates
- Lecture 60 - Summary and Revisiting Few Topics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:EMI-EMC and Signal Integrity: Principles, Techniques and Ap

Subject Co-ordinator - Prof. Amitabha Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Electromagnetic Environment
- Lecture 2 - Introduction to Electromagnetic Compatibility
- Lecture 3 - EMC Standards
- Lecture 4 - EMC Units and Signal Spectrum
- Lecture 5 - Single Sided Spectrum
- Lecture 6 - Response of Linear Systems to Periodic Input Signals
- Lecture 7 - Important Computational Techniques
- Lecture 8 - Fourier Coefficient for Piecewise Linear Periodic Waveforms
- Lecture 9 - Fourier Coefficient for Piecewise Linear Periodic Waveforms (Continued...)
- Lecture 10 - Trapezoidal Clock
- Lecture 11 - Spectral Bounds for Trapezoidal Clock
- Lecture 12 - Spectral estimation of trapezoidal clock
- Lecture 13 - Effect of Rise/Fall Time on Spectral Bound of a Clock
- Lecture 14 - Effect of Ringing on Spectral Bounds
- Lecture 15 - Spectral Bounds for Linear System Output
- Lecture 16 - Resolution Bandwidth of a Spectrum Analyser
- Lecture 17 - Detector of Spectrum Analyser
- Lecture 18 - Radiated Emission Model Subproblem - I
- Lecture 19 - Farfield Characteristics of Current Element: Some Discussion
- Lecture 20 - Farfield of Dipole Antena
- Lecture 21 - Farfield models of wire antenna and current models
- Lecture 22 - Differential mode current emission model
- Lecture 23 - Differential mode current emission model (Continued...)
- Lecture 24 - Common Mode Current Emission Model
- Lecture 25 - Current Measurement
- Lecture 26 - Radiated Susceptibility Models
- Lecture 27 - Determination of Per Unit Length Inductance (Continued...)
- Lecture 28 - Per Unit Length Parameters of Various Two Wire Lines
- Lecture 29 - Radiated Susceptibility Model

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Radiated Susceptibility Model (Continued...)
- Lecture 31 - Radiated Susceptibility Model (Continued...)
- Lecture 32 - Crosstalk
- Lecture 33 - Development of Multi Conductor Transmission Line Equation
- Lecture 34 - Per Unit Length Parameter of a Three Conductor System
- Lecture 35 - Parameters of Three Conductor Systems (Continued...)
- Lecture 36 - Parameters of Three Conductor Systems (Continued...)
- Lecture 37 - Development of crosstalk model infrequency domain
- Lecture 38 - Determination of Terminal Currents of a three conductor system
- Lecture 39 - Derivation of Chain Parameter Matrix
- Lecture 40 - Determination of Crosstalk in a Lossless Line Immersed in Homogeneous Medium
- Lecture 41 - Determination of Crosstalk (Continued...)
- Lecture 42 - Determination of Crosstalk (Continued...)
- Lecture 43 - Determination of Crosstalk (Continued...)
- Lecture 44 - Inductive and Capacitive coupling
- Lecture 45 - Time Domain Crosstalk
- Lecture 46 - Time Domain Crosstalk (Continued...)
- Lecture 47 - Inclusion of Losses in Transient Crosstalk
- Lecture 48 - Conducted emission and susceptibility
- Lecture 49 - Shielding
- Lecture 50 - Shielding Effectiveness for Farfield Source
- Lecture 51 - Shielding Effectiveness Due to Farfield Source (Continued...)
- Lecture 52 - SE Due to Farfield Sources (Continued...) and Free Space Impedance Ar Nearfield
- Lecture 53 - Shielding for Nearfield Source
- Lecture 54 - EMC System Aspect for Shielding
- Lecture 55 - Grounding
- Lecture 56 - Grounding (Continued...)
- Lecture 57 - Bonds and Joints
- Lecture 58 - EMC Case Studies
- Lecture 59 - Electrostatic Discharge (ESD)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Embedded Sensing, Actuation and Interfacing Systems

Subject Co-ordinator - Prof. Banibrata Mukherjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Real-life Examples Illustration
- Lecture 3 - Sensor Structure and Characteristics
- Lecture 4 - Sensor and Actuator Characteristics and Numerical Problem
- Lecture 5 - Temperature Sensors and its Signal Conditioning Circuits
- Lecture 6 - Motion Sensors and its Interfacing Aspects
- Lecture 7 - Gyroscope and Strain Gauge
- Lecture 8 - Strain Gauge and Optical Sensor
- Lecture 9 - Optical Encoder, Gas Sensor and Chemical Sensor
- Lecture 10 - Magnetic Sensor and Actuator
- Lecture 11 - Electrical Actuator
- Lecture 12 - Electrical Actuator: Stepper Motor and Heater
- Lecture 13 - Smart Material Actuator
- Lecture 14 - Metamaterial and Other Actuators
- Lecture 15 - Op-amp based circuits and amplifier
- Lecture 16 - Various Op-amp Configurations
- Lecture 17 - Instrumentation Amplifier and Filter
- Lecture 18 - Passive and Active Filters
- Lecture 19 - Universal Filter and Data Converter
- Lecture 20 - ADC and DAC
- Lecture 21 - Sampling Issue and Communication Protocol
- Lecture 22 - Bridge Circuits and their Linearity Improvement
- Lecture 23 - Linearization and error reduction schemes
- Lecture 24 - Principle of Direct Interfacing Scheme
- Lecture 25 - Various Aspects of Direct Interfacing
- Lecture 26 - Direct Interfacing for Differential and Bridge Type Resistive Sensor
- Lecture 27 - Measurement Uncertainties and Interface of Sensor Array
- Lecture 28 - Various Configurations of Capacitive Sensors
- Lecture 29 - Analog Interface Circuit and Direct Interfacing Scheme

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Direct Interfacing Scheme for Differential Capacitive Sensor
- Lecture 31 - Lossy Capacitive Sensor and its Interfacing Aspect
- Lecture 32 - Advanced Interfacing Circuits for Lossy Capacitive Sensor
- Lecture 33 - Autobalance Active Bridge Interfacing Circuit
- Lecture 34 - Background of Miniaturization
- Lecture 35 - Micromachining Technology for MEMS Devices
- Lecture 36 - Bulk and Surface Micromachining and Fabrication Steps
- Lecture 37 - MEMS Fabrication Process - Part 1
- Lecture 38 - MEMS Fabrication Process - Part 2
- Lecture 39 - MEMS Fabrication Process - Part 3
- Lecture 40 - MEMS Fabrication Process - Part 4
- Lecture 41 - MEMS-IC Integration Aspects and Miniaturized Sensor
- Lecture 42 - MEMS Pressure Sensor and Interfacing Electronics
- Lecture 43 - MEMS Accelerometer
- Lecture 44 - MEMS Capacitive Accelerometer and Interfacing Electronics
- Lecture 45 - Interfacing Electronics Details for MEMS Accelerometer
- Lecture 46 - MEMS Gyroscope and Flow sensor
- Lecture 47 - MEMS Actuator
- Lecture 48 - MEMS Electrostatic Actuator Analysis
- Lecture 49 - Background of Renewable Energy Harvesting
- Lecture 50 - Various Transduction Mechanisms for Energy Harvester
- Lecture 51 - Vibration Energy Harvester and its Interfacing Aspects
- Lecture 52 - Interfacing Power Management Circuit for Vibration Energy Harvester
- Lecture 53 - Demonstration of Energy Harvester Set-up and Self-powered Embedded System
- Lecture 54 - Background of Embedded Sensors and Actuators in Automotives
- Lecture 55 - Applications in Safety System of Automotive
- Lecture 56 - Applications in Safety System and Engine Control System
- Lecture 57 - Application in Cardiovascular Measurements
- Lecture 58 - Applications in Remote Healthcare and Smart Medical Devices
- Lecture 59 - Electronic Nose and its Applications in Disease Detection
- Lecture 60 - Virtual Sensing, Research Scopes, Summary and Key Takeaways of the Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Modelling and Analysis of Electric Machines

Subject Co-ordinator - Dr. Krishna Vasudevan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Magnetic Fields

Lecture 3 - Magnetic Circuit

Lecture 4 - Singly Excited Linear Motion System

Lecture 5 - Linear and Cylindrical Motion Systems

Lecture 6 - Systems with Multiple Excitations

Lecture 7 - Non-linear Magnetic Systems

Lecture 8 - Inductances in Constant Air gap Machines

Lecture 9 - Inductance in Salient Pole Machine - I

Lecture 10 - Inductance in Salient Pole Machine - II

Lecture 11 - Inductance in Salient Pole Machine - III

Lecture 12 - Inductance in Salient Pole Machine - IV

Lecture 13 - Inductance in Salient Pole Machine - V

Lecture 14 - Inductances of Distributed Winding - I

Lecture 15 - Inductances of Distributed Winding - II

Lecture 16 - Inductances of Distributed Winding - III

Lecture 17 - Dynamic Equations of Induction Machines

Lecture 18 - Dynamic Equations of Salient Pole Synchronous Machine

Lecture 19 - Three-to-Two Phase Transformation

Lecture 20 - Induction Machine in Two-Phase Reference Frame

Lecture 21 - The Pseudo-Stationary Reference Frame

Lecture 22 - Induction Machine in Pseudo-Stationary Reference Frame

Lecture 23 - The Primitive Machine Equations

Lecture 24 - Dynamic Equations of DC Machines

Lecture 25 - Small Signal Model of DC Machine

Lecture 26 - Small Signal Behaviour of DC Machine

Lecture 27 - The Arbitrary Reference Frame

Lecture 28 - Induction Machine Equations in Arbitrary, Synchronous Reference Frames and Small Signal Modelling

Lecture 29 - Introduction to Field Oriented Control of Induction Machines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Space Vector Formulation of Induction Machine Equations
- Lecture 31 - Modelling of Salient Pole Synchronous Machines - I
- Lecture 32 - Modelling of Salient Pole Synchronous Machines - II
- Lecture 33 - Modelling of Salient Pole Synchronous Machines - III
- Lecture 34 - Steady State Models - Induction Machine
- Lecture 35 - Steady State Models - Salient Pole Synchronous Machine
- Lecture 36 - Solution of Dynamic Equations of Induction Machine - I
- Lecture 37 - Solution of Dynamic Equations of Induction Machine - II
- Lecture 38 - Reactances of Salient Pole Synchronous Machines - I
- Lecture 39 - Reactances of Salient Pole Synchronous Machines - II
- Lecture 40 - Reactances of Salient Pole Synchronous Machines - III
- Lecture 41 - Sudden Short Circuit of Three Phase Alternator - Analytical Solution
- Lecture 42 - Sudden Short Circuit of Three Phase Alternator - Numerical Simulation
- Lecture 43 - Course Recapitulation and Assignments

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Analog ICs

Subject Co-ordinator - Prof. K. Radhakrishna Rao

Co-ordinating Institute - IIT - Madras | Texas Instruments - India

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Building Blocks In Analog ICs
- Lecture 2 - Current Mirrors
- Lecture 3 - Translinear Networks
- Lecture 4 - Differential Amplifier
- Lecture 5 - Differential Amplifier Characteristics
- Lecture 6 - Video Amplifier and RF/IF Amplifiers
- Lecture 7 - Cascade Amplifier
- Lecture 8 - IC Negative Feedback Wide Band Amplifiers
- Lecture 9 - IC Negative Feedback Amplifiers
- Lecture 10 - Voltage Sources And References
- Lecture 11 - IC Voltage Regulator
- Lecture 12 - Characteristics and Parameters Of Voltage
- Lecture 13 - Protection Circuitry For Voltage Regulator
- Lecture 14 - Switched Mode Regulator And Operational
- Lecture 15 - IC Operational Voltage Amplifier
- Lecture 16 - General Purpose Operational Amplifier-747
- Lecture 17 - Transconductance Operational Amplifier
- Lecture 18 - Audio Power Amplifier and Norton's Amplifier
- Lecture 19 - Analog Multipliers
- Lecture 20 - Analog Multipliers
- Lecture 21 - Voltage Controlled Oscillator
- Lecture 22 - Voltage Controlled Oscillator
- Lecture 23 - Self Tuned Filter
- Lecture 24 - Phase Locked Loop<sup>24</sup> Phase Locked Loop
- Lecture 25 - Phase Locked Loop
- Lecture 26 - Phase Locked Loop
- Lecture 27 - Phase Locked Loop
- Lecture 28 - Current Mode ICs

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Digital Integrated Circuits

Subject Co-ordinator - Prof. Amitava Dasgupta

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Semiconductors  
Lecture 2 - Modelling of PN Junction Diodes  
Lecture 3 - Modelling of BJTs  
Lecture 4 - Diode and BJT Model Parameter Extraction  
Lecture 5 - BJT Inverters DC and Switching Characteristics  
Lecture 6 - Schottky Transistor  
Lecture 7 - Specifications of Logic Circuits  
Lecture 8 - Qualitative discussion on TTL Circuits  
Lecture 9 - Standard TTL Circuits  
Lecture 10 - Schottky (74s..) and Low power Schottky (74ls)  
Lecture 11 - Advanced TTL Circuits  
Lecture 12 - I<sup>2</sup> L Technology  
Lecture 13 - Edge triggered D-F/F  
Lecture 14 - I<sup>2</sup> L - Condition for Proper Operation  
Lecture 15 - I<sup>2</sup> L - Propagation delay Self aligned  
Lecture 16 - Schottky Transistor Logic  
Lecture 17 - Stacked I<sup>2</sup> L  
Lecture 18 - ECL Basic Operation  
Lecture 19 - Quantitative analysis of ECL 10k Series gates  
Lecture 20 - ECL 100k series; Stacked ECL gates; D-F/F  
Lecture 21 - Emitter Function Logic; Low Power ECL  
Lecture 22 - Polyemitter Bipolar Transistor In ECL; Propagation  
Lecture 23 - Heterojunction Bipolar Transistor Based ECL; ECL  
Lecture 24 - nMOS Logic Circuits  
Lecture 25 - nMOS Logic Circuits(contd); CMOS  
Lecture 26 - CMOS Inverter  
Lecture 27 - CMOS NAND, NOR and Other Gates  
Lecture 28 - Dynamic CMOS ; Transmission Gates; Realization Of MUX, decoder, D-F/F  
Lecture 29 - BiCMOS Gates

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - BiCMOS Driver;BiCMOS 32-bit Adder
- Lecture 31 - Digital Integrated Circuits
- Lecture 32 - Digital Integrated Circuits
- Lecture 33 - CMOS SRAM
- Lecture 34 - BiCMOS SRAM
- Lecture 35 - DRAM-CMOS and BiCMOS
- Lecture 36 - ROM-EPROM,EEPROM and Flash EPROM
- Lecture 37 - GaAs MESFET Characteristics and Equivalent Circuits
- Lecture 38 - Direct Coupled FET Logic; Superbuffer FET Logic
- Lecture 39 - Buffered FET Logic; Schottky Diode FET Logic
- Lecture 40 - Transmission Line Effects

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Electromagnetic Fields

Subject Co-ordinator - Prof. Harishankar Ramachandran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction To Vector  
Lecture 2 - Introduction To Vector (Continued...)  
Lecture 3 - Coulomb's Law  
Lecture 4 - Electric Field  
Lecture 5 - Electro Static Potential  
Lecture 6 - The Gradient  
Lecture 7 - Gauss's Law  
Lecture 8 - Poisson's Equation  
Lecture 9 - Energy In The Field  
Lecture 10 - Sample Problems In Electrostatics  
Lecture 11 - Fields In Materials  
Lecture 12 - Fields In Material Bodies  
Lecture 13 - Displacement Vectors  
Lecture 14 - Capacitors  
Lecture 15 - Method Of Images  
Lecture 16 - Poisson's Equation 2 Dimensions  
Lecture 17 - Field Near Sharp Edges And Points  
Lecture 18 - Magnetic Field 1  
Lecture 19 - Magnetic Field 2  
Lecture 20 - Stokes Theorems  
Lecture 21 - The curl  
Lecture 22 - Field due to current loop  
Lecture 23 - Ampere's law  
Lecture 24 - Examples of Ampere's law  
Lecture 25 - Inductance  
Lecture 26 - Mutual Inductance  
Lecture 27 - Faraday's law  
Lecture 28 - Magnetic Energy  
Lecture 29 - Magnetic Energy (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Magnetic Energy (Continued...)
- Lecture 31 - Generalised Ampere's Law
- Lecture 32 - The Wave Equation
- Lecture 33 - The Wave Equation
- Lecture 34 - Poynting Theorem
- Lecture 35 - Skin Effect
- Lecture 36 - Skin Effect (Continued...)
- Lecture 37 - Radiation And Circuits
- Lecture 38 - Phasor Form Of Poynting Theorem
- Lecture 39 - Reflection At Dielectric Boundaries
- Lecture 40 - Reflection At Dielectric Boundaries (Continued...)
- Lecture 41 - Transmission Lines
- Lecture 42 - Transmission Lines (Continued...) and Conclusion



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Networks and Systems

Subject Co-ordinator - Prof. V.G.K. Murthi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introductory Concepts - 1  
Lecture 2 - Introductory Concepts - 2  
Lecture 3 - Introductory Concepts - 3  
Lecture 4 - Introductory Concepts - 4  
Lecture 5 - Introductory Concepts - 5  
Lecture 6 - Introductory Concepts - 6  
Lecture 7 - Fourier Series - 1  
Lecture 8 - Fourier Series - 2  
Lecture 9 - Fourier Series - 3  
Lecture 10 - Fourier Series - 4  
Lecture 11 - Fourier Series - 5  
Lecture 12 - Fourier Series - 6  
Lecture 13 - Fourier Transforms - 1  
Lecture 14 - Fourier Transforms - 2  
Lecture 15 - Fourier Transforms - 3  
Lecture 16 - Fourier Transforms - 4  
Lecture 17 - Fourier Transforms - 5  
Lecture 18 - Fourier Transforms - 6  
Lecture 19 - Fourier Transforms - 7  
Lecture 20 - Laplace Transforms - 1  
Lecture 21 - Laplace Transforms - 2  
Lecture 22 - Laplace Transforms - 3  
Lecture 23 - Laplace Transforms - 4  
Lecture 24 - Laplace Transforms - 5  
Lecture 25 - Laplace Transforms - 6  
Lecture 26 - Application of Laplace Transforms - 1  
Lecture 27 - Application of Laplace Transforms - 2  
Lecture 28 - Application of Laplace Transforms - 3  
Lecture 29 - Application of Laplace Transforms - 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30	- Network Functions	- 1
Lecture 31	- Network Functions	- 2
Lecture 32	- Network Functions	- 3
Lecture 33	- Network Functions	- 4
Lecture 34	- Network Theorems	- 1
Lecture 35	- Network Theorems	- 2
Lecture 36	- Network Theorems	- 3
Lecture 37	- Network Theorems	- 4
Lecture 38	- Discrete - Time Systems	- 1
Lecture 39	- Discrete - Time Systems	- 2
Lecture 40	- Discrete - Time Systems	- 3
Lecture 41	- Discrete - Time Systems	- 4
Lecture 42	- Discrete - Time Systems	- 5
Lecture 43	- Discrete - Time Systems	- 6
Lecture 44	- Discrete - Time Systems	- 7
Lecture 45	- State-Variable Methods	- 1
Lecture 46	- State-Variable Methods	- 2
Lecture 47	- State Variable Methods	- 3
Lecture 48	- State Variable Methods	- 4
Lecture 49	- State Variable Methods	- 5
Lecture 50	- State Variable Methods	- 6

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Probability Foundation for Electrical Engineers

Subject Co-ordinator - Dr. Krishna Jagannathan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Cardinality
- Lecture 3 - Countability
- Lecture 4 - Uncountable sets - 1
- Lecture 5 - Uncountable sets - 2
- Lecture 6 - Probability spaces - Introduction
- Lecture 7 - Probability spaces - Algebra
- Lecture 8 - Probability spaces -  $\sigma$ -algebra
- Lecture 9 - Probability spaces - Measurable space
- Lecture 10 - Properties of probability measures
- Lecture 11 - Continuity of probability measure
- Lecture 12 - Discrete probability space - finite and countably infinite sample space
- Lecture 13 - Discrete probability space - Uncountable sample space
- Lecture 14 - Generated  $\sigma$ -algebra, Borel Sets
- Lecture 15 - Borel sets
- Lecture 16 - Uniform probability measure on Borel sets-Lebesgue measure
- Lecture 17 - Carathéodory's extension theorem
- Lecture 18 - Lebesgue measure (Continued...)
- Lecture 19 - Infinite coin toss model
- Lecture 20 - Infinite coin toss model (Continued...)
- Lecture 21 - Conditional probability
- Lecture 22 - Properties of conditional probability
- Lecture 23 - Independence of events
- Lecture 24 - Independence of  $\sigma$ -algebras
- Lecture 25 - Borel-Cantelli Lemma - 1
- Lecture 26 - Borel-Cantelli Lemma - 2
- Lecture 27 - Random Variables
- Lecture 28 - Random Variables (Continued...)
- Lecture 29 - Cumulative Distribution Function

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Properties of CDF
- Lecture 31 - Types of Random Variables
- Lecture 32 - Examples of Random Variables
- Lecture 33 - Continuous Random Variables - 1
- Lecture 34 - Examples of Continuous Random Variables - 1
- Lecture 35 - Continuous Random Variables - 2, Examples of Continuous Random Variables - 2
- Lecture 36 - Singular Random Variables
- Lecture 37 - Several Random Variables - 1
- Lecture 38 - Several Random Variables - 2
- Lecture 39 - Independent Random Variables - 1
- Lecture 40 - Independent Random Variables - 2
- Lecture 41 - Conditional PMF, Jointly Continuous Random Variables - 1
- Lecture 42 - Jointly Continuous Random Variables - 2
- Lecture 43 - Jointly Continuous Random Variables - 3
- Lecture 44 - Conditional CDF
- Lecture 45 - Transformation of Random Variables - 1
- Lecture 46 - Transformation of Random Variables - 2; Independent Random Variables
- Lecture 47 - Sums of Discrete Random Variables
- Lecture 48 - Sums of Jointly Continuous Random Variables
- Lecture 49 - Sums of Random Number of Random Variables
- Lecture 50 - General Transformations of Random Variables
- Lecture 51 - Jacobian Formula
- Lecture 52 - Examples Illustrating the use of Jacobian Formula
- Lecture 53 - Introduction Integral and Expectation
- Lecture 54 - Definition of the Abstract Integral
- Lecture 55 - Simple Functions
- Lecture 56 - Computing Expectation using Simple Functions, Properties of Integrals
- Lecture 57 - Properties of Integrals (Continued....)
- Lecture 58 - Inclusion Exclusion Formula using Indicator RVs and Expectation
- Lecture 59 - Monotone Convergence Theorem - 1
- Lecture 60 - Monotone Convergence Theorem - 2
- Lecture 61 - Expectation of a Discrete Random Variable
- Lecture 62 - Examples of Expectation of Discrete Random Variables
- Lecture 63 - Expectation of Function of Random Variable
- Lecture 64 - Some Examples of Computing Expectation
- Lecture 65 - Fatou's Lemma
- Lecture 66 - Dominated Convergence Theorem
- Lecture 67 - Variance
- Lecture 68 - Covariance

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- Lecture 69 - Covariance Correlation Coefficient - 1
- Lecture 70 - Covariance Correlation Coefficient - 2
- Lecture 71 - Conditional Expectation
- Lecture 72 - Properties of Conditional Expectation
- Lecture 73 - MMSE Estimator
- Lecture 74 - Transforms
- Lecture 75 - Moment Generating Function - 1
- Lecture 76 - Moment Generating Function - 2
- Lecture 77 - Characteristic Function - 1
- Lecture 78 - Characteristic Function - 2
- Lecture 79 - Characteristic Function - 3
- Lecture 80 - Characteristic Function - 4
- Lecture 81 - Concentration Inequalities - 1
- Lecture 82 - Concentration Inequalities - 2
- Lecture 83 - Convergence of Random Variables - 1
- Lecture 84 - Convergence of Random Variables - 2
- Lecture 85 - Convergence of Random Variables - 3
- Lecture 86 - Convergence of Random Variables - 4
- Lecture 87 - Convergence of Random Variables - 5
- Lecture 88 - Convergence of Random Variables - 6
- Lecture 89 - Convergence Of Characteristic Functions
- Lecture 90 - Limit Theorems
- Lecture 91 - The Law of Large Numbers - 1
- Lecture 92 - The Law of Large Numbers - 2
- Lecture 93 - The Central Limit Theorem - 1
- Lecture 94 - The Central Limit Theorem - 2
- Lecture 95 - A Brief Overview of Multivariate Gaussians - 1
- Lecture 96 - A Brief Overview of Multivariate Gaussians - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Analog Circuits

Subject Co-ordinator - Dr. Nagendra Krishnapura

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Obtaining power gain
- Lecture 3 - Obtaining power gain using a linear two port?
- Lecture 4 - One port (two terminal) nonlinear element
- Lecture 5 - Nonlinear circuit analysis
- Lecture 6 - Small signal incremental analysis - graphical view
- Lecture 7 - Small signal incremental analysis
- Lecture 8 - Incremental equivalent circuit
- Lecture 9 - Large signal characteristics of a diode
- Lecture 10 - Analysis of diode circuits
- Lecture 11 - Small signal model of a diode
- Lecture 12 - Two port nonlinearity
- Lecture 13 - Small signal equivalent of a two port network
- Lecture 14 - Small signal equivalent circuit of a two port network
- Lecture 15 - Gain of a two port network
- Lecture 16 - Constraints on small signal parameters to maximize the gain
- Lecture 17 - Constraints on large signal characteristics to maximize the gain
- Lecture 18 - Implications of constraints in terms of the circuit equivalent
- Lecture 19 - MOS transistor-description
- Lecture 20 - MOS transistor large signal characteristics
- Lecture 21 - MOS transistor large signal characteristics - graphical view
- Lecture 22 - MOS transistor small signal characteristics
- Lecture 23 - Linear (Triode) region of the MOS transistor
- Lecture 24 - Small signal amplifier using the MOS transistor
- Lecture 25 - Basic amplifier structure
- Lecture 26 - Problems with the basic structure
- Lecture 27 - Adding bias and signal-ac coupling
- Lecture 28 - Common source amplifier with biasing
- Lecture 29 - Common source amplifier: Small signal equivalent circuit

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Common source amplifier analysis: Effect of biasing components
- Lecture 31 - Constraint on the input coupling capacitor
- Lecture 32 - Constraint on the output coupling capacitor
- Lecture 33 - Dependence of  $I_D$  on  $V_{DS}$
- Lecture 34 - Small signal output conductance of a MOS transistor
- Lecture 35 - Effect of  $g_{ds}$  on a common source amplifier; Inherent gain limit of a transistor
- Lecture 36 - Variation of  $g_m$  with transistor parameters
- Lecture 37 - Variation of  $g_m$  with constant  $V_{GS}$  and constant drain current bias
- Lecture 38 - Negative feedback control for constant drain current bias
- Lecture 39 - Types of feedback for constant drain current bias
- Lecture 40 - Sense at the drain and feedback to the gate-Drain feedback
- Lecture 41 - Intuitive explanation of low sensitivity with drain feedback
- Lecture 42 - Common source amplifier with drain feedback bias
- Lecture 43 - Constraint on the gate bias resistor
- Lecture 44 - Constraint on the input coupling capacitor
- Lecture 45 - Constraint on the output coupling capacitor
- Lecture 46 - Input and output resistances of the common source amplifier with constant  $V_{GS}$  bias
- Lecture 47 - Current mirror
- Lecture 48 - Common source amplifier with current mirror bias
- Lecture 49 - Constraint on coupling capacitors and bias resistance
- Lecture 50 - Diode connected transistor
- Lecture 51 - Source feedback biasing
- Lecture 52 - Common source amplifier with source feedback bias
- Lecture 53 - Constraints on capacitor values
- Lecture 54 - Sensing at the drain and feeding back to the source
- Lecture 55 - Sensing at the source and feeding back to the gate
- Lecture 56 - Ensuring that transistor is in saturation
- Lecture 57 - Using a resistor instead of current source for biasing
- Lecture 58 - Controlled sources using a MOS transistor-Introduction
- Lecture 59 - Voltage controlled voltage source
- Lecture 60 - VCVS using a MOS transistor
- Lecture 61 - VCVS using a MOS transistor - Small signal picture
- Lecture 62 - VCVS using a MOS transistor - Complete circuit
- Lecture 63 - Source follower: Effect of output conductance; Constraints on coupling capacitors
- Lecture 64 - VCCS using a MOS transistor
- Lecture 65 - VCCS using a MOS transistor: Small signal picture
- Lecture 66 - VCCS using a MOS transistor: Complete circuit
- Lecture 67 - VCCS using a MOS transistor: AC coupling the output
- Lecture 68 - Source degenerated CS amplifier

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - CCCS using a MOS transistor
- Lecture 70 - CCCS using a MOS transistor: Small signal picture
- Lecture 71 - CCCS using a MOS transistor: Complete circuit
- Lecture 72 - C CVS using a MOS transistor
- Lecture 73 - C CVS using a MOS transistor: Gain
- Lecture 74 - C CVS using a MOS transistor: Input and output resistances
- Lecture 75 - C CVS using a MOS transistor: Complete circuit
- Lecture 76 - V CVS using an opamp
- Lecture 77 - C CVS using an opamp
- Lecture 78 - Negative feedback and virtual short in an opamp
- Lecture 79 - Negative feedback and virtual short in a transistor
- Lecture 80 - Constraints on controlled sources using opamps and transistors
- Lecture 81 - Quick tour of amplifying devices
- Lecture 82 - Signal swing limits in amplifiers
- Lecture 83 - Swing limit due to transistor entering triode region
- Lecture 84 - Swing limit due to transistor entering cutoff region
- Lecture 85 - Swing limit calculation example
- Lecture 86 - Swing limits-more calculations
- Lecture 87 - pMOS transistor
- Lecture 88 - Small signal model of the pMOS transistor
- Lecture 89 - Common source amplifier using the pMOS transistor
- Lecture 90 - Swing limits of the pMOS common source amplifier
- Lecture 91 - Biasing a pMOS transistor at a constant current; pMOS current mirror
- Lecture 92 - Converting nMOS transistor circuits to pMOS
- Lecture 93 - Bias current generation
- Lecture 94 - Examples of more than one transistor in feedback
- Lecture 95 - Gain limitation in a common source amplifier with resistive load
- Lecture 96 - nMOS active load for pMOS common source amplifier
- Lecture 97 - CMOS inverter
- Lecture 98 - Large signal characteristics of pMOS CS amplifier with nMOS active load
- Lecture 99 - Large signal characteristics of nMOS CS amplifier with pMOS active load
- Lecture 100 - Large signal characteristics of a CMOS inverter
- Lecture 101 - Active load amplifiers as digital gates
- Lecture 102 - Sensitivity of output bias to input bias in a CMOS inverter
- Lecture 103 - Self biasing a CMOS inverter
- Lecture 104 - An application of self biased inverters
- Lecture 105 - Current consumption of a self-biased inverter; Current biasing
- Lecture 106 - Amplifying a difference signal; Differential pair
- Lecture 107 - Differential pair-small signal basics

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Biasing a differential pair
- Lecture 109 - Differential pair with differential excitation
- Lecture 110 - Differential pair with a current mirror load
- Lecture 111 - Differential pair with a current mirror load - operating point
- Lecture 112 - Differential pair with a current mirror load - Norton equivalent current
- Lecture 113 - Differential pair with a current mirror load - Norton equivalent resistance
- Lecture 114 - Common mode gain
- Lecture 115 - Single stage opamp
- Lecture 116 - Single stage opamp: Input common mode swing limits
- Lecture 117 - Single stage opamp: Output swing limits
- Lecture 118 - Which transistor type to use for the second stage?
- Lecture 119 - Small signal gain
- Lecture 120 - DC negative feedback biasing of all stages
- Lecture 121 - DC negative feedback biasing of all stages (Continued...)
- Lecture 122 - Small signal model
- Lecture 123 - Swing limits
- Lecture 124 - Systematic offset; How to eliminate it
- Lecture 125 - Bipolar junction transistor(BJT): Large signal model
- Lecture 126 - BJT model for calculating operating points
- Lecture 127 - BJT small signal model
- Lecture 128 - Biasing a BJT
- Lecture 129 - Biasing a BJT, (Continued...)
- Lecture 130 - Amplifiers using BJTs
- Lecture 131 - PNP transistor

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Introduction to Non Linear Dynamics

Subject Co-ordinator - Prof. Gaurav Raina

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - A brief introduction to modelling  
Lecture 2 - Dynamics and Nonlinear systems  
Lecture 3 - 1-Dimensional Flows, Flows on the Line, Lecture 1  
Lecture 4 - 1-Dimensional Flows, Flows on the Line, Lecture 2  
Lecture 5 - 1-Dimensional Flows, Flows on the Line, Lecture 3  
Lecture 6 - 1-Dimensional Flows, Flows on the Line, Lecture 4  
Lecture 7 - 1-Dimensional Flows, Flows on the Line, Lecture 5  
Lecture 8 - 1-Dimensional Flows, Flows on the Line, Lecture 6  
Lecture 9 - 1-Dimensional Flows, Bifurcations, Lecture 1  
Lecture 10 - 1-Dimensional Flows, Bifurcations, Lecture 2  
Lecture 11 - 1-Dimensional Flows, Bifurcations, Lecture 3  
Lecture 12 - 1-Dimensional Flows, Bifurcations, Lecture 4  
Lecture 13 - 1-Dimensional Flows, Bifurcations, Lecture 5  
Lecture 14 - 1-Dimensional Flows, Bifurcations, Lecture 6  
Lecture 15 - 1-Dimensional Flows, Flows on the Circle, Lecture 1  
Lecture 16 - 1-Dimensional Flows, Flows on the Circle, Lecture 2  
Lecture 17 - 2-Dimensional Flows, Linear Systems, Lecture 1  
Lecture 18 - 2-Dimensional Flows, Linear Systems, Lecture 2  
Lecture 19 - 2-Dimensional Flows, Linear Systems, Lecture 3  
Lecture 20 - 2-Dimensional Flows, Linear Systems, Lecture 4  
Lecture 21 - 2-Dimensional Flows, Phase Plane, Lecture 1  
Lecture 22 - 2-Dimensional Flows, Phase Plane, Lecture 2  
Lecture 23 - 2-Dimensional Flows, Phase Plane, Lecture 3  
Lecture 24 - 2-Dimensional Flows, Limit Cycles, Lecture 1  
Lecture 25 - 2-Dimensional Flows, Limit Cycles, Lecture 2  
Lecture 26 - 2-Dimensional Flows, Limit Cycles, Lecture 3  
Lecture 27 - 2-Dimensional Flows, Bifurcations, Lecture 1  
Lecture 28 - 2-Dimensional Flows, Bifurcations, Lecture 2  
Lecture 29 - 2-Dimensional Flows, Bifurcations, Lecture 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Control Engineering

Subject Co-ordinator - Prof. Ramkrishna.P

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Systems and Control

Lecture 2 - Modelling of Systems

Lecture 3 - Elements of Modelling

Lecture 4 - Examples of Modelling

Lecture 5 - Solving Problems in Modelling of Systems

Lecture 6 - Laplace Transforms

Lecture 7 - Inverse Laplace Transforms

Lecture 8 - Transfer Function of Modelling Block Diagram Representation

Lecture 9 - Solving Problems on Laplace Transforms and Transfer Functions

Lecture 10 - Block Diagram Reduction, Signal Flow Graphs

Lecture 11 - Solving Problems on Block Diagram Reduction, Signal Flow Graphs

Lecture 12 - Time Response Analyzsis of systems

Lecture 13 - Time Response specifications

Lecture 14 - Solving Problems on Time Response Analyzsis ans specifications

Lecture 15 - Stability

Lecture 16 - Routh Hurwitz Criterion

Lecture 17 - Routh Hurwitz Criterion T 1

Lecture 18 - Closed loop System and Stability

Lecture 19 - Root Locus Technique

Lecture 20 - Root Locus Plots

Lecture 21 - Root Locus Plots (Continued...)

Lecture 22 - Root Locus Plots (Continued...)

Lecture 23 - Root Locus Plots (Continued...)

Lecture 24 - Introduction to Frequency Response

Lecture 25 - Frequency Response Plots

Lecture 26 - Relative Stability

Lecture 27 - Bode plots

Lecture 28 - Basics of Control design Proportional, Integral and Derivative Actions

Lecture 29 - Basics of Control design Proportional, Integral and Derivative Actions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problems on PID Controllers
- Lecture 31 - Basics of Control design Proportional, Integral and Derivative Actions
- Lecture 32 - Control design in time domain and discusses the lead compensator
- Lecture 33 - Improvement of the Transient Response using lead compensation
- Lecture 34 - Design of control using lag compensators
- Lecture 35 - The design of Lead-Lag compensators using root locus
- Lecture 36 - Introduction design of control in frequency domain
- Lecture 37 - Design of Lead Compensator using Bode Plots
- Lecture 38 - Design of Lag Compensators using Bode Plots
- Lecture 39 - Design of Lead-Lag Compensators using Bode plots
- Lecture 40 - Experimental Determination of Transfer Function
- Lecture 41 - Effect of Zeros on System Response
- Lecture 42 - Navigation - Stories and Some Basics
- Lecture 43 - Navigation - Dead Reckoning and Reference Frames
- Lecture 44 - Inertial Sensors and Their Characteristics
- Lecture 45 - Filter Design to Attenuate Inertial Sensor Noise
- Lecture 46 - Complementary Filter
- Lecture 47 - Complementary Filter - 1
- Lecture 48 - Introduction to State Space Systems
- Lecture 49 - Linearization of State Space Dynamics
- Lecture 50 - Linearization of State Space Dynamics - 1
- Lecture 51 - Controllability and Observability

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Analog IC Design

Subject Co-ordinator - Prof. S. Aniruddhan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to MOSFETs  
Lecture 2 - Simple MOSFET Circuits  
Lecture 3 - MOSFET Current Mirrors  
Lecture 4 - Cascode Amplifiers  
Lecture 5 - MOSFET in Integrated Circuits  
Lecture 6 - MOSFET Capacitances  
Lecture 7 - Noise  
Lecture 8 - Noise of Simple Circuits  
Lecture 9 - Systematic Mismatch  
Lecture 10 - Random Mismatch  
Lecture 11 - Differential Amplifiers  
Lecture 12 - Negative Feedback  
Lecture 13 - Stability of Negative Feedback Systems  
Lecture 14 - Dominant Pole Compensation  
Lecture 15 - Active Load  
Lecture 16 - One Stage OpAmps - 1  
Lecture 17 - One Stage OpAmps - 2  
Lecture 18 - One Stage OpAmps - 3  
Lecture 19 - Differential Amplifiers Offset  
Lecture 20 - One Stage OpAmps - Noise and Offset  
Lecture 21 - One Stage OpAmps - Slew Rate  
Lecture 22 - One Stage OpAmps - Datasheet  
Lecture 23 - One Stage OpAmps - Example 1  
Lecture 24 - One Stage OpAmps - Example 2  
Lecture 25 - Telescopic OpAmp - 1  
Lecture 26 - Telescopic OpAmp - 2  
Lecture 27 - Telescopic OpAmp - 3  
Lecture 28 - Telescopic OpAmp - 4  
Lecture 29 - Telescopic OpAmp - 5

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Telescopic OpAmp - Datasheet
- Lecture 31 - Telescopic OpAmp - Design Example
- Lecture 32 - Folded-Cascode OpAmp - 1
- Lecture 33 - Folded-Cascode OpAmp - 2
- Lecture 34 - Folded-Cascode OpAmp - 3
- Lecture 35 - Folded-Cascode OpAmp - 4
- Lecture 36 - Folded-Cascode OpAmp - 5
- Lecture 37 - Negative feedback amplifier
- Lecture 38 - Step response, sinusoidal steady state response
- Lecture 39 - Loop gain and unity loop gain frequency; Opamp
- Lecture 40 - Opamp realization using controlled sources; Delay in the loop
- Lecture 41 - Negative feedback amplifier with ideal delay-small delays
- Lecture 42 - Negative feedback amplifier with ideal delay-large delays
- Lecture 43 - Negative feedback amplifier with parasitic poles and zeros
- Lecture 44 - Negative feedback amplifier with parasitic poles and zeros; Nyquist criterion
- Lecture 45 - Nyquist criterion; Phase margin
- Lecture 46 - Phase margin
- Lecture 47 - Single stage opamp realization
- Lecture 48 - Two stage miller compensated opamp
- Lecture 49 - Two stage miller compensated opamp.
- Lecture 50 - Two and three stage miller compensated opamps; Feedforward compensated opamp
- Lecture 51 - Two Stage Opamp
- Lecture 52 - Two Stage Opamp ; Three Stage and Triple Cascade Opamps
- Lecture 53 - Common Mode Rejection Ratio ; Example
- Lecture 54 - Fully differential single stage opamp
- Lecture 55 - Common mode feedback
- Lecture 56 - Fully differential single stage opamp-2
- Lecture 57 - Fully differential two stage opamp; Fully differential versus pseudo-differential

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Probability Foundations for Electrical Engineers

Subject Co-ordinator - Prof. R.Aravind, Dr. Andrew Thangaraj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Experiments, Outcomes and Events

Lecture 2 - Examples

Lecture 3 - Operations on Events

Lecture 4 - Examples

Lecture 5 - Sigma Fields and Probability

Lecture 6 - Discrete Sample Spaces

Lecture 7 - Union and Partition

Lecture 8 - Examples

Lecture 9 - Definition and Basic Properties

Lecture 10 - Bayes' Rule for Partitions

Lecture 11 - Examples

Lecture 12 - Example of Detection

Lecture 13 - Example

Lecture 14 - Independence of Events

Lecture 15 - Examples

Lecture 16 - Combining Independent Experiments

Lecture 17 - Conditional Independence

Lecture 18 - Examples and Computations with Conditional Independence

Lecture 19 - Binomial and Geometric Models

Lecture 20 - Examples

Lecture 21 - Definition and Discrete Setting

Lecture 22 - Random Variables and Events

Lecture 23 - Examples

Lecture 24 - Important distributions

Lecture 25 - Examples

Lecture 26 - Real-life modeling example

Lecture 27 - More Distributions

Lecture 28 - Conditional PMFs, Conditioning on an event, Indicator random variables

Lecture 29 - Example

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multiple random variables and joint distribution
- Lecture 31 - Example
- Lecture 32 - Marginal PMF
- Lecture 33 - Trinomial joint PMF
- Lecture 34 - Events and Conditioning with Two Random Variables
- Lecture 35 - Example
- Lecture 36 - Independent random variables
- Lecture 37 - More on independence
- Lecture 38 - Example
- Lecture 39 - Addition of Random Variables
- Lecture 40 - Sum, Difference and Max of Two Random Variables
- Lecture 41 - More Computations
- Lecture 42 - Example
- Lecture 43 - Real line as sample space
- Lecture 44 - Probability density function (pdf)
- Lecture 45 - Cumulative distribution function (CDF)
- Lecture 46 - Continuous random variables
- Lecture 47 - pdf and CDF of continuous random variables
- Lecture 48 - Spinning pointer example
- Lecture 49 - Important continuous distributions
- Lecture 50 - More continuous distributions
- Lecture 51 - Two-dimensional real sample space
- Lecture 52 - Joint pdf and joint CDF
- Lecture 53 - More on assigning probability to regions of x-y plain
- Lecture 54 - Darts example and marginal pdfs
- Lecture 55 - Independence to two continuous random variables
- Lecture 56 - Examples
- Lecture 57 - Prob[  $X > Y$  ]
- Lecture 58 - Transformations of random variables
- Lecture 59 - CDF method
- Lecture 60 - pdf method
- Lecture 61 - Examples
- Lecture 62 - One-to-one transformations
- Lecture 63 - Expected Value or Mean of a Random Variable
- Lecture 64 - Properties of Expectation
- Lecture 65 - Expectation Computations for Important Distributions
- Lecture 66 - Variance
- Lecture 67 - Examples of Variance
- Lecture 68 - Expectations with Two Random Variables

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Correlation and Covariance
- Lecture 70 - Examples
- Lecture 71 - Examples
- Lecture 72 - Examples
- Lecture 73 - Live Session

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Introduction to Photonics

Subject Co-ordinator - Prof. Balaji Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Photonics  
Lecture 2 - Diffraction and Interference  
Lecture 3 - Tutorial on Ray Optics and Wave Optics  
Lecture 4 - Lab Demonstration  
Lecture 5 - Interferometers  
Lecture 6 - Coherence  
Lecture 7 - Spatial and Temporal Coherence  
Lecture 8 - Tutorial on Wave Optics  
Lecture 9 - Lab Demonstration  
Lecture 10 - Electromagnetic Optics  
Lecture 11 - Fiber Optics  
Lecture 12 - Photon Properties  
Lecture 13 - Lab Demonstration  
Lecture 14 - Photon Optics  
Lecture 15 - Tutorial on Photon optics  
Lecture 16 - Photon interaction - 1  
Lecture 17 - Photon interaction - 2  
Lecture 18 - Lab Demonstration  
Lecture 19 - Optical Amplification  
Lecture 20 - Three Level systems  
Lecture 21 - Four Level Systems  
Lecture 22 - EDFA Introduction  
Lecture 23 - EDFA Tutorial  
Lecture 24 - Lasers Part - 1  
Lecture 25 - Lab Demonstration  
Lecture 26 - Lasers part- 2  
Lecture 27 - Lasers part- 3  
Lecture 28 - Lasers part- 4  
Lecture 29 - Lab Demonstration

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- Lecture 30 - Semiconductor light Source and detector - Band structure
- Lecture 31 - Semiconductor light Source and detector - Light emission
- Lecture 32 - Semiconductor light Source and detector LED Characteristics
- Lecture 33 - Lab Demonstration
- Lecture 34 - Semiconductor light Source and detector Laser Characteristics
- Lecture 35 - Semiconductor Detectors - 1
- Lecture 36 - Semiconductor Detectors - 2
- Lecture 37 - Semiconductor Detectors - 3
- Lecture 38 - Lab Demonstration
- Lecture 39 - Semiconductor Detectors - 4
- Lecture 40 - Light manipulation-Mallus' Law
- Lecture 41 - Light manipulation-Birefringence
- Lecture 42 - Light manipulation-Faraday Rotation
- Lecture 43 - Lab Demonstration
- Lecture 44 - Non-linear optics-Pockels effect
- Lecture 45 - Non-linear optics-Kerr Effect
- Lecture 46 - Lab Demonstration
- Lecture 47 - Non-linear optics-stimulated Brillouin scattering
- Lecture 48 - Non-linear optics-stimulated Raman scattering

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Multirate DSP

Subject Co-ordinator - Prof. David Kovil Pillai

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Multirate DSP - Part 1
- Lecture 2 - Introduction to Multirate DSP - Part 2
- Lecture 3 - Sampling and Nyquist criterion - Part 1
- Lecture 4 - Sampling and Nyquist criterion - Part 2
- Lecture 5 - Signal Reconstruction - Part 1
- Lecture 6 - Signal Reconstruction - Part 2
- Lecture 7 - Reconstruction filter - Part 1
- Lecture 8 - Reconstruction filter - Part 2
- Lecture 9 - Discrete time processing of continuous time signal - Part 1
- Lecture 10 - Discrete time processing of continuous time signal - Part 2
- Lecture 11 - DT processing of CT signal example
- Lecture 12 - Time scaling- upsampler and downsampler - Part 1
- Lecture 13 - Time scaling- upsampler and downsampler - Part 2
- Lecture 14 - Upsampler and downsampler- continued - Part 1
- Lecture 15 - Upsampler and downsampler- continued - Part 2
- Lecture 16 - Decimator properties
- Lecture 17 - Properties of Upsampler and Downsampler
- Lecture 18 - Fractional sampling rate change - Part 1
- Lecture 19 - Fractional sampling rate change - Part 2
- Lecture 20 - Multiplexer/ demultiplexer interpretation
- Lecture 21 - Noble identities and polyphase decomposition - Part 1
- Lecture 22 - Noble identities and polyphase decomposition - Part 2
- Lecture 23 - Polyphase decomposition continued - Part 1
- Lecture 24 - Polyphase decomposition continued - Part 2
- Lecture 25 - Introduction to Multirate Filter Banks
- Lecture 26 - Applications of Multirate - Part 1
- Lecture 27 - Applications of Multirate - Part 2
- Lecture 28 - Spectral Analysis of Filter Bank - Part 1
- Lecture 29 - Spectral Analysis of Filter Bank - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - DFT and High Resolution Spectral Analysis - Part 1
- Lecture 31 - DFT and High Resolution Spectral Analysis - Part 2
- Lecture 32 - Transmultiplexer and Maximally Decimated Filterbanks - Part 1
- Lecture 33 - Transmultiplexer and Maximally Decimated Filterbanks - Part 2
- Lecture 34 - Maximally Decimated Filterbanks 2 - Part 1
- Lecture 35 - Maximally Decimated Filterbanks 2 - Part 2
- Lecture 36 - Study of Two-channel filter bank
- Lecture 37 - Introduction to Quadrature Mirror Filters (QMF)
- Lecture 38 - 2-channel QMF Filter Bank Design
- Lecture 39 - Study of All-pass filters
- Lecture 40 - Study of All-pass lattice
- Lecture 41 - All-pass decomposition, the study of Mth band and Nyquist filters
- Lecture 42 - Study of two-channel filter bank with perfect reconstruction
- Lecture 43 - First part name
- Lecture 44 - First part name
- Lecture 45 - Capacity of wireless channels - CSIR - Part 1
- Lecture 46 - Capacity of wireless channels - CSIT - Part 2
- Lecture 47 - Capacity of wireless channels - Formulation of capacity calculation - Part 3
- Lecture 48 - Capacity of wireless channels - Formulation of capacity calculation (Continued...) - Part 1
- Lecture 49 - Capacity of wireless channels - Formulation of capacity calculation (Continued...) - Part 2
- Lecture 50 - Capacity of wireless channels - Time-invariant Frequency selective channel - Part 3
- Lecture 51 - Capacity of wireless channels - Time-varying Frequency selective channels - Part 1
- Lecture 52 - Multi-rate DSP framework for Multi-carrier Modulation - Part 2
- Lecture 53 - MCM with overlapping spectra - Part 1
- Lecture 54 - Recap of multirate DSP concepts for building OFDM - Part 2
- Lecture 55 - Introduction to Redundancy and it's implementation in multi-rate framework - Part 3
- Lecture 56 - M-channel multicarrier Transceiver - Part 1
- Lecture 57 - M-channel multicarrier Transceiver - Part 2
- Lecture 58 - M-channel multicarrier Transceiver - Part 3
- Lecture 59 - Pseudo-circulant structure - Part 1
- Lecture 60 - Pseudo-circulant structure - Part 2
- Lecture 61 - MCM impairments and CP - Part 1
- Lecture 62 - MCM impairments and CP - Part 2
- Lecture 63 - Orthogonal Frequency Division Multiplexing - Part 1
- Lecture 64 - Orthogonal Frequency Division Multiplexing - Part 2
- Lecture 65 - Review of OFDM with CP
- Lecture 66 - Review of Lec 1-28
- Lecture 67 - OFDM applications - Quantization - Part 1
- Lecture 68 - OFDM applications - Quantization - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Some more applications of MDSP

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:LDPC and Polar Codes in 5G Standard

Subject Co-ordinator - Dr. Andrew Thangaraj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Additive White Gaussian Noise (AWGN) Channel and BPSK
- Lecture 2 - Bit Error Rate (BER) and Signal to Noise Ratio (SNR)
- Lecture 3 - Error Correction Coding in a Digital Communication System
- Lecture 4 - Complementary Error Function
- Lecture 5 - Simulation of Uncoded BPSK and BER v/s Eb/N0 plot Generation in MATLAB/Octave
- Lecture 6 -  $n = 3$  Repetition Code
- Lecture 7 - Implementation of  $n = 3$  Repetition Code in MATLAB
- Lecture 8 - (7,4) Hamming Code
- Lecture 9 - A Brief Introduction to Linear Block Codes
- Lecture 10 - Simulation of (7,4) Hamming Code in MATLAB
- Lecture 11 - Low Density Parity Check Codes
- Lecture 12 - LDPC Codes in 5G
- Lecture 13 - Encoding LDPC codes in 5G
- Lecture 14 - MATLAB programs for encoding LDPC codes
- Lecture 15 - Log-Likelihood Ratio and Soft Input and Soft Output (SISO) Decoder for the Repetition Code
- Lecture 16 - Soft Input and Soft Output (SISO) Decoder for the Single Parity Check (SPC) Code
- Lecture 17 - Illustration of SISO decoder for (3,2) SPC code and min-sum approximation
- Lecture 18 - SISO decoder for a general  $(n,n-1)$  SPC code
- Lecture 19 - Soft-Input Soft-Output Iterative Message Passing Decoder for LDPC Codes
- Lecture 20 - A Toy Example Illustration of the SISO Minsum Iterative Message Passing Decoder
- Lecture 21 - Modifications to the Decoder
- Lecture 22 - Implementation of SISO Layered Minsum Iterative Message Passing Decoder in MATLAB
- Lecture 23 - Debugging and Improvements to the MATLAB Implementation
- Lecture 24 - Rate Matching in LDPC Codes using Puncturing and Shortening
- Lecture 25 - Implementation of Fixed Point Quantization and Offset Minsum in the Decoder
- Lecture 26 - Introduction to Polar Codes
- Lecture 27 - Channel Polarization, Definition of  $(N,K)$  Polar Code and Encoding
- Lecture 28 - MATLAB Implementation for Encoding Polar Codes
- Lecture 29 - Successive Cancellation (SC) Decoder for Polar Codes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Successive Cancellation (SC) Decoder for a General (N,K) Polar Code
- Lecture 31 - MATLAB Implementation of Successive Cancellation Decoder - Part 1
- Lecture 32 - MATLAB Implementation of Successive Cancellation Decoder - Part 2
- Lecture 33 - Successive Cancellation List Decoding
- Lecture 34 - Fixed Point Quantization for SC Decoder and LDPC Decoder
- Lecture 35 - MATLAB Implementation of Successive Cancellation List Decoding
- Lecture 36 - Rate Matching for LDPC codes
- Lecture 37 - Performance Comparison of LDPC codes and Polar Codes in 5G



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electromagnetic Compatibility, EMC

Subject Co-ordinator - Prof. Daniel Mansson, Prof. Rajeev Thottappillil

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to EMC - Definitions

Lecture 2 - Introduction to EMC - Sources, units etc

Lecture 3 - Electromagnetic principles - Faraday's and Ampere's equations

Lecture 4 - Electromagnetic principles - Gauss's equation, boundary conditions

Lecture 5 - Electromagnetic principles - Uniform plane wave

Lecture 6 - Electromagnetic principles - Transmission lines

Lecture 7 - Electromagnetic principles - Dipoles

Lecture 8 - High-frequency behaviour of components - Conductors

Lecture 9 - High-frequency behaviour of components - Capacitors, inductors, resistors

Lecture 10 - High-frequency behaviour of components - Mechanical switches and transformers

Lecture 11 - Crosstalk or near-field coupling - Capacitive coupling, inductive coupling, common-impedance coupling

Lecture 12 - Crosstalk or near-field coupling - Crosstalk combinations

Lecture 13 - Crosstalk or near-field coupling - Coupling to shielded cables

Lecture 14 - Electromagnetic coupling in the far-field

Lecture 15 - Field Coupling - Exercises

Lecture 16 - Solutions to EMC problems - Lay out and control of interfaces

Lecture 17 - Solutions to EMC problems - Grounding or earthing

Lecture 18 - Solutions to EMC problems - Electromagnetic Shielding

Lecture 19 - Solutions to EMC problems - Electromagnetic Shielding (Continued...)

Lecture 20 - Solutions to EMC problems - Shielded cables

Lecture 21 - Solutions to EMC problems - Filters and Surge protectors

Lecture 22 - Lightning Protection - Introduction

Lecture 23 - Lightning protection - Currents, charges and fields

Lecture 24 - Lightning Protection - Buildings

Lecture 25 - Lightning Protection - Towers, Lightning safety

Lecture 26 - EMC Requirements and Standard, Testing and Difficulties - 1

Lecture 27 - EMC Requirements and Standard, Testing and Difficulties - 2

Lecture 28 - Intentional Electromagnetic Interference or IEMI - 1

Lecture 29 - Intentional Electromagnetic Interference or IEMI - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Mapping Signal Processing Algorithms to Architectures

Subject Co-ordinator - Prof. Nitin Chandrachoodan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Review of digital logic
- Lecture 3 - Timing and Power in digital circuits
- Lecture 4 - Implementation Costs and Metrics
- Lecture 5 - Example
- Lecture 6 - Example
- Lecture 7 - Architecture cost components
- Lecture 8 - Examples of Architectures
- Lecture 9 - Multi-objective Optimization
- Lecture 10 - Number representation
- Lecture 11 - Scientific notation and Floating point
- Lecture 12 - Basic FIR filter
- Lecture 13 - Serial FIR filter architectures
- Lecture 14 - Simple programmable architecture
- Lecture 15 - Block diagrams and SFGs
- Lecture 16 - Dataflow Graphs
- Lecture 17 - Iteration period
- Lecture 18 - FIR filter iteration period
- Lecture 19 - IIR filter iteration period
- Lecture 20 - Computation Model
- Lecture 21 - Constraint analysis for IPB computation
- Lecture 22 - Motivational examples for IPB
- Lecture 23 - General IPB computation
- Lecture 24 - Sample period calculation
- Lecture 25 - Parallel architecture
- Lecture 26 - Odd-even register reuse
- Lecture 27 - Power consumption
- Lecture 28 - Pipelining
- Lecture 29 - Time-invariant systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Valid pipelining examples
- Lecture 31 - Feedforward cutsets
- Lecture 32 - Balanced pipeline
- Lecture 33 - Retiming basic concept
- Lecture 34 - Retiming basic concept
- Lecture 35 - (Missing Title)
- Lecture 36 - Resource sharing
- Lecture 37 - Changing iteration period
- Lecture 38 - Hardware assumptions and constraint analysis
- Lecture 39 - Mathematical formulation
- Lecture 40 - Examples with formulation
- Lecture 41 - Example
- Lecture 42 - Hardware architecture
- Lecture 43 - Review biquad folding sets
- Lecture 44 - Complete biquad hardware
- Lecture 45 - DEMO
- Lecture 46 - DEMO
- Lecture 47 - Obtaining a folding schedule
- Lecture 48 - ASAP schedule
- Lecture 49 - Utilization Efficiency
- Lecture 50 - ALAP schedule
- Lecture 51 - Iteration period bound and scheduling
- Lecture 52 - Retiming for scheduling
- Lecture 53 - Blocked schedules
- Lecture 54 - Overlapped schedules
- Lecture 55 - Improved blocked schedule
- Lecture 56 - Allocation, Binding and Scheduling
- Lecture 57 - DEMO
- Lecture 58 - DEMO
- Lecture 59 - Scheduling
- Lecture 60 - Example
- Lecture 61 - Heuristic approaches to scheduling
- Lecture 62 - Mathematical formulation
- Lecture 63 - ILP formulation
- Lecture 64 - List scheduling
- Lecture 65 - Hardware model
- Lecture 66 - Force Directed Scheduling
- Lecture 67 - DEMO
- Lecture 68 - DEMO

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - DEMO  
Lecture 70 - Software Compilation  
Lecture 71 - Optimization Examples  
Lecture 72 - Loop optimizations - 1  
Lecture 73 - Loop optimizations - 2  
Lecture 74 - Loop optimizations - 3  
Lecture 75 - Software pipelining - 1  
Lecture 76 - Software pipelining - 2  
Lecture 77 - FFT Optimization  
Lecture 78 - Demo  
Lecture 79 - Background  
Lecture 80 - Demo  
Lecture 81 - Demo  
Lecture 82 - Demo  
Lecture 83 - Demo  
Lecture 84 - Background  
Lecture 85 - On-chip communication basics  
Lecture 86 - Many-to-Many communication  
Lecture 87 - AXI bus handshaking  
Lecture 88 - AXI bus (Continued...)  
Lecture 89 - Demo  
Lecture 90 - Demo  
Lecture 91 - Demo  
Lecture 92 - DMA and arbitration  
Lecture 93 - Network-on-chip basics  
Lecture 94 - NoC - Topologies and metrics  
Lecture 95 - NoC - Routing  
Lecture 96 - NoC - Switching and flow control  
Lecture 97 - Systolic Arrays - Background  
Lecture 98 - Systolic Arrays - Examples  
Lecture 99 - CORDIC algorithm  
Lecture 100 - Parallel implementation of FIR filters  
Lecture 101 - Unfolding Transformation  
Lecture 102 - Lookahead Transformation  
Lecture 103 - Introduction to GPUs and Matrix multiplication

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Linear System Theory

Subject Co-ordinator - Prof. Ramakrishna Pasumarthi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Linear Systems

Lecture 2 - System Models

Lecture 3 - System Models - Part 1

Lecture 4 - System Models - Part 2

Lecture 5 - General Representation

Lecture 6 - Sets, Functions and Fields

Lecture 7 - Linear Algebra - Vector Spaces and Metric Spaces

Lecture 8 - Linear Algebra - Span, Basis and Subspaces

Lecture 9 - Linear Algebra - Linear Maps and Matrices

Lecture 10 - Linear Algebra - Fundamental Subspaces and Rank-Nullity

Lecture 11 - Tutorial 1 on Linear Algebra

Lecture 12 - Linear Algebra - Change of Basis and Similarity Transformation

Lecture 13 - Linear Algebra - Invariant Subspaces, Eigen Values and Eigen Vectors

Lecture 14 - Linear Algebra - Diagonalization and Jordan Forms

Lecture 15 - Linear Algebra - Eigen Decomposition and Singular Value Decomposition

Lecture 16 - Tutorial 2 on Linear Algebra

Lecture 17 - Solutions to LTI Systems

Lecture 18 - State Transition Matrix for LTI systems

Lecture 19 - Forced Reponse of Continuous and Discrete LTI system

Lecture 20 - State Transition Matrix and Solutions to LTV systems

Lecture 21 - Equilibrium Points

Lecture 22 - Limit Cycles and Linearisation

Lecture 23 - Stability Analysis and Types of Stability

Lecture 24 - Lyapunov Stability

Lecture 25 - Stability of Discrete Time Systems

Lecture 26 - Supplementary Lecture

Lecture 27 - Controllability and Reachability

Lecture 28 - Controllability Matrix and Controllable Systems

Lecture 29 - Controllability Tests

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Controllability of Discrete Time Systems
- Lecture 31 - Controllable Decomposition
- Lecture 32 - Stabilizability
- Lecture 33 - Observability
- Lecture 34 - Gramians and Duality
- Lecture 35 - Observability for Discrete Time Systems and Observability Tests
- Lecture 36 - Observable Decomposition and Detectability
- Lecture 37 - Kalman Decomposition and Minimal Realisation
- Lecture 38 - Canonical Forms and State Feedback Control
- Lecture 39 - Control Design using Pole Placement
- Lecture 40 - Tutorial for Modules 9 and 10
- Lecture 41 - State Estimation and Output Feedback
- Lecture 42 - Design of Observer and Observer based Controller
- Lecture 43 - Optimal Control and Linear Quadratic Regulator (LQR)
- Lecture 44 - Feedback Invariant and Algebraic Riccati Equation
- Lecture 45 - Tutorial for Module 11
- Lecture 46 - Linear Matrix Inequalities
- Lecture 47 - Properties of LMIs and Delay LMIs

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Digital Signal Processing

Subject Co-ordinator - C. S. Ramalingam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Signal Definition and Classification
- Lecture 2 - Affine Transform
- Lecture 3 - Recap of Affine Transform
- Lecture 4 - Even and Odd Parts of a Signal
- Lecture 5 - The Unit Step Sequence
- Lecture 6 - The Unit Impulse
- Lecture 7 - The Unit Impulse (Continued...)
- Lecture 8 - Exponential Signals and Sinusoids
- Lecture 9 - Sinusoids (Continued...)
- Lecture 10 - When are two sinusoids independent?
- Lecture 11 - Another Difference Between CT and DT Sinusoids
- Lecture 12 - System definition and properties (linearity)
- Lecture 13 - Time-invariance, memory, causality, and stability
- Lecture 14 - LTI systems, impulse response, and convolution
- Lecture 15 - Properties of convolution, system interconnections
- Lecture 16 - Java applet demo of convolution
- Lecture 17 - Systems governed by LCCDE
- Lecture 18 - FIR and IIR systems
- Lecture 19 - Karplus-Strong algorithm
- Lecture 20 - Z-transform definition and RoC
- Lecture 21 - Z-transform (Continued...)
- Lecture 22 - Poles and zeros
- Lecture 23 - Recursive implementation of FIR filters
- Lecture 24 - Convergence criterion
- Lecture 25 - Properties of the RoC
- Lecture 26 - DTFT definition and absolute summability
- Lecture 27 - Linearity
- Lecture 28 - Delay
- Lecture 29 - Exponential multiplication

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Complex conjugation
- Lecture 31 - Time reversal
- Lecture 32 - Differentiation in the Z-domain
- Lecture 33 - Convolution in the time domain
- Lecture 34 - Relationship between  $x[n]$  and  $X(1)$
- Lecture 35 - Initial Value Theorem
- Lecture 36 - Final Value Theorem
- Lecture 37 - Multiplication in the time domain
- Lecture 38 - Parseval's Theorem
- Lecture 39 - Partial Fractions Method
- Lecture 40 - Power series method
- Lecture 41 - Contour Integral Method
- Lecture 42 - Contour Integral Method (Continued...)
- Lecture 43 - Inverse DTFT
- Lecture 44 - DTFT of Sequences that are not absolutely summable
- Lecture 45 - Response to  $\cos(\omega_0 n)$
- Lecture 46 - Causality and Stability
- Lecture 47 - Response to suddenly applied inputs
- Lecture 48 - Introduction to frequency response
- Lecture 49 - Magnitude response and its geometric interpretation
- Lecture 50 - Magnitude Response (Continued...)
- Lecture 51 - Response of a single complex zero/pole
- Lecture 52 - Resonator and Improved Resonator
- Lecture 53 - Notch filter
- Lecture 54 - Moving Average Filter
- Lecture 55 - Comb filter
- Lecture 56 - Phase response of a single complex zero
- Lecture 57 - Effect of crossing a unit circle zero, wrapped and unwrapped phase, resonator phase response
- Lecture 58 - Allpass Filter
- Lecture 59 - Group delay and its physical interpretation
- Lecture 60 - Zero-phase filtering, effect on nonlinear phase on waveshape
- Lecture 61 - Zero-Phase Filtering, Linear Phase - 1
- Lecture 62 - Linear Phase - 2
- Lecture 63 - Linear Phase - 3
- Lecture 64 - Linear Phase - 3
- Lecture 65 - Linear Phase - 3
- Lecture 66 - Linear Phase - 4, Sampling - 1
- Lecture 67 - Linear Phase - 4, Sampling - 1
- Lecture 68 - Linear Phase - 4, Sampling - 1

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Lecture 69 - Sampling - 2  
Lecture 70 - Sampling - 3  
Lecture 71 - Sampling - 4  
Lecture 72 - Sampling - 4  
Lecture 73 - Sampling - 4  
Lecture 74 - The Discrete Fourier Transform - 1  
Lecture 75 - The Discrete Fourier Transform - 1  
Lecture 76 - The Discrete Fourier Transform - 2  
Lecture 77 - The Discrete Fourier Transform - 3  
Lecture 78 - The Discrete Fourier Transform - 3  
Lecture 79 - The Discrete Fourier Transform - 3  
Lecture 80 - The Discrete Fourier Transform - 4  
Lecture 81 - The Discrete Fourier Transform - 4  
Lecture 82 - The Discrete Fourier Transform - 4

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Computational Electromagnetics

Subject Co-ordinator - Prof. Uday Khankhoje

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Chain rule of differentiation
- Lecture 2 - Gradient, Divergence, and Curl operators
- Lecture 3 - Common theorems in vector calculus
- Lecture 4 - Corollaries of these theorems
- Lecture 5 - Mathematical History
- Lecture 6 - Different regimes of Maxwell's equations
- Lecture 7 - Different ways of solving them
- Lecture 8 - Maxwell's Equations
- Lecture 9 - Boundary Conditions
- Lecture 10 - Uniqueness Theorem
- Lecture 11 - Equivalence Theorem
- Lecture 12 - Simple Numerical Integration
- Lecture 13 - Interpolating a Function
- Lecture 14 - Gauss Quadrature
- Lecture 15 - Line Charge Problem
- Lecture 16 - Solving the Integral Equation
- Lecture 17 - Basis Functions
- Lecture 18 - Helmholtz Equation
- Lecture 19 - Solving Helmholtz Equation
- Lecture 20 - Huygen's principle and the Extinction theorem
- Lecture 21 - Formulating the integral equations
- Lecture 22 - Conclusions of surface integral equations
- Lecture 23 - Motivations for Green's functions
- Lecture 24 - A one-dimensional example
- Lecture 25 - 1-D example
- Lecture 26 - 2-D wave example
- Lecture 27 - 2-D wave example
- Lecture 28 - 2-D example
- Lecture 29 - 2-D example

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - 3-D example
- Lecture 31 - Motivation for MoM
- Lecture 32 - Linear Vector Spaces
- Lecture 33 - Formulating Method of Moments
- Lecture 34 - Surface Integral Equations
- Lecture 35 - Surface Integral Equations
- Lecture 36 - Surface Integral Equations
- Lecture 37 - Surface Integral Equations
- Lecture 38 - Volume Integral Equations
- Lecture 39 - Volume Integral Equations
- Lecture 40 - Volume Integral Equations
- Lecture 41 - Volume Integral Equations
- Lecture 42 - Surface integral equations for PEC
- Lecture 43 - Surface v/s volume integral equations
- Lecture 44 - Definition of radar cross-section
- Lecture 45 - Computational Considerations
- Lecture 46 - History and Overview of the FEM
- Lecture 47 - Basic framework of FEM
- Lecture 48 - 1D Basis Functions
- Lecture 49 - 2D Basis Functions
- Lecture 50 - Weak form of 1D-FEM - Part 1
- Lecture 51 - Weak form of 1D-FEM - Part 2
- Lecture 52 - Generating System of Equations for 1D FEM
- Lecture 53 - 1D wave equation
- Lecture 54 - 1D Wave Equation
- Lecture 55 - 1D Wave Equation
- Lecture 56 - 1D Wave Equation
- Lecture 57 - 2D FEM Shape Functions
- Lecture 58 - Converting to Weak Form (2D FEM)
- Lecture 59 - Radiation Boundary Condition
- Lecture 60 - Total field formulation
- Lecture 61 - Scattered field formulation
- Lecture 62 - Comparing total and scattered field formulation
- Lecture 63 - Matrix assembly - Part 1
- Lecture 64 - Matrix assembly - Part 2
- Lecture 65 - Computing Far Field
- Lecture 66 - Numerical Aspects of 2D FEM
- Lecture 67 - Summary of FEM Procedure
- Lecture 68 - Introduction to FDTD

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - 2D FDTD Formulation
- Lecture 70 - 2D FDTD Formulation
- Lecture 71 - 2D FDTD Formulation
- Lecture 72 - Stability Criteria - Part 1
- Lecture 73 - Stability Criteria - Part 2
- Lecture 74 - Stability Criteria - Higher Dimensions
- Lecture 75 - Accuracy Considerations - 1D
- Lecture 76 - Accuracy Considerations - Higher Dimensions
- Lecture 77 - Dealing with non-dispersive dielectric media
- Lecture 78 - Dealing with dispersive dielectric media
- Lecture 79 - Debye Model - Part 1
- Lecture 80 - Debye Model - Part 2
- Lecture 81 - Absorbing Boundary Conditions - 1D
- Lecture 82 - Absorbing Boundary Conditions - 2D
- Lecture 83 - Implementing ABC in FDTD
- Lecture 84 - Failure of ABC
- Lecture 85 - Perfectly Matched Layers (PML) - Introduction
- Lecture 86 - Implementing PML using Coordinate Stretching
- Lecture 87 - PML - Phase Matching
- Lecture 88 - PML - Tangential Boundary Conditions
- Lecture 89 - Perfectly Matched Interface
- Lecture 90 - PML theory - Summary
- Lecture 91 - Implementing PML into FDTD - Part 1
- Lecture 92 - Implementing PML into FDTD - Part 2
- Lecture 93 - Sources in FDTD - Currents
- Lecture 94 - Sources in FDTD - Part 2
- Lecture 95 - Summary of FDTD
- Lecture 96 - MEEP
- Lecture 97 - Inverse Problems - Introduction
- Lecture 98 - Inverse Problems - Mathematical Formulation
- Lecture 99 - Inverse Problems - Challenges
- Lecture 100 - Inverse Problems - Non-Linearity
- Lecture 101 - Inverse Problems - Summary
- Lecture 102 - Antennas - Potential formulation
- Lecture 103 - Antennas - Hertz Dipole - Part 1
- Lecture 104 - Antennas - Hertz Dipole - Part 2
- Lecture 105 - Antennas - Radiation Patterns
- Lecture 106 - Antennas - Motivation for CEM
- Lecture 107 - Antennas - Pocklington's Integral Equation - Part 1

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- Lecture 108 - Antennas - Pocklington's Integral Equation - Part 2
- Lecture 109 - Antennas - Source Modeling
- Lecture 110 - Antennas - Circuit Model
- Lecture 111 - Antennas - MoM details
- Lecture 112 - Antennas - Mutual Coupling - Part 1
- Lecture 113 - Antennas - Mutual Coupling - Part 2
- Lecture 114 - Hybrid Methods - Motivation
- Lecture 115 - Finite Element-Boundary Integral - Part 1
- Lecture 116 - Finite Element-Boundary Integral - Part 2
- Lecture 117 - Finite Element-Boundary Integral - Part 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Transmission Lines and Electromagnetic Waves

Subject Co-ordinator - Dr. Ananth Krishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Transmission lines
- Lecture 2 - Lossless Transmission lines
- Lecture 3 - Introduction to finite difference method
- Lecture 4 - Octave simulation of wave equation
- Lecture 5 - Octave simulation of Telegrapher's equation
- Lecture 6 - Reflections and reflection coefficient
- Lecture 7 - AC signals in loss-less transmission lines
- Lecture 8 - Transmission lines with losses
- Lecture 9 - Octave simulation of Transmission lines with losses
- Lecture 10 - Voltage reflection coefficient and standing wave ratio
- Lecture 11 - Graphical representation of reflection coefficient
- Lecture 12 - Impedance matching using Smith chart
- Lecture 13 - Demonstration of Impedance matching using VNA
- Lecture 14 - Transmission Line Limitations and Maxwell's Equation
- Lecture 15 - Maxwell's Curl Equation
- Lecture 16 - Octave simulation of an Electromagnetic Wave Equation
- Lecture 17 - Polarisation of an Electromagnetic Wave
- Lecture 18 - Octave Simulation of different types of Polarisation
- Lecture 19 - Electromagnetic Waves in a conductive Medium
- Lecture 20 - Plane Waves
- Lecture 21 - Plane Waves at normal incidence
- Lecture 22 - Plane waves at Oblique Incidence - I
- Lecture 23 - Plane waves at Oblique Incidence - II
- Lecture 24 - Plane waves at Oblique Incidence - III
- Lecture 25 - Octave simulation of perpendicular polarisation
- Lecture 26 - Octave simulation of perpendicular polarisation (Continued...)
- Lecture 27 - Dielectric-ideal conductor interface
- Lecture 28 - Parallel plate waveguide
- Lecture 29 - Rectangular Waveguide

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Octave simulation of modes of a Rectangular Waveguide
- Lecture 31 - Phase Velocity and Group velocity
- Lecture 32 - Octave simulation of Field pattern of a parallel plate waveguide
- Lecture 33 - Cavity resonator and Real life applications of waveguides and cavity

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Digital IC Design

Subject Co-ordinator - Prof. Janakiraman

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Digital IC Design  
Lecture 2 - PN Junction  
Lecture 3 - MOS Capacitor Threshold Voltage  
Lecture 4 - MOS Transistor Current Expression  
Lecture 5 - Body Effect and I-V Plots  
Lecture 6 - Short Channel Transistors - Channel Length Modulation  
Lecture 7 - Velocity Saturation and Level-1 SPICE Model  
Lecture 8 - Drain Induced Barrier Lowering  
Lecture 9 - Sub-Threshold Leakage  
Lecture 10 - Substrate and Gate Leakage  
Lecture 11 - The PMOS Transistor  
Lecture 12 - Transistor Capacitance - 1  
Lecture 13 - Transistor Capacitance - 2  
Lecture 14 - CMOS Inverter Construction  
Lecture 15 - Voltage Transfer Characteristics  
Lecture 16 - Load Line Analysis  
Lecture 17 - Trip Point for Short Channel Device Inverter  
Lecture 18 - Trip Point for Long Channel Device Inverter  
Lecture 19 - Noise Margin Analysis - 1  
Lecture 20 - Noise Margin Analysis - 2  
Lecture 21 - Noise Margin Analysis - 3  
Lecture 22 - Noise Margin Analysis-Long Channel Device Inverter - 1  
Lecture 23 - Noise Margin Analysis-Long Channel Device Inverter - 2  
Lecture 24 - Pass Transistors  
Lecture 25 - NMOS Transistor ON Resistance and Fall Delay  
Lecture 26 - Elmore Delay Model  
Lecture 27 - Inverter: Transient Response  
Lecture 28 - Inverter: Dynamic Power  
Lecture 29 - Inverter: Short Circuit Power

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Inverter: Leakage Power and Transistor Stacks
- Lecture 31 - Stacking Effect and Sleep Transistors
- Lecture 32 - Ring Oscillators and Process Variations
- Lecture 33 - Implementing Any Boolean Logic Function
- Lecture 34 - Implementing Any Boolean Logic Function: Examples. Gate sizing
- Lecture 35 - Gate Sizing
- Lecture 36 - Logic Gate Capacitance
- Lecture 37 - Gate Delay
- Lecture 38 - Parasitic Delay
- Lecture 39 - Gate Delay with a Load Capacitance
- Lecture 40 - Logical Effort
- Lecture 41 - Gate Delay
- Lecture 42 - Path Delay Calculation and Optimization Formulation
- Lecture 43 - Path Delay Optimization: Intuition
- Lecture 44 - Path Delay Optimization: Example
- Lecture 45 - Buffer Insertion
- Lecture 46 - Input Ordering and Asymmetric Gates
- Lecture 47 - Skewed Gates
- Lecture 48 - Special Functions
- Lecture 49 - Pseudo NMOS Logic
- Lecture 50 - Pseudo NMOS Inverter
- Lecture 51 - Pseudo NMOS Logical Effort and CVSL
- Lecture 52 - Dynamic Circuits and Input Monotonicity
- Lecture 53 - Domino Logic and Weak Keepers
- Lecture 54 - Transmission Gate Logic
- Lecture 55 - Gate Sizing for Large Circuits
- Lecture 56 - Ripple Adder Introduction
- Lecture 57 - Full Adder Circuit Implementation
- Lecture 58 - Full Adder Optimization
- Lecture 59 - Carry Skip Adder
- Lecture 60 - Carry Select Adder
- Lecture 61 - Linear and Square Root Carry Select Adder
- Lecture 62 - Two's Complement Arithmetic
- Lecture 63 - Two's Complement Sign Extension
- Lecture 64 - Array Multiplier
- Lecture 65 - Array Multiplier - Timing Analysis
- Lecture 66 - Carry Save Multiplier
- Lecture 67 - Carry Save Multiplier - Signed Multiplication
- Lecture 68 - Introduction to Pipelining

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Time Borrowing
- Lecture 70 - Master Slave Flip Flop
- Lecture 71 - Flop Timing Parameters
- Lecture 72 - Alternate Circuit Implementations
- Lecture 73 - Clock Overlap
- Lecture 74 - C2MOS Flop
- Lecture 75 - Flop Characterization
- Lecture 76 - Max and Min Delay of Flop Based Systems
- Lecture 77 - Flop Min Delay Constraint
- Lecture 78 - Latch - Max and Min Delay Constraints
- Lecture 79 - Latch - Timing Analysis with Skew
- Lecture 80 - Time Borrowing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Power Management Integrated Circuits

Subject Co-ordinator - Prof. Qadeer Ahmad Khan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to PMIC - Part 1
- Lecture 2 - Introduction to PMIC - Part 2
- Lecture 3 - Linear versus Switching Regulators
- Lecture 4 - Performance Parameters of Regulators
- Lecture 5 - Local vs Remote Feedback, Point of Load Regulators
- Lecture 6 - Kelvin Sensing, Droop Compensation
- Lecture 7 - Current Regulator Applications, Introduction to Bandgap Voltage References, PTAT and CTAT voltage
- Lecture 8 - Adding PTAT and CTAT Voltages
- Lecture 9 - Bandgap Voltage Reference Circuit, Brokaw Bandgap Circuit
- Lecture 10 - Sub-1-volt Bandgap Circuit
- Lecture 11 - Generating Multiple Reference Voltages; Applications of Linear Regulators
- Lecture 12 - Designing a Linear Regulator, Negative and Positive Feedback
- Lecture 13 - First-Order Systems, Phase Margin
- Lecture 14 - Closed-Loop Response of Second-Order Systems
- Lecture 15 - Relationship between Damping Factor and Phase Margin, Frequency Compensation, MOS Parasitic Capa
- Lecture 16 - Finding the Poles of the Error Amplifier - Part 1
- Lecture 17 - Finding the Poles of the Error Amplifier - Part 2
- Lecture 18 - Dominant Pole Frequency Compensation
- Lecture 19 - Dominant Pole Compensation at No-Load
- Lecture 20 - Dominant Pole Compensation using Miller Effect, RHP zero due to Miller Capacitor
- Lecture 21 - Intuitive Method of Finding the Poles, Pole Splitting after Miller Compensation
- Lecture 22 - Effect of RHP zero on Stability, Mitigating the Effect of RHP zero, LDO with NMOS Pass Element
- Lecture 23 - Output Impedance of PMOS LDO
- Lecture 24 - Line Regulation and PSRR of PMOS LDO
- Lecture 25 - PSRR of PMOS versus PSRR of NMOS LDO
- Lecture 26 - Sources of Error in Linear and Switching Regulators
- Lecture 27 - Offset in Amplifiers; Real Life Analogy; Static Offset Cancellation
- Lecture 28 - Dynamic Offset Cancellation Techniques (Chopping, Auto-zeroing)
- Lecture 29 - Digital LDO, Technique to Avoid Limit Cycle Oscillations in Digital LDO

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hybrid LDO, Short-Circuit Protection
- Lecture 31 - Hiccup Mode and Foldback Current Limit
- Lecture 32 - Introduction to Switching Regulators
- Lecture 33 - volt-second Balance, Non-Idealities in the Power Stage of a Buck Converter
- Lecture 34 - Transformer Model of a Buck Converter, Conduction Efficiency, Efficiency of an LDO versus Efficiency
- Lecture 35 - Synchronous versus Non-Synchronous Switching Regulators, PWM Control Techniques
- Lecture 36 - Losses in Switching Regulators (Conduction Loss, Gate-Driver Switching Loss)
- Lecture 37 - Dead-Time Switching Loss in DC-DC Converters
- Lecture 38 - Hard Switching Loss in DC DC Converters
- Lecture 39 - Magnetic Loss in DC-DC Converters, Relative Significance of Losses as a Function of the Load Current
- Lecture 40 - Output Voltage Ripple of a Buck Converter
- Lecture 41 - Choosing the Inductor and Capacitor for a Buck Converter
- Lecture 42 - CCM Vs DCM Operation in DC DC Converters
- Lecture 43 - CCM DCM Boundary Condition, Voltage Conversion Ratio in DCM
- Lecture 44 - Concept of Pulse Frequency Modulation PFM
- Lecture 45 - Classification of Pulse Width Modulators
- Lecture 46 - DC - DC Converter Control Techniques, Stability Analysis of Voltage Mode Buck Converter - Part 1
- Lecture 47 - Stability Analysis of Voltage Mode Buck Converter - Part 2
- Lecture 48 - Stability Analysis of Voltage Mode Buck Converter - Part 3
- Lecture 49 - Dominant Pole Compensation (Type-I with Gm-C Architecture)
- Lecture 50 - Dominant Pole Compensation (Type-I with Op Amp-RC Architecture)
- Lecture 51 - Introduction to Type-II Compensation
- Lecture 52 - Type-II Compensator using Gm-C Architecture - Part 1
- Lecture 53 - Type-II Compensator using Gm-C Architecture - Part 2
- Lecture 54 - Type-II Compensator using Gm-C Architecture - Part 3
- Lecture 55 - Type-II Compensator using Op Amp-RC Architecture
- Lecture 56 - Introduction to Type-III Compensator
- Lecture 57 - Type-III Compensator using Op Amp-RC Architecture
- Lecture 58 - Simulation of DC-DC Converter with Type-III Compensator
- Lecture 59 - Type-III Compensator using Gm-C Architecture
- Lecture 60 - Feed-Forward Line Compensation, Loop Gain Compensation by Modulating Gm
- Lecture 61 - Designing a Buck Converter, Power Loss Budgeting
- Lecture 62 - Sizing Power MOSFETs
- Lecture 63 - Estimating Switching Losses and Choosing the Switching Frequency
- Lecture 64 - Choosing Inductance and Capacitance Values
- Lecture 65 - Choosing 'C' Depending on Factors that Limit the Load Transient Response
- Lecture 66 - Inductor and Capacitor Characteristics, Reducing the Effect of Capacitor ESL
- Lecture 67 - Gate Buffer and Non-Overlap Clock Generator in Gate-Driver Circuit
- Lecture 68 - Pulse-Width Modulator- Trailing Edge, Leading Edge and Dual Edge; Triangle Wave Generator

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Average Ramp Voltage of Single-Edge PW Modulator, Design Considerations of EA
- Lecture 70 - Delays Associated with PW Modulator, PFM and PSM Operation, DCM Operation using NMOS
- Lecture 71 - Designing a Zero-Cross Comparator, Inverter-Based Auto-Zeroed Comparator, Simulation Demo
- Lecture 72 - Current Mode Control- Peak, Valley, Emulated; VMC versus CMC; Sub-Harmonic Oscillation
- Lecture 73 - Ramp-Adaptive Slope Compensation to Avoid Current Loop Instability
- Lecture 74 - Non-Linear Control of DC-DC Converters, Phase-Shift between  $i_L$  and  $v_C$
- Lecture 75 - Stabilising a Voltage-Mode Hysteretic Converter using  $R_{esr}$ , Relation between  $F_{sw}$  and the Hyste
- Lecture 76 - Hysteretic Converter - Simulation Demo
- Lecture 77 - Current-Mode Hysteretic Converter, Using R-C as Ripple Generator
- Lecture 78 - Controlling the Switching Frequency of a Hysteretic Converter, Delay in the Hysteretic Comparato
- Lecture 79 - Frequency and Voltage Regulation Loops in a Fixed-Frequency Hysteretic Converter
- Lecture 80 - Resetting the Capacitor Voltage in a Hysteretic Converter, Constant ON-Time Control
- Lecture 81 - Introduction to Boost Converter, RHP Zero in a Boost Converter
- Lecture 82 - Introduction to Buck-Boost Converter
- Lecture 83 - Tri-Mode Buck-Boost Converter (Buck, Buck-Boost and Boost)
- Lecture 84 - Boundary Conditions for Mode Transition in a Tri-Mode Buck-Boost Converter
- Lecture 85 - Generating Buck and Boost Duty Cycles in a Tri-Mode Buck-Boost Converter
- Lecture 86 - Introduction to Switched-Capacitor DC-DC Converters, Switched-Capacitor DC-DC Converter with  $V_o$
- Lecture 87 - Applications of Switched-Capacitor DC-DC Converters in Open-Loop, Regulating the Output using  $F_e$
- Lecture 88 - H-Bridge Switched-Capacitor DC-DC Converter, SC DC-DC converter with Multiple Gain Settings
- Lecture 89 - Current Sensing Techniques in DC-DC Converters
- Lecture 90 - Analog Layout Techniques - Part 1
- Lecture 91 - Analog Layout Techniques - Part 2
- Lecture 92 - Digital Control of DC-DC Converters, ADC Architectures
- Lecture 93 - Digital Pulse-Width Modulator Architectures, Adaptive Compensation
- Lecture 94 - Limitations of Analog and Digital Controllers, Time-Based Controller for Buck Converter
- Lecture 95 - Time-Based Controller for Buck Converter and for LDO, Issues with Time-Based Control
- Lecture 96 - Multi-Phase DC-DC Converters
- Lecture 97 - Dynamic Voltage and Frequency Scaling, Single Inductor Multiple Output (SIMO) DC-DC Converter
- Lecture 98 - LCD/AMOLED Display Drivers - Part 1
- Lecture 99 - LCD/AMOLED Display Drivers - Part 2
- Lecture 100 - LCD/AMOLED Display Drivers - Part 3
- Lecture 101 - LED Drivers for Camera Flash
- Lecture 102 - Li-Ion Battery and its Charging Phases
- Lecture 103 - Battery Charger IC

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:DC Power Transmission Systems

Subject Co-ordinator - Prof. Krishna S

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course contents
- Lecture 2 - Introduction
- Lecture 3 - Historical developments
- Lecture 4 - Power semiconductor devices
- Lecture 5 - General converter configuration
- Lecture 6 - Choice of converter configuration
- Lecture 7 - Choice of converter configuration
- Lecture 8 - Converter configuration for pulse number equal to 6
- Lecture 9 - Analysis of 6 pulse LCC neglecting inductance
- Lecture 10 - Analysis of 6 pulse LCC neglecting inductance
- Lecture 11 - Analysis of 6 pulse LCC neglecting inductance
- Lecture 12 - Fourier series - Part 1
- Lecture 13 - Fourier series - Part 2
- Lecture 14 - Analysis of 6 pulse LCC neglecting inductance
- Lecture 15 - Analysis of 6 pulse LCC neglecting inductance
- Lecture 16 - Definitions
- Lecture 17 - Commutation margin angle in a 6 pulse LCC neglecting inductance - Part 1
- Lecture 18 - Commutation margin angle in a 6 pulse LCC neglecting inductance - Part 2
- Lecture 19 - Instantaneous power on AC and DC sides in a 6 pulse LCC neglecting inductance
- Lecture 20 - Average power on AC and DC sides in a 6 pulse LCC neglecting inductance
- Lecture 21 - 6 pulse LCC with inductance
- Lecture 22 - 2 and 3 valve conduction mode of 6 pulse LCC
- Lecture 23 - 2 and 3 valve conduction mode of 6 pulse LCC
- Lecture 24 - 2 and 3 valve conduction mode of 6 pulse LCC
- Lecture 25 - 2 and 3 valve conduction mode of 6 pulse LCC
- Lecture 26 - Extinction angle
- Lecture 27 - Extinction angle
- Lecture 28 - 3 and 4 valve conduction mode of 6 pulse LCC
- Lecture 29 - Analysis of 3 and 4 valve conduction mode of 6 pulse LCC - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of 3 and 4 valve conduction mode of 6 pulse LCC - Part 2
- Lecture 31 - Analysis of 3 and 4 valve conduction mode of 6 pulse LCC - Part 3
- Lecture 32 - 3 valve conduction mode of 6 pulse LCC
- Lecture 33 - Commutation margin angle
- Lecture 34 - Normalization
- Lecture 35 - Characteristics of 6 pulse LCC - Part 1
- Lecture 36 - Characteristics of 6 pulse LCC - Part 2
- Lecture 37 - Steady state analysis of a general LCC - Part 1
- Lecture 38 - Steady state analysis of a general LCC - Part 2
- Lecture 39 - Steady state analysis of a general LCC - Application to 6 pulse LCC
- Lecture 40 - 6 pulse LCC with resistance included on the AC side
- Lecture 41 - 6 pulse LCC with resistance, inductance and voltage source on the DC side - Part 1
- Lecture 42 - 6 pulse LCC with resistance, inductance and voltage source on the DC side - Part 2
- Lecture 43 - Power factor
- Lecture 44 - Capacitor commutated converter - Part 1
- Lecture 45 - Capacitor commutated converter - Part 2
- Lecture 46 - 12 pulse LCC - Part 1
- Lecture 47 - 12 pulse LCC - Part 2
- Lecture 48 - Modes of operation of 12 pulse LCC
- Lecture 49 - Purposes of transformer
- Lecture 50 - Applications of DC transmission
- Lecture 51 - Types of DC link
- Lecture 52 - Types of DC link
- Lecture 53 - DC link control
- Lecture 54 - DC link control
- Lecture 55 - Considerations that influence selection of control
- Lecture 56 - Converter control characteristics
- Lecture 57 - MTDC systems
- Lecture 58 - Types of MTDC systems
- Lecture 59 - Non-characteristic harmonics
- Lecture 60 - Effect of firing angle errors
- Lecture 61 - Problems with harmonics
- Lecture 62 - Single tuned filter
- Lecture 63 - Design of single tuned filter - Part 1
- Lecture 64 - Design of single tuned filter - Part 2
- Lecture 65 - Double tuned and damped filters
- Lecture 66 - Reactive power requirement
- Lecture 67 - Comparison of AC and DC transmission

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Optical Engineering

Subject Co-ordinator - Prof. Shanti Bhattacharya

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Optical Engineering  
Lecture 2 - Geometric Optics Basics  
Lecture 3 - Refraction at a single surface  
Lecture 4 - Lab 1 Introduction to OSLO  
Lecture 5 - Stops and Rays  
Lecture 6 - Aperture stop - Part 1  
Lecture 7 - Aperture stop - Part 2  
Lecture 8 - Lab 2 OSLO  
Lecture 9 - Imaging equation for thick lens using ABCD matrix  
Lecture 10 - Ray Tracing Matrix - Part 1  
Lecture 11 - Ray Tracing Matrix - Part 2  
Lecture 12 - Principal Planes  
Lecture 13 - Lab 3 OSLO  
Lecture 14 - Tracing rays through optical pupils - Part 1  
Lecture 15 - Tracing rays through optical pupils - Part 2  
Lecture 16 - Aberrations  
Lecture 17 - Monochromatic Aberrations - Part 1  
Lecture 18 - Monochromatic Aberrations - Part 2  
Lecture 19 - Lab 4 - OSLO  
Lecture 20 - Chromatic Aberrations and Aberration correction  
Lecture 21 - Aberration correction  
Lecture 22 - Revisiting Ray intercept curves  
Lecture 23 - Lab 5 - OSLO  
Lecture 24 - Interesting Geometric phenomena and applications  
Lecture 25 - Gaussian beams introduction  
Lecture 26 - Gaussian beams  
Lecture 27 - Lab 6 - OSLO  
Lecture 28 - Transformation of a Gaussian beam  
Lecture 29 - Transformation of a Gaussian beam due to a lens and a mirror

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Application of Gaussian beam equations
- Lecture 31 - Interferometry basics
- Lecture 32 - Interferometry basics - Part 1
- Lecture 33 - Introduction to Python
- Lecture 34 - Python - Part 2
- Lecture 35 - Introduction to Matlab
- Lecture 36 - Interferometry basics - Part 2
- Lecture 37 - Python - Part 3
- Lecture 38 - Matlab tutorial on interference
- Lecture 39 - Applications of interference - Part 1
- Lecture 40 - Holography
- Lecture 41 - Applications of interference
- Lecture 42 - Applications of Optical Engineering
- Lecture 43 - Diffractive Optics
- Lecture 44 - Diffraction Grating

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Nonlinear System Analysis

Subject Co-ordinator - Dr. Arun D. Mahindrakar, Prof. Ramkrishna Pasumarthy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Examples of Nonlinear Physical Systems
- Lecture 2 - Math Preliminaries - Part 1
- Lecture 3 - Math Preliminaries - Part 2
- Lecture 4 - Math Preliminaries - Part 3
- Lecture 5 - Lipschitz Continuity and Contraction Mapping Theorem - Part 1
- Lecture 6 - Lipschitz Continuity and Contraction Mapping Theorem - Part 2
- Lecture 7 - Lipschitz Continuity and Contraction Mapping Theorem - Part 3
- Lecture 8 - Existence and Uniqueness Theorem of ODE - Part 1
- Lecture 9 - Existence and Uniqueness Theorem of ODE - Part 2
- Lecture 10 - Existence and Uniqueness Theorem of ODE - Part 3
- Lecture 11 - Existence and Uniqueness Theorem of ODE - Part 4
- Lecture 12 - Equilibrium Points
- Lecture 13 - Phase Portrait - Part 1
- Lecture 14 - Phase Portrait - Part 2
- Lecture 15 - Phase Portrait - Part 3
- Lecture 16 - Phase portrait of Nonlinear Systems
- Lecture 17 - Limit Cycles
- Lecture 18 - Limit Cycles - Examples - Part 1
- Lecture 19 - Limit Cycles - Examples - Part 2
- Lecture 20 - Introduction to Bifurcation Theory - 1
- Lecture 21 - Introduction to Bifurcation Theory - 2
- Lecture 22 - Necessary and Sufficient Conditions for Local Bifurcation
- Lecture 23 - Problems on Bifurcation Theory.
- Lecture 24 - Stability Notions
- Lecture 25 - Stability Notions
- Lecture 26 - Stability Notions
- Lecture 27 - Stability Notions
- Lecture 28 - Stability Analysis and types of stability
- Lecture 29 - Lypaunov Stability

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Supplementary lecture
- Lecture 31 - Center Manifold Theorem
- Lecture 32 - Interconnection between non linearity and a linear system - Sector Nonlinearities And Aizermannâ s conjecture
- Lecture 33 - Counter example for Aizermannâ s conjecture
- Lecture 34 - Passivity inspiration - passive circuits - dissipation equality
- Lecture 35 - Dissipative Equality for circuit (Continued...)
- Lecture 36 - PR condition for passivity of SISO system
- Lecture 37 - Examples of PR transfer functions
- Lecture 38 - Relation between storage function and Lyapunov function - PR Lemma
- Lecture 39 - Proof of PR Lemma
- Lecture 40 - Proof (Continued...) using spectral factorization theorem
- Lecture 41 - PR definition for MIMO case
- Lecture 42 - PSD Storage function in PR Lemma and how to make it PD (strictly PR)
- Lecture 43 - KYP Theorem
- Lecture 44 - Passivity preservation under interconnection
- Lecture 45 - Aizermannâ s conjecture under passivity assumption is true
- Lecture 46 - Sector Nonlinearities and need for generalizing KYP Lemma
- Lecture 47 - Need for Loop transformations
- Lecture 48 - Loop Transformations - Part 1
- Lecture 49 - Loop Transformations - Part 2
- Lecture 50 - Circle criterion for PR
- Lecture 51 - Examples based on circle criterion and stability under circle transformations

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Signals and Systems

Subject Co-ordinator - Prof. Kushal K. Shah

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Real and Complex Number
- Lecture 2 - Sinusoid and Phasor
- Lecture 3 - Limits and Continuity
- Lecture 4 - Differentiation and Integration
- Lecture 5 - L'Hôpital's Rule
- Lecture 6 - LTI System Examples; Impedance
- Lecture 7 - Dirac Delta function; Impulse
- Lecture 8 - Continuous and Discrete Time Systems
- Lecture 9 - Even Signal; Odd Signal
- Lecture 10 - Orthogonality of Signals
- Lecture 11 - Shifting and Scaling in Continuous Time - I
- Lecture 12 - Shifting and Scaling in Continuous Time - II
- Lecture 13 - Shifting and Scaling in Discrete Time
- Lecture 14 - Signal and Noise
- Lecture 15 - Signals in the Physical World
- Lecture 16 - Signals and Sensory Perception
- Lecture 17 - Frequency Domain Representation
- Lecture 18 - Definition of Fourier Transform
- Lecture 19 - Fourier Transform
- Lecture 20 - Dirichlet Conditions
- Lecture 21 - Inverse Fourier Transform
- Lecture 22 - Fourier Transform
- Lecture 23 - Frequency-Time Uncertainty Relation
- Lecture 24 - Fourier Transform
- Lecture 25 - Fourier Transform
- Lecture 26 - Fourier Transform
- Lecture 27 - Fourier Transform
- Lecture 28 - Fourier Transform
- Lecture 29 - Fourier Transform

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fourier Transform of Noise
- Lecture 31 - Types of Noise
- Lecture 32 - Overview of Systems and General Properties
- Lecture 33 - Linearity and Time Invariance
- Lecture 34 - LTI System Examples
- Lecture 35 - Frequency Response of RLC circuits - I
- Lecture 36 - Frequency Response of RLC circuits - II
- Lecture 37 - LCCDE Representation of Continuous-Time LTI Systems
- Lecture 38 - Frequency Domain Representation of LCCDE Systems
- Lecture 39 - Time Domain Representation of LTI Systems
- Lecture 40 - Continuous-Time Convolution Integral
- Lecture 41 - Continuous-Time Convolution
- Lecture 42 - Continuous-Time Convolution
- Lecture 43 - Continuous-Time Convolution
- Lecture 44 - LTI Systems
- Lecture 45 - LTI Systems
- Lecture 46 - LTI Systems
- Lecture 47 - Fourier Transform in Complex Frequency Domain
- Lecture 48 - Laplace Transform
- Lecture 49 - Laplace Transform
- Lecture 50 - Laplace Transform
- Lecture 51 - Laplace Transform
- Lecture 52 - Laplace Analysis of LTI Systems
- Lecture 53 - Laplace Analysis of RLC Circuits - I
- Lecture 54 - Laplace Transform
- Lecture 55 - Laplace Transform
- Lecture 56 - Laplace Transform
- Lecture 57 - Laplace Analysis of LTI Systems
- Lecture 58 - Laplace Analysis of LTI Systems
- Lecture 59 - Laplace Analysis of First Order RLC Circuits
- Lecture 60 - Laplace Analysis of Second Order RLC Circuits
- Lecture 61 - Fourier Transform of Periodic Signals
- Lecture 62 - Fourier Series Representation in Continuous-Time
- Lecture 63 - Fourier Series Properties - I
- Lecture 64 - Fourier Series Properties - II
- Lecture 65 - LTI System Response for Periodic Input Signal
- Lecture 66 - Fourier Series in Continuous-Time
- Lecture 67 - Fourier Series in Continuous-Time
- Lecture 68 - Discrete-Time Convolution Sum

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Discrete-Time Convolution Sum Examples and Properties
- Lecture 70 - LCCDE Representation of Discrete-Time LTI Systems
- Lecture 71 - Impulse Train Sampling
- Lecture 72 - Reconstruction of Continuous-Time Signal
- Lecture 73 - Nyquist Sampling Theorem and Aliasing
- Lecture 74 - Fourier Transform of Sampled Signals
- Lecture 75 - DTFT
- Lecture 76 - DTFT Properties I
- Lecture 77 - DTFT Properties II
- Lecture 78 - DTFT Properties III
- Lecture 79 - DTFT
- Lecture 80 - DTFT in Complex Frequency Domain
- Lecture 81 - Z-Transform
- Lecture 82 - Z-Transform Properties I
- Lecture 83 - Z-Transform Properties II
- Lecture 84 - Z-Transform Properties III
- Lecture 85 - Z-Transform
- Lecture 86 - Z-Transform
- Lecture 87 - Block Diagram Representation

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Linear Dynamical Systems

Subject Co-ordinator - Prof. Tushar Jain

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Response and state-space solution of Linear systems
- Lecture 2 - Solution of LTV systems
- Lecture 3 - Solution of LTI systems
- Lecture 4 - Equivalent State Equations
- Lecture 5 - Realization of LTI and LTV Systems
- Lecture 6 - Tutorial - 1
- Lecture 7 - Introduction to Stability Analysis
- Lecture 8 - Lyapunov Stability - Part I
- Lecture 9 - Lyapunov Stability - Part II
- Lecture 10 - Proof of Lyapunov stability theorem
- Lecture 11 - BIBO vs Lyapunov Stability
- Lecture 12 - BIBO vs Lyapunov Stability
- Lecture 13 - Tutorial - 2
- Lecture 14 - Introduction to Controllability
- Lecture 15 - Reachability and Controllability Gramians
- Lecture 16 - Controllability Matrix
- Lecture 17 - Discrete-time Reachability and Controllability Gramians
- Lecture 18 - Tests for controllability - I
- Lecture 19 - Tests for controllability - II
- Lecture 20 - Tutorial - 3
- Lecture 21 - Tests for controllability - III
- Lecture 22 - Tests for controllability - IV
- Lecture 23 - Controllable Decomposition - I
- Lecture 24 - Stabilizable Systems
- Lecture 25 - Tests for Stabilizability
- Lecture 26 - Tutorial - 4
- Lecture 27 - State Feedback - I
- Lecture 28 - State Feedback - II
- Lecture 29 - Lyapunov Method of State Feedback Design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Regulation and Tracking
- Lecture 31 - Tutorial - 5
- Lecture 32 - Robust Tracking and Disturbance Rejection
- Lecture 33 - State Feedback design for Multi-input systems
- Lecture 34 - Linear Quadratic Regulator
- Lecture 35 - Tutorial - 6
- Lecture 36 - Output feedback and observability
- Lecture 37 - Duality and Observability tests
- Lecture 38 - Decompositions and Detectability
- Lecture 39 - Minimal Realisations
- Lecture 40 - Observer Design and Output Feedback
- Lecture 41 - Observer Design and Output Feedback
- Lecture 42 - UIO
- Lecture 43 - Tutorial - 7 and 8 (combined)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:A brief Introduction of Micro-Sensors

Subject Co-ordinator - Prof. Santanu Talukder

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Microscale Sensors or MEMS

Lecture 2 - Scaling effect

Lecture 3 - Some Simple Mechanics

Lecture 4 - Basic Mechanics - Part 1

Lecture 5 - Basic Mechanics - Part 2

Lecture 6 - Basic Mechanics - Part 3

Lecture 7 - Electrostatics

Lecture 8 - Electrostatic force

Lecture 9 - Coupled electromechanics

Lecture 10 - Stiction

Lecture 11 - Si crystal structure

Lecture 12 - Si etching

Lecture 13 - KOH etching

Lecture 14 - TMAH etching

Lecture 15 - Deposition and Lithography

Lecture 16 - Lithography

Lecture 17 - Pressure sensor types, membrane, Piezoelectric sensing, capacitive sensing

Lecture 18 - Pressure Sensor - II

Lecture 19 - Pressure Sensor - III

Lecture 20 - Accelerometer - I

Lecture 21 - Accelerometer - II

Lecture 22 - Assignment 1

Lecture 23 - Assignment 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fiber Optic Communication Technology

Subject Co-ordinator - Prof. Deepa Venkitesh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to FOCT
- Lecture 2 - Communication through the ages
- Lecture 3 - Communication
- Lecture 4 - Communication
- Lecture 5 - Digital Communication for Optical Communication
- Lecture 6 - Digital modulation
- Lecture 7 - Digital modulation
- Lecture 8 - Optical communication system
- Lecture 9 - Assignment Discussion - Week 1
- Lecture 10 - Optical Sources
- Lecture 11 - Semiconductor gain media- structure, spectrum
- Lecture 12 - Optical sources
- Lecture 13 - External Quantum Efficiency
- Lecture 14 - Modulation Bandwidth of LED
- Lecture 15 - Optical and Electrical Bandwidth of LED
- Lecture 16 - Emission Pattern of LED
- Lecture 17 - Optical Sources
- Lecture 18 - Laser Diodes
- Lecture 19 - Laser Diodes
- Lecture 20 - Laser Diodes
- Lecture 21 - Assignment Discussion - Week 2
- Lecture 22 - Laser Diodes
- Lecture 23 - Laser Diodes
- Lecture 24 - Laser rate equation
- Lecture 25 - Laser rate equation
- Lecture 26 - Laser power derivation
- Lecture 27 - Modulation Response of Laser - 1
- Lecture 28 - Modulation Response of Laser - 2
- Lecture 29 - Modulation Response of Laser - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Setbacks of direct modulation of laser
- Lecture 31 - Setbacks of direct modulation of laser
- Lecture 32 - Assignment Discussion - Week 3
- Lecture 33 - Recap of direction modulation consequences
- Lecture 34 - Noise in Lasers
- Lecture 35 - Relative Intensity Noise
- Lecture 36 - Laser Phase Noise - 1
- Lecture 37 - Laser Phase Noise - 2
- Lecture 38 - Effect of Laser Phase Noise
- Lecture 39 - Electro-optic phase modulation
- Lecture 40 - Electro-optic intensity modulator
- Lecture 41 - Biasing of MZM
- Lecture 42 - Biasing of MZM
- Lecture 43 - Line coding schemes and their bandwidth requirements
- Lecture 44 - Assignment Discussion - Week 4
- Lecture 45 - Introduction to optical Fiber
- Lecture 46 - Attenuation in optical fibers
- Lecture 47 - Fiber Modes
- Lecture 48 - Modes of a step index fiber - 1
- Lecture 49 - Modes of a step index fiber - 2
- Lecture 50 - Modes of a step index fiber - 3
- Lecture 51 - Modes of a step index fiber - 4
- Lecture 52 - Modes of a step index fiber - 5
- Lecture 53 - Modes and Cut-off conditions
- Lecture 54 - Universal b-V curves
- Lecture 55 - Modal Profiles in step index fiber
- Lecture 56 - Mode Field Diameter
- Lecture 57 - Dispersion- Intermodal dispersion derivation
- Lecture 58 - Dispersion-Bit rate distance Product
- Lecture 59 - Phase Velocity and Group Velocity - 1
- Lecture 60 - Phase Velocity and Group Velocity - 2
- Lecture 61 - Material dispersion
- Lecture 62 - Waveguide dispersion
- Lecture 63 - Total Dispersion in optical fiber
- Lecture 64 - Polarization mode dispersion
- Lecture 65 - Photodetectors concepts
- Lecture 66 - p-n and p-i-n Photodetectors
- Lecture 67 - Avalance Photodetector
- Lecture 68 - Direct detection receiver and sources of noise

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Quantifying noises in direct detection receivers
- Lecture 70 - SNR and Operation Regimes
- Lecture 71 - Noise Equivalent power and SNR in APDs
- Lecture 72 - Coherent Receivers
- Lecture 73 - SNR analysis of coherent receivers
- Lecture 74 - Performance Evaluation - 1
- Lecture 75 - Performance Evaluation - 2
- Lecture 76 - Performance Metrics
- Lecture 77 - Performance Metrics
- Lecture 78 - Quantum limit of photodetection
- Lecture 79 - Optical Amplifier
- Lecture 80 - Erbium doped fiber amplifier - 1
- Lecture 81 - Erbium doped fiber amplifier - 2
- Lecture 82 - Erbium doped fiber amplifier - 3
- Lecture 83 - Erbium doped fiber amplifier - 4
- Lecture 84 - Link Design - Rise Time Budget
- Lecture 85 - Link Design - Case Study
- Lecture 86 - Link Design - Passive Optical Network and long haul link
- Lecture 87 - Dispersion - Recap
- Lecture 88 - Dispersion Compensation - Pulse Propagation with dispersion
- Lecture 89 - Pulse propagation - 2
- Lecture 90 - Dispersion Compensation - Dispersion Transfer Function
- Lecture 91 - Dispersion Compensation - Case Study
- Lecture 92 - Dispersion Compensation - WDM and DSP
- Lecture 93 - Nonlinear Effects- Nonlinear refractive Index
- Lecture 94 - Self Phase Modulation
- Lecture 95 - Cross Phase Modulation
- Lecture 96 - Scattering Processes in optical fibers
- Lecture 97 - Stimulated Brillouin Scattering
- Lecture 98 - Stimulated Raman Scattering
- Lecture 99 - Components - Directional Couplers
- Lecture 100 - Components - VOA, Polariser, Polarisation Controllers
- Lecture 101 - Components - Isolator
- Lecture 102 - Components - Circulator, Definitions
- Lecture 103 - Components - Wavelength filters
- Lecture 104 - Components - Arrayed Waveguide Gratings, WSS
- Lecture 105 - Balanced Detection
- Lecture 106 - Polarisation Diverse Coherent Receiver
- Lecture 107 - Phase and Polarisation Diverse Coherent Receiver

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Overview of impairments in coherent optical communication
- Lecture 109 - Transceiver impairments - Generation and Compensation
- Lecture 110 - Channel Impairments - Generation and Compensation
- Lecture 111 - Demo video
- Lecture 112 - Introduction to Optical Networks
- Lecture 113 - Layers of Optical Network
- Lecture 114 - SDH/SONET Layering, Frame Structure
- Lecture 115 - Physical Networks Topologies
- Lecture 116 - Topology specific Link Design
- Lecture 117 - Network Protection
- Lecture 118 - Access Networks- PON
- Lecture 119 - Optical Interconnects, Data Centers
- Lecture 120 - Optical communication for Wireless Fronthauling

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Image Signal Processing

Subject Co-ordinator - Prof. A. N. Rajagopalan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Introduction  
Lecture 2 - Applications of Image processing  
Lecture 3 - Applications of Image processing (Continued...)  
Lecture 4 - Basics of Images  
Lecture 5 - Shot Noise  
Lecture 6 - Geometric Transformations  
Lecture 7 - Geometric Transformations (Continued...)  
Lecture 8 - Bilinear Interpolation  
Lecture 9 - Geometric Transformations (Continued...)  
Lecture 10 - Projective Transformation  
Lecture 11 - Homography  
Lecture 12 - Homography - Special cases  
Lecture 13 - Computing Homography  
Lecture 14 - RANSAC  
Lecture 15 - Rotational Homography  
Lecture 16 - Research Challenges  
Lecture 17 - Real Aperture Camera  
Lecture 18 - Real aperture camera - Introduction  
Lecture 19 - Circle of confusion  
Lecture 20 - Depth of field, Linearity  
Lecture 21 - Space-Invariance  
Lecture 22 - 2D Convolution  
Lecture 23 - 2D Convolution  
Lecture 24 - Blur Models  
Lecture 25 - Space-variant Blurring  
Lecture 26 - Shape from X - Introduction  
Lecture 27 - 2-View Stereo  
Lecture 28 - Introduction to Shape from Focus  
Lecture 29 - SFF Principle

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Shape from focus - Gaussian fitting
- Lecture 31 - Shape from focus - Focus operators
- Lecture 32 - Shape from Focus - Examples
- Lecture 33 - Shape from Focus - Tensor Voting
- Lecture 34 - DFD Principle
- Lecture 35 - Motion Blur
- Lecture 36 - Image Transforms - Introduction
- Lecture 37 - Image Transforms - Motivation
- Lecture 38 - 1D Unitary Transforms - Introduction
- Lecture 39 - Extending 1D Unitary Transform to 2D - Motivation
- Lecture 40 - Extending 1D Unitary Transform to 2D - Example
- Lecture 41 - Alternative Forms of 2D
- Lecture 42 - Kronecker Product
- Lecture 43 - Kronecker Product - (Example Revisited)
- Lecture 44 - Extending 1D Unitary Transform to 2D - Summary
- Lecture 45 - 1D DFT to 2D DFT
- Lecture 46 - 2D DFT Visualization
- Lecture 47 - 2D DFT - Computation
- Lecture 48 - 1D DCT - Definition, Motivation
- Lecture 49 - Relation to DFT
- Lecture 50 - 2D DCT and Walsh-Hadamard Transform
- Lecture 51 - Data Dependent Transforms, Karhunen Loeve Transform
- Lecture 52 - Karhunen-Loeve Transform (KLT) - Concept
- Lecture 53 - Karhunen-Loeve Transform (KLT) - Applications
- Lecture 54 - Karhunen-Loeve Transform (KLT) - Applications
- Lecture 55 - Singular Value Decomposition (SVD)
- Lecture 56 - Applications of SVD
- Lecture 57 - Change detection
- Lecture 58 - Image Thresholding
- Lecture 59 - Adaptive Local thresholding - Motivation
- Lecture 60 - Chow-Kaneko Local thresholding
- Lecture 61 - K-Means Method
- Lecture 62 - ISODATA Method
- Lecture 63 - Theory of Histogram Equalization and Modification
- Lecture 64 - Histogram Equalization example
- Lecture 65 - Image sequence and Single image filtering in Gaussian noise
- Lecture 66 - Non-local Means Method
- Lecture 67 - Non-local Means Filtering (Examples)
- Lecture 68 - Impulse Noise Generator

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Impulse noise filtering
- Lecture 70 - Transform Domain Filtering
- Lecture 71 - Illumination Handling
- Lecture 72 - Applications of Restoration, and Image Deblurring
- Lecture 73 - Haddamard's conditions and Least squares solution
- Lecture 74 - Min-norm solution and Norm of Linear operator
- Lecture 75 - Numerical stability analysis
- Lecture 76 - Image Deblurring
- Lecture 77 - Tikhonov-Miller Regularization
- Lecture 78 - Conditional Mean as an Estimator
- Lecture 79 - Linear Estimator
- Lecture 80 - Wiener Filter
- Lecture 81 - Fourier Wiener Filter
- Lecture 82 - 1D Superresolution
- Lecture 83 - Superresolution Examples



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Electric Vehicles: Technology and Economics

Subject Co-ordinator - Prof. Ashok Jhunjunwala, Prof. Prabhjot Kaur, Prof. Kaushal Kumar Jha, Prof. L Kannan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of Electric Vehicles in India
- Lecture 2 - Can India Drive its EV program Innovatively and Differently and scale? - Part 1
- Lecture 3 - Can India Drive its EV program Innovatively and Differently and scale? - Part 2
- Lecture 4 - A bit about batteries
- Lecture 5 - Charging and Swapping Infrastructure
- Lecture 6 - Where will we get Lithium for batteries?
- Lecture 7 - EV Subsystems
- Lecture 8 - Forces acting when a vehicle move
- Lecture 9 - Aerodynamic drag, Rolling Resistance and Uphill Resistance
- Lecture 10 - Power and Torque to accelerate
- Lecture 11 - Putting it all together - 1
- Lecture 12 - Putting it all together - 2
- Lecture 13 - Concept of Drive Cycle - 1
- Lecture 14 - Concept of Drive Cycle - 2
- Lecture 15 - Drive Cycles and Energy used per km - Part 1
- Lecture 16 - Drive Cycles and Energy used per km - Part 2
- Lecture 17 - EV Subsystem
- Lecture 18 - EV Subsystem
- Lecture 19 - Introduction to Battery Parameters - Part 1
- Lecture 20 - Introduction to Battery Parameters - Part 2
- Lecture 21 - Why Lithium Ion Battery? - Part 1
- Lecture 22 - Why Lithium Ion Battery? - Part 2
- Lecture 23 - Batteries in Future
- Lecture 24 - Li-Ion Battery Cells
- Lecture 25 - SoH and SoC estimation and Self Discharge - Part 1
- Lecture 26 - SoH and SoC estimation and Self Discharge - Part 2
- Lecture 27 - Battery Pack Development - Part 1
- Lecture 28 - Battery Pack Development - Part 2
- Lecture 29 - Computation of Effective cost of battery - Part 1

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Computation of Effective cost of battery - Part 2
- Lecture 31 - Charging Batteries
- Lecture 32 - Fundamentals of Battery Pack Design
- Lecture 33 - Mechanical Design - Part 1
- Lecture 34 - Mechanical Design - Part 2
- Lecture 35 - Mechanical Design - Part 3
- Lecture 36 - Mechanical Design - Part 4
- Lecture 37 - Thermal Design - Part 1
- Lecture 38 - Thermal Design - Part 2
- Lecture 39 - Thermal Design - Part 3
- Lecture 40 - Thermal Design - Part 4
- Lecture 41 - Electrical Design - Part 1
- Lecture 42 - Electrical Design - Part 2
- Lecture 43 - Electrical Design - Part 3
- Lecture 44 - BMS Design of Electric Vehicle - Part 1
- Lecture 45 - BMS Design of Electric Vehicle - Part 2
- Lecture 46 - BMS Design of Electric Vehicle - Part 3
- Lecture 47 - EV Motors and Controllers - Understanding Flow - Part 1
- Lecture 48 - EV Motors and Controllers - Understanding Flow - Part 2
- Lecture 49 - Power and Efficiency
- Lecture 50 - Torque Production - Part 1
- Lecture 51 - Torque Production - Part 2
- Lecture 52 - Torque Production - Part 3
- Lecture 53 - Speed and Back EMF
- Lecture 54 - The d-q Equivalent circuit - Part 1
- Lecture 55 - The d-q Equivalent circuit - Part 2
- Lecture 56 - Field-oriented Control
- Lecture 57 - Three phase AC - Part 1
- Lecture 58 - Three phase AC - Part 2
- Lecture 59 - Thermal Design - Part 1
- Lecture 60 - Thermal Design - Part 2
- Lecture 61 - Engineering Considerations - Part 1
- Lecture 62 - Engineering Considerations - Part 2
- Lecture 63 - Future Frontiers
- Lecture 64 - EV Chargers
- Lecture 65 - EV Chargers
- Lecture 66 - EV Chargers
- Lecture 67 - Battery Swapping
- Lecture 68 - Standardization and On board Chargers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Public Chargers - Part 1
- Lecture 70 - Public Chargers - Part 2
- Lecture 71 - Bulk Chargers/Swap Stations - Part 1
- Lecture 72 - Bulk Chargers/Swap Stations - Part 2
- Lecture 73 - Economics of Public Chargers in context
- Lecture 74 - Analytics - Part 1
- Lecture 75 - Analytics - Part 2
- Lecture 76 - Course Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Applied Linear Algebra

Subject Co-ordinator - Prof. Andrew Thangaraj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course
- Lecture 2 - Vector Spaces
- Lecture 3 - Linear Combinations and Span
- Lecture 4 - Subspaces, Linear Dependence and Independence
- Lecture 5 - Basis and Dimension
- Lecture 6 - Sums, Direct Sums and Gaussian Elimination
- Lecture 7 - Linear Maps and Matrices
- Lecture 8 - Null space, Range, Fundamental theorem of linear maps
- Lecture 9 - Column space, null space and rank of a matrix
- Lecture 10 - Algebraic operations on linear maps
- Lecture 11 - Invertible maps, Isomorphism, Operators
- Lecture 12 - Solving Linear Equations
- Lecture 13 - Elementary Row Operations
- Lecture 14 - Translates of a subspace, Quotient Spaces
- Lecture 15 - Row space and rank of a matrix
- Lecture 16 - Determinants
- Lecture 17 - Coordinates and linear maps under a change of basis
- Lecture 18 - Simplifying matrices of linear maps by choice of basis
- Lecture 19 - Polynomials and Roots
- Lecture 20 - Invariant subspaces, Eigenvalues, Eigenvectors
- Lecture 21 - More on Eigenvalues, Eigenvectors, Diagonalization
- Lecture 22 - Eigenvalues, Eigenvectors and Upper Triangularization
- Lecture 23 - Properties of Eigenvalues
- Lecture 24 - Linear state space equations and system stability
- Lecture 25 - Discrete-time Linear Systems and Discrete Fourier Transforms
- Lecture 26 - Sequences and counting paths in graphs
- Lecture 27 - PageRank Algorithm
- Lecture 28 - Dot product and length in  $C^n$ , Inner product and norm in  $V$  over  $F$
- Lecture 29 - Orthonormal basis and Gram-Schmidt orthogonalisation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear Functionals, Orthogonal Complements
- Lecture 31 - Orthogonal Projection
- Lecture 32 - Projection and distance from a subspace
- Lecture 33 - Linear equations, Least squares solutions and Linear regression
- Lecture 34 - Minimum Mean Squared Error Estimation
- Lecture 35 - Adjoint of a linear map
- Lecture 36 - Properties of Adjoint of a Linear Map
- Lecture 37 - Adjoint of an Operator and Operator-Adjoint Product
- Lecture 38 - Self-adjoint Operator
- Lecture 39 - Normal Operators
- Lecture 40 - Complex Spectral Theorem
- Lecture 41 - Real Spectral Theorem
- Lecture 42 - Positive Operators
- Lecture 43 - Quadratic Forms, Matrix Norms and Optimization
- Lecture 44 - Isometries
- Lecture 45 - Classification of Operators
- Lecture 46 - Singular Values and Vectors of a Linear Map
- Lecture 47 - Singular Value Decomposition
- Lecture 48 - Polar decomposition and some applications of SVD

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Basic Electrical Circuits

Subject Co-ordinator - Dr. Nagendra Krishnapura

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Preliminaries
- Lecture 2 - Current
- Lecture 3 - Voltage
- Lecture 4 - Electrical elements and circuits
- Lecture 5 - Kirchhoff's current law (KCL)
- Lecture 6 - Kirchhoff's voltage law (KVL)
- Lecture 7 - Voltage source
- Lecture 8 - Current source
- Lecture 9 - Resistor
- Lecture 10 - Capacitor
- Lecture 11 - Inductor
- Lecture 12 - Mutual inductor
- Lecture 13 - Linearity of elements
- Lecture 14 - Series connection-Voltage sources in series
- Lecture 15 - Series connection of R, L, C, current source
- Lecture 16 - Elements in parallel
- Lecture 17 - Current source in series with an element; Voltage source in parallel with an element
- Lecture 18 - Extreme cases
- Lecture 19 - Summary
- Lecture 20 - Voltage controlled voltage source (VCVS)
- Lecture 21 - Voltage controlled current source (VCCS)
- Lecture 22 - Current controlled voltage source (CCVS)
- Lecture 23 - Current controlled current source (CCCS)
- Lecture 24 - Realizing a resistance using a VCCS or CCCS
- Lecture 25 - Scaling an element's value using controlled sources
- Lecture 26 - Example calculation
- Lecture 27 - Power and energy absorbed by electrical elements
- Lecture 28 - Power and energy in a resistor
- Lecture 29 - Power and energy in a capacitor

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Power and energy in an inductor
- Lecture 31 - Power and energy in a voltage source
- Lecture 32 - Power and energy in a current source
- Lecture 33 - Goals of circuit analysis
- Lecture 34 - Number of independent KCL equations
- Lecture 35 - Number of independent KVL equations and branch relationships
- Lecture 36 - Analysis of circuits with a single independent source
- Lecture 37 - Analysis of circuits with multiple independent sources using superposition
- Lecture 38 - Superposition
- Lecture 39 - What is nodal analysis
- Lecture 40 - Setting up nodal analysis equations
- Lecture 41 - Structure of the conductance matrix
- Lecture 42 - How do elements circuit appear in the nodal analysis formulation
- Lecture 43 - Completely solving the circuit starting from nodal analysis
- Lecture 44 - Nodal analysis example
- Lecture 45 - Matrix inversion basics
- Lecture 46 - Nodal analysis with independent voltage sources
- Lecture 47 - Supernode for nodal analysis with independent voltage sources
- Lecture 48 - Nodal analysis with VCCS
- Lecture 49 - Nodal analysis with VCVS
- Lecture 50 - Nodal analysis with CCCS
- Lecture 51 - Nodal analysis with CCCS
- Lecture 52 - Nodal analysis summary
- Lecture 53 - Planar circuits
- Lecture 54 - Mesh currents and their relationship to branch currents
- Lecture 55 - Mesh analysis
- Lecture 56 - Mesh analysis with independent current sources-Supermesh
- Lecture 57 - Mesh analysis with current controlled voltage sources
- Lecture 58 - Mesh analysis with current controlled current sources
- Lecture 59 - Mesh analysis using voltage controlled sources
- Lecture 60 - Nodal analysis versus Mesh analysis
- Lecture 61 - Superposition theorem
- Lecture 62 - Pushing a voltage source through a node
- Lecture 63 - Splitting a current source
- Lecture 64 - Substitution theorem
- Lecture 65 - Substitution theorem
- Lecture 66 - Substituting a voltage or current source with a resistor
- Lecture 67 - Extensions to Superposition and Substitution theorem
- Lecture 68 - Thevenin's theorem

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Worked out example
- Lecture 70 - Norton's theorem
- Lecture 71 - Worked out example
- Lecture 72 - Maximum power transfer theorem
- Lecture 73 - Preliminaries
- Lecture 74 - Two port parameters
- Lecture 75 - y parameters
- Lecture 76 - y parameters
- Lecture 77 - z parameters
- Lecture 78 - z parameters
- Lecture 79 - h parameters
- Lecture 80 - h parameters
- Lecture 81 - g parameters
- Lecture 82 - g parameters
- Lecture 83 - Calculations with a two-port element
- Lecture 84 - Calculations with a two-port element
- Lecture 85 - Degenerate cases
- Lecture 86 - Relationships between different two-port parameters
- Lecture 87 - Equivalent circuit representation of two-ports
- Lecture 88 - Reciprocity
- Lecture 89 - Proof of reciprocity of resistive two-ports
- Lecture 90 - Proof for 4-terminal two-ports
- Lecture 91 - Reciprocity in terms of different two-port parameters
- Lecture 92 - Reciprocity in circuits containing controlled sources
- Lecture 93 - Examples
- Lecture 94 - Feedback amplifier using an opamp
- Lecture 95 - Ideal opamp
- Lecture 96 - Negative feedback around the opamp
- Lecture 97 - Finding opamp sign for negative feedback
- Lecture 98 - Example
- Lecture 99 - Analysis of circuits with opamps
- Lecture 100 - More on opamps
- Lecture 101 - Inverting amplifier
- Lecture 102 - Summing amplifier
- Lecture 103 - Instrumentation amplifier
- Lecture 104 - Negative resistance
- Lecture 105 - Finding opamp signs for negative feedback-circuits with multiple opamps
- Lecture 106 - Opamp supply voltages and saturation
- Lecture 107 - KCL with an opamp and supply currents

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Circuits with storage elements (capacitors and inductors)
- Lecture 109 - First order circuit with zero input-natural response
- Lecture 110 - First order RC circuit with zero input-Example
- Lecture 111 - First order circuit with a constant input
- Lecture 112 - General form of the first order circuit response
- Lecture 113 - First order RC circuit with a constant input-Example
- Lecture 114 - First order circuit with piecewise constant input
- Lecture 115 - First order circuit with piecewise constant input-Example
- Lecture 116 - First order circuit-Response of arbitrary circuit variables
- Lecture 117 - Summary
- Lecture 118 - Does a capacitor block DC?
- Lecture 119 - Finding the order of a circuit
- Lecture 120 - First order RC circuits with discontinuous capacitor voltages
- Lecture 121 - Summary
- Lecture 122 - First order RL circuits
- Lecture 123 - First order RL circuit with discontinuous inductor current-Example
- Lecture 124 - First order RC circuit with an exponential input
- Lecture 125 - First order RC response to its own natural response
- Lecture 126 - First order RC response to a sinusoidal input
- Lecture 127 - First order RC response to a sinusoidal input-via the complex exponential
- Lecture 128 - Summary
- Lecture 129 - Three methods of calculating the sinusoidal steady state response
- Lecture 130 - Calculating the total response including initial conditions
- Lecture 131 - Why are sinusoids used in measurement?
- Lecture 132 - Second order system natural response
- Lecture 133 - Second order system as a cascade of two first order systems
- Lecture 134 - Second order system natural response-critically damped and underdamped
- Lecture 135 - Generalized form of a second order system
- Lecture 136 - Numerical example
- Lecture 137 - Series and parallel RLC circuits
- Lecture 138 - Forced response of a second order system
- Lecture 139 - Steady state response calculation and Phasors
- Lecture 140 - Phasors (Continued...)
- Lecture 141 - Magnitude and Phase plots
- Lecture 142 - Magnitude and phase plots of a second order system
- Lecture 143 - Maximum power transfer and Conjugate matching

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Optical Fiber Sensors

Subject Co-ordinator - Prof. Balaji Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to optical sensors  
Lecture 2 - Different types of optical sensors  
Lecture 3 - Overview of distributed sensors  
Lecture 4 - Optical sensors system  
Lecture 5 - Optical sources  
Lecture 6 - Optical receivers - 1  
Lecture 7 - Optical receivers - 2  
Lecture 8 - Optical receivers - 3  
Lecture 9 - Optical receiver design  
Lecture 10 - Noise Analysis  
Lecture 11 - Sensor Performance characteristics  
Lecture 12 - Noise Mitigation Techniques  
Lecture 13 - Lock in detection  
Lecture 14 - Amplitude modulated sensors - 1  
Lecture 15 - Gas absorption spectroscopy  
Lecture 16 - Amplitude modulated sensors - 2  
Lecture 17 - Amplitude modulated sensors - 3  
Lecture 18 - Amplitude modulated sensors - 4  
Lecture 19 - Problem Discussion  
Lecture 20 - Pulse-oximeter  
Lecture 21 - Phase modulated sensors - 1  
Lecture 22 - Phase modulated sensors - 2  
Lecture 23 - Phase modulated Sensors - 3  
Lecture 24 - Phase modulated sensors - 4  
Lecture 25 - Phase modulated sensors - 5  
Lecture 26 - Phase modulated sensors - 6  
Lecture 27 - Phase modulated sensors - 7  
Lecture 28 - Phase modulated sensors - 8  
Lecture 29 - Phase modulated sensors - 9

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Phase modulated sensors - 10
- Lecture 31 - Phase modulated Sensors - 11
- Lecture 32 - Wavelength modulated sensors - 1
- Lecture 33 - Wavelength modulated sensors - 2
- Lecture 34 - Wavelength modulated sensors - 3
- Lecture 35 - Wavelength modulated sensors - 4
- Lecture 36 - Wavelength modulated sensors - 5
- Lecture 37 - Wavelength modulated sensors - 6
- Lecture 38 - Wavelength modulated sensors - 7
- Lecture 39 - Wavelength modulated sensors - 8
- Lecture 40 - Polarization modulated sensors - 1
- Lecture 41 - Polarization modulated sensors - 2
- Lecture 42 - Polarization modulated sensors - 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Introduction to Time - Varying Electrical Networks

Subject Co-ordinator - Prof. Shanthi Pavan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction and Motivation
- Lecture 2 - Kirchoff's Current and Voltage Laws, and the Incidence Matrix
- Lecture 3 - Power Conservation and Tellegen's Theorem
- Lecture 4 - Intuition behind Tellegen's Theorem
- Lecture 5 - Tellegen's Theorem and reciprocity in linear resistive networks
- Lecture 6 - Why is reciprocity useful in practice?
- Lecture 7 - Inter-reciprocity in linear time-invariant networks
- Lecture 8 - Inter-reciprocity in linear time-invariant networks (Continued...)
- Lecture 9 - Inter-reciprocity in networks with ideal operational amplifiers
- Lecture 10 - Review of Modified Nodal Analysis (MNA) of linear networks
- Lecture 11 - MNA stamps of controlled sources - the VCCS and VCVS
- Lecture 12 - MNA stamps of controlled sources - the CCCS and C CVS
- Lecture 13 - Inter-reciprocity in linear networks - using the MNA stamp approach
- Lecture 14 - The Adjoint Network
- Lecture 15 - MNA stamp of an ideal opamp
- Lecture 16 - Properties of circuits with multiple ideal opamps
- Lecture 17 - Introduction to noise in electrical networks
- Lecture 18 - Noise processed by a linear time-invariant system
- Lecture 19 -  $kT/C$  noise in a sample-and-hold circuit
- Lecture 20 - Noise in RLC networks
- Lecture 21 - Total integrated noise in RLC Networks
- Lecture 22 - Bode's Noise Theorem - Frequency domain
- Lecture 23 - Input referred noise in electrical networks - Part 1
- Lecture 24 - Input referred noise in electrical networks - Part 2
- Lecture 25 - Input referred noise and the noise factor
- Lecture 26 - Noise Factor Examples
- Lecture 27 - Motivation to learn about time-varying circuits and systems - Part 1
- Lecture 28 - Motivation to learn about time-varying circuits and systems - Part 2
- Lecture 29 - Convolution integral for LTV systems

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Frequency response of an LTV system
- Lecture 31 - LTV system example : Time-varying RC filter
- Lecture 32 - Linear Periodically Time-Varying Systems (LPTV)
- Lecture 33 - Response of an LPTV system to a complex exponential input
- Lecture 34 - Harmonic Transfer Functions
- Lecture 35 - Zadeh expansion of an LPTV system
- Lecture 36 - MNA analysis of LPTV networks
- Lecture 37 - MNA stamp of a periodically time varying conductance
- Lecture 38 - MNA stamp of a capacitor and a voltage source in an LPTV network
- Lecture 39 - Analysis of an example LPTV network - Part 1
- Lecture 40 - Analysis of an example LPTV network - Part 2
- Lecture 41 - LPTV network analysis, RC filter, time-varying
- Lecture 42 - Impedance and admittance in LTI and LPTV networks
- Lecture 43 - Thevenin and Norton's Theorems for LPTV networks
- Lecture 44 - The N-path principle
- Lecture 45 - N-path example
- Lecture 46 - Time-domain intuition of the N-path principle
- Lecture 47 - N-path example: Time-Interleaved ADCs
- Lecture 48 - Dc-dc converter as an LPTV system
- Lecture 49 - N-path principle: Multiphase dc-dc converter
- Lecture 50 - The N-path filter
- Lecture 51 - Computing  $H_0(j2\pi f_s)$  for a 4-path filter
- Lecture 52 - Input impedance of the 4-path filter at  $f_s$
- Lecture 53 - Computing  $H_0(j2\pi 2 f_s)$  for a 4-path filter
- Lecture 54 - Determining  $H_0$  for input frequency deviations from  $f_s$
- Lecture 55 - Reciprocity and Inter-reciprocity in LPTV networks : Part 1
- Lecture 56 - Reciprocity and Inter-reciprocity in LPTV networks : Part 2, the transfer-function theorem
- Lecture 57 - Why is the transfer-function theorem important?
- Lecture 58 - The frequency-reversal theorem for inter-reciprocal (adjoint) LPTV networks : introduction
- Lecture 59 - The frequency-reversal theorem for inter-reciprocal (adjoint) LPTV networks : derivation
- Lecture 60 - Why is the frequency-reversal theorem important?
- Lecture 61 - Inter-reciprocity in signal-flow graphs
- Lecture 62 - Applications of inter-reciprocity: analysis of chopped amplifiers
- Lecture 63 - Applications of inter-reciprocity: analysis of chopped amplifiers (Continued...)
- Lecture 64 - Applications of inter-reciprocity: chopping with square-wave modulation
- Lecture 65 - Applications of inter-reciprocity: the switched-RC network
- Lecture 66 - Time-domain implications of inter-reciprocity and the adjoint network
- Lecture 67 - Time-domain implications of inter-reciprocity and the adjoint network : Example calculation
- Lecture 68 - LPTV networks with sampled outputs: Switched capacitor circuits

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - LPTV networks with sampled outputs: A continuous-time delta-sigma data converter
- Lecture 70 - LPTV networks with sampled outputs: The equivalent LTI filter
- Lecture 71 - Finding the equivalent LTI filter of a sampled LPTV system : example
- Lecture 72 - Equivalent LTI filter for a switched-RC network
- Lecture 73 - Finding the equivalent LTI filter of a sampled LPTV system : example of a continuous-time delta-
- Lecture 74 - Finding the equivalent LTI filter of a sampled LPTV system with offset sampling
- Lecture 75 - LPTV networks driven by modulated inputs
- Lecture 76 - Introduction to noise in LPTV Networks
- Lecture 77 - Noise in LPTV networks with sampled outputs
- Lecture 78 - Total integrated noise in networks with R,L,C and periodically operated switches

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Digital System Design

Subject Co-ordinator - Prof. Neeraj Goel

Co-ordinating Institute - IIT - Ropar

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Analog vs Digital  
Lecture 3 - Binary number system - 1  
Lecture 4 - Binary number system - 2  
Lecture 5 - Negative number representation - 1  
Lecture 6 - Negative number representation - 2  
Lecture 7 - Other number systems  
Lecture 8 - Floating point numbers - 1  
Lecture 9 - Floating point numbers - 2  
Lecture 10 - Floating point numbers - 3  
Lecture 11 - Floating point numbers - 4  
Lecture 12 - Floating point numbers - 5  
Lecture 13 - Boolean functions  
Lecture 14 - Boolean Algebra  
Lecture 15 - SOP and POS Representation  
Lecture 16 - Algebraic simplifications  
Lecture 17 - Canonical form  
Lecture 18 - Boolean minimization using K-Maps  
Lecture 19 - More Logic gates  
Lecture 20 - Hardware description language:Verilog  
Lecture 21 - Verilog simulation demo  
Lecture 22 - K-maps  
Lecture 23 - QM-method  
Lecture 24 - Area delay model  
Lecture 25 - Multi-level logic  
Lecture 26 - Multiplexer  
Lecture 27 - Four state logic  
Lecture 28 - Decoders - 1  
Lecture 29 - Decoders - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Encoders
- Lecture 31 - Programmable hardware
- Lecture 32 - Ripple carry adder
- Lecture 33 - Carry look ahead adder
- Lecture 34 - Modeling BUS in Verilog
- Lecture 35 - Fast adder:Carry select adder
- Lecture 36 - Multiple operand adder
- Lecture 37 - Multiplication
- Lecture 38 - Iterative circuits - 1
- Lecture 39 - Iterative circuits - 2
- Lecture 40 - Introduction to sequential circuits
- Lecture 41 - Latches
- Lecture 42 - D-Flip-flops
- Lecture 43 - More Flip-flops
- Lecture 44 - Counters
- Lecture 45 - Verilog-Behavior model - 1
- Lecture 46 - Verilog-Behavior model - 2
- Lecture 47 - Registers - 1
- Lecture 48 - Registers - 2
- Lecture 49 - Memory
- Lecture 50 - Sequential circuit analysis
- Lecture 51 - Derivation state graph
- Lecture 52 - Sequence detector: Example 1
- Lecture 53 - Sequence detector: Example 2
- Lecture 54 - State machine reduction
- Lecture 55 - State encoding
- Lecture 56 - Multi-cycle adder design
- Lecture 57 - Pipelined adder design
- Lecture 58 - Multiplication design
- Lecture 59 - Division hardware design
- Lecture 60 - Interacting state machines
- Lecture 61 - Register Transfer Level design
- Lecture 62 - GCD computer at RTL Level
- Lecture 63 - RTL Design - Bubble sort
- Lecture 64 - RTL Design - Traffic light controller
- Lecture 65 - FPGA
- Lecture 66 - Xilinx CLB
- Lecture 67 - FPGA - Design flow
- Lecture 68 - FPGA design demo

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Introduction to ASIC design flow - Part 1
- Lecture 70 - Introduction to ASIC design flow - Part 2
- Lecture 71 - Future directions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Stochastic Modeling and the Theory of Queues

Subject Co-ordinator - Prof. Krishna Jagannathan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of Probability Theory: Random Variable
- Lecture 2 - Sequence of Random Variables
- Lecture 3 - Laws of Large Numbers and Central Limit Theorem
- Lecture 4 - What is a stochastic process?
- Lecture 5 - Counting Process
- Lecture 6 - Poisson Process - Introduction
- Lecture 7 - Poisson Process - Memorylessness
- Lecture 8 - Poisson Process - Increment properties
- Lecture 9 - Distribution of arrival epoch  $S_n$  and  $N(t)$  for a Poisson Process
- Lecture 10 - Alternate definitions of a Poisson Process
- Lecture 11 - Merging of Poisson Processes - Part 1
- Lecture 12 - Merging of Poisson Processes - Part 2
- Lecture 13 - Splitting of Poisson Process - Part 1
- Lecture 14 - Splitting of Poisson Process - Part 2
- Lecture 15 - Example: Poisson Splitting
- Lecture 16 - Conditional arrival density and order statistics - Part 1
- Lecture 17 - Conditional arrival density and order statistics - Part 2
- Lecture 18 - Non Homogeneous Poisson Process
- Lecture 19 - Introduction to Queueing (with examples)
- Lecture 20 - Examples: Non homogeneous Poisson process
- Lecture 21 - Examples: Competing Poisson processes
- Lecture 22 - Introduction to Renewal Processes
- Lecture 23 - Strong law for renewal processes
- Lecture 24 - Strong law for renewal processes - Proof
- Lecture 25 - Residual life, age and duration (Time average) - Part 1
- Lecture 26 - Residual life, age and duration (Time average) - Part 2
- Lecture 27 - Renewal Reward Theorem (Time average) - Part 1
- Lecture 28 - Renewal Reward Theorem (Time average) - Part 2
- Lecture 29 - Stopping time

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Wald's Equality
- Lecture 31 - Wald's Equality (Continued...)
- Lecture 32 - Elementary Renewal Theorem
- Lecture 33 - The Renewal Equation
- Lecture 34 - The Renewal Equation (Continued...)
- Lecture 35 - G/G/1 Queue and Little's theorem
- Lecture 36 - Little's theorem
- Lecture 37 - M/G/1 Queue
- Lecture 38 - M/G/1 Queue and PK Formula
- Lecture 39 - M/G/1 Queue and PK Formula (Continued...)
- Lecture 40 - Ensemble rewards - Age and Duration
- Lecture 41 - Ensemble rewards - Age and Duration (Continued...)
- Lecture 42 - Key Renewal Theorem and Ensemble rewards
- Lecture 43 - Introduction to finite state Discrete Time Markov Chains
- Lecture 44 - Class and Types of Classes in a DTMC
- Lecture 45 - Periodicity in a DTMC
- Lecture 46 - Matrix Representation of a DTMC
- Lecture 47 - The long term behaviour of a DTMC
- Lecture 48 - Stationary Distribution and Long term behaviour of a DTMC - Part 1
- Lecture 49 - Stationary Distribution and Long term behaviour of a DTMC - Part 2
- Lecture 50 - Stationary Distribution and Long term behaviour of a DTMC - Part 3
- Lecture 51 - Spectral Properties of Stochastic Matrices - Part 1
- Lecture 52 - Spectral Properties of Stochastic Matrices - Part 2
- Lecture 53 - The Short-term Behaviour of a DTMC
- Lecture 54 - Introduction to Countable-state DTMC
- Lecture 55 - Introduction to Countable-state DTMC (Continued...)
- Lecture 56 - The Strong Markov Property
- Lecture 57 - Renewal Theory applied to DTMC's
- Lecture 58 - Stationary Distribution of a Countable State Space DTMC and Renewal Theory
- Lecture 59 - Stationary Distribution of a Countable State Space DTMC and Renewal Theory (Continued...)
- Lecture 60 - Stationary Distribution and The Steady State Behaviour of a Countable-state DTMC - Part 1
- Lecture 61 - Stationary Distribution and The Steady State Behaviour of a Countable-state DTMC - Part 2
- Lecture 62 - Convergence to Steady State of a Countable-state DTMC (Stochastic Coupling)
- Lecture 63 - The Birth-Death Markov Chains
- Lecture 64 - The Reversibility Markov Chains
- Lecture 65 - The Reversibility Markov Chains (Continued...)
- Lecture 66 - Time Sampled M/M/1 Queue and The Burke's Theorem
- Lecture 67 - Introduction to Continuous Time Markov Chains
- Lecture 68 - Introduction to CTMC (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - The Steady State Behaviour of CTMC - Part 1
- Lecture 70 - The Steady State Behaviour of CTMC - Part 2
- Lecture 71 - The Steady State Behaviour of CTMC - Part 3
- Lecture 72 - The Steady State Behaviour of CTMC - Part 4
- Lecture 73 - The chapman-kolmogrov equations for CTMC's
- Lecture 74 - The Birth-Death Continuous time Markov Chains
- Lecture 75 - The Reversibility of Continuous time Markov Chains
- Lecture 76 - Burke's Theorem and the Tandem Queues - Part 1
- Lecture 77 - Burke's Theorem and the Tandem Queues - Part 2
- Lecture 78 - The Jackson Networks - Part 1
- Lecture 79 - The Jackson Networks - Part 2
- Lecture 80 - Semi Markov Processes - Part 1
- Lecture 81 - Semi Markov Processes - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC: Integrated Photonics Devices and Circuits

Subject Co-ordinator - Prof. Bijoy Krishna Das

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Background and Learning Outcome
- Lecture 2 - Moore's Law and Interconnect Bottleneck
- Lecture 3 - Progress in Optical Interconnect Technology and Beyond
- Lecture 4 - Evolution of Silicon Photonics Platform
- Lecture 5 - Fundamentals of Lightwaves: EM Waves: Maxwell Equations and Plane Wave Solutions
- Lecture 6 - Fundamentals of Lightwaves: EM Waves: Wave Propagation in Lossy Dielectric Medium
- Lecture 7 - Fundamentals of Lightwaves: EM Waves in Metals and Semiconductors
- Lecture 8 - Fundamentals of Lightwaves: EM Waves: Plasma Dispersion
- Lecture 9 - Fundamentals of Lightwaves: EM Waves Principle of Optical Waveguiding
- Lecture 10 - Fundamentals of Lightwaves: 1-D Optical Waveguide: Ray Optics Model
- Lecture 11 - Optical Waveguides: Theory and Design: TIR Based Eigen Mode Solutions for Slab Waveguides
- Lecture 12 - Optical Waveguides: Theory and Design: TIR Based Design Solutions for Slab Waveguides
- Lecture 13 - Optical Waveguides: Theory and Design: Guided Mode Solutions for Slab Waveguides
- Lecture 14 - Optical Waveguides: Theory and Design: Guided Mode Solutions for Slab Waveguides cont
- Lecture 15 - Optical Waveguides: Theory and Design: Guided Mode Dispersion and Power in Slab Waveguides
- Lecture 16 - Optical Waveguides: Theory and Design: Optical Waveguide with 2D confinement
- Lecture 17 - Optical Waveguides: Theory and Design: Dispersion and Polarization of Guided Modes
- Lecture 18 - Optical Waveguides: Theory and Design: Orthogonality of Guided Modes
- Lecture 19 - Optical Waveguides: Theory and Design: Coupled Mode Theory of Guided Modes
- Lecture 20 - Optical Waveguides: Theory and Design: Coupled Mode Theory (Continued...)
- Lecture 21 - Optical Waveguides: Theory and Design: Coupled Mode Theory (Continued...)
- Lecture 22 - Integrated Optical Components: Y-Junction Power Splitter/Combiner and Mach-Zehnder Interferometer
- Lecture 23 - Integrated Optical Components: Directional Coupler: Coupled Waveguides
- Lecture 24 - Integrated Optical Components: Directional Coupler: Coupled Waveguides (Continued...)
- Lecture 25 - Integrated Optical Components: Directional Coupler: Design and Modelling
- Lecture 26 - Integrated Optical Components: DC based MZI and Microring Resonator (MRR)
- Lecture 27 - Integrated Optical Components: Microring Resonator (MRR): Passive Characteristics
- Lecture 28 - Integrated Optical Components: Distributed Bragg Reflector (DBR)
- Lecture 29 - Integrated Optical Components: Distributed Bragg Reflector (DBR): Device Design - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Integrated Optical Components: Distributed Bragg Reflector (DBR): Device Design - Part 2
- Lecture 31 - Tunable Devices and Reconfigurable Circuits: Phase Error Interference
- Lecture 32 - Tunable Devices and Reconfigurable Circuits: Post Fabrication Phase Error Corrections
- Lecture 33 - Tunable Devices and Reconfigurable Circuits: Thermo-Optic Switching and Tuning
- Lecture 34 - Tunable Devices and Reconfigurable Circuits: Programmable Silicon Photonics
- Lecture 35 - Electro-Optic Modulators for Integrated Photonics: Basic Design and Working Principle
- Lecture 36 - Electro-Optic Modulators for Integrated Photonics: Various Physical Mechanisms
- Lecture 37 - Electro-Optic Modulators for Integrated Photonics: FCCE Based Silicon Photonics Modulator
- Lecture 38 - Light Sources and Photodetectors for Integrated Photonics: Integrated Photonic light Sources - P
- Lecture 39 - Light Sources and Photodetectors for Integrated Photonics: Integrated Photonic light Sources - P
- Lecture 40 - Light Sources and Photodetectors for Integrated Photonics: Photodetectors for Silicon Photonics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Introduction to Semiconductor Devices

Subject Co-ordinator - Prof. Naresh Kumar Emani

Co-ordinating Institute - IIT - Hyderabad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Types of Semiconductors
- Lecture 2 - Classical Vs Quantum Mechanics
- Lecture 3 - Electrons in infinite and finite 1D potential well
- Lecture 4 - 3D potential well model of atom and Bohr's model
- Lecture 5 - Covalent bonds and inter-atomic interactions in Silicon
- Lecture 6 - Energy band formation
- Lecture 7 - Electron hole pair generation
- Lecture 8 - Direct and Indirect bandgap semiconductors
- Lecture 9 - Energy levels in infinite and finite potential wells (short demo)
- Lecture 10 - Effective mass in Semiconductors
- Lecture 11 - Intrinsic carrier density
- Lecture 12 - Doping and extrinsic semiconductors
- Lecture 13 - Fermi level in extrinsic semiconductors
- Lecture 14 - Temperature dependence of Fermi level
- Lecture 15 - Temperature dependence of Fermi level
- Lecture 16 - Charge neutrality relationship
- Lecture 17 - Drift current and energy band representation of kinetic energy of carriers
- Lecture 18 - Semiconductor bands in a electric field
- Lecture 19 - Diffusion current
- Lecture 20 - Non-uniform doping
- Lecture 21 - Equilibrium Vs Nonequilibrium carrier response
- Lecture 22 - Minority carrier diffusion equation (MCDE) - Example problems
- Lecture 23 - Quasi Fermi level in nonequilibrium conditions
- Lecture 24 - Quasi Fermi level and minority carrier diffusion length
- Lecture 25 - Semiconductor device fabrication
- Lecture 26 - PN Junctions - An introduction
- Lecture 27 - PN Junction electrostatics
- Lecture 28 - Energy band diagram of PN junction
- Lecture 29 - Depletion width and peak electric field

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - PN junction electrostatics - examples
- Lecture 31 - Demo of PN Junction Lab on Nanohub
- Lecture 32 - Forward and reverse biased PN junctions
- Lecture 33 - Minority carrier injection in PN junctions
- Lecture 34 - Current in forward biased PN junction
- Lecture 35 - Current in reverse biased PN junction
- Lecture 36 - Depletion capacitance in PN junction
- Lecture 37 - Non-idealities in PN junction diode
- Lecture 38 - Nanohub Demo - PN Junction with applied bias
- Lecture 39 - Schottky barrier in metal-semiconductor junction
- Lecture 40 - Current flow across a Schottky barrier
- Lecture 41 - Ohmic vs rectifying contacts
- Lecture 42 - An Ideal MOS Capacitor
- Lecture 43 - Operating regimes of a MOSCAP
- Lecture 44 - Simplified band diagrams of accumulation and depletion in MOSCAP
- Lecture 45 - Inversion in a MOSCAP
- Lecture 46 - NMOSCAP in accumulation mode
- Lecture 47 - NMOSCAP in depletion mode
- Lecture 48 - NMOSCAP in inversion mode
- Lecture 49 - Exact solution vs delta-depletion approximation
- Lecture 50 - Threshold voltage in a MOSCAP
- Lecture 51 - Nanohub Demo - MOSCAP tool
- Lecture 52 - Non-ideal MOS Capacitor
- Lecture 53 - MOSCAP Capacitance-Voltage (CV) Characteristics
- Lecture 54 - Example problems with MOSCAPs
- Lecture 55 - Impact of doping, oxide thickness and temperature on CV
- Lecture 56 - Nanohub Demo - MOS CV
- Lecture 57 - Introduction to MOSFET
- Lecture 58 - Operating modes of a MOSFET
- Lecture 59 - IV Characteristics of a long channel MOSFET
- Lecture 60 - Example problems with MOSFETs
- Lecture 61 - MOSFET device metrics
- Lecture 62 - CMOS Technology
- Lecture 63 - MOSFET Scaling and technology nodes
- Lecture 64 - Limits of scaling
- Lecture 65 - Current characteristics of a short channel MOSFET
- Lecture 66 - Threshold voltage characteristics of short channel MOSFET
- Lecture 67 - MOSFETs in the 21st century
- Lecture 68 - Optical absorption and bandgap

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Introduction to solar cells
- Lecture 70 - Efficiency of a solar cell
- Lecture 71 - Types of photodetectors
- Lecture 72 - PIN and avalanche Photodetectors
- Lecture 73 - Photodetector metrics
- Lecture 74 - Radiative absorption and emission processes
- Lecture 75 - Materials for optoelectronic devices
- Lecture 76 - Operation of a light emitting diode (LED)
- Lecture 77 - LED emission spectrum
- Lecture 78 - Stimulated emission and lasing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electric Vehicles and Renewable Energy

Subject Co-ordinator - Prof. Ashok Jhunjunwala, Prof. Prabhjot Kaur, Prof. Kaushal Kumar Jha, Prof. L Kannan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Electric Vehicle Introduction
- Lecture 2 - The drive Torque, Power, Speed and Energy
- Lecture 3 - Energy Source
- Lecture 4 - Vehicle Auxillary, Petrol pumps and Charging stations
- Lecture 5 - Introduction to Electric Vehicles in India
- Lecture 6 - Can India Drive its EV program Innovatively and Differently and scale
- Lecture 7 - Battery Cost reduction strategy
- Lecture 8 - A bit about Batteries, Charging and Swapping Infrastructure
- Lecture 9 - Where will we get Lithium for batteries and EV Subsystems
- Lecture 10 - Forces acting when a vehicle move
- Lecture 11 - Aerodynamic drag, Rolling Resistance and Uphill Resistance
- Lecture 12 - Power and torque to accelerate
- Lecture 13 - Putting it all together - 1
- Lecture 14 - Putting it all together - 2
- Lecture 15 - Concept of drive cycle - 1
- Lecture 16 - Concept of drive cycle - 2
- Lecture 17 - Drive Cycles and Energy used per km - Part 1
- Lecture 18 - Drive Cycles and Energy used per km - Part 2
- Lecture 19 - EV Subsystem: Design of EV Drive Train - Part 1
- Lecture 20 - EV Subsystem: Design of EV Drive Train - Part 2
- Lecture 21 - Introduction to Battery Parameters - Part 1
- Lecture 22 - Introduction to Battery Parameters - Part 2
- Lecture 23 - Why Lithium Ion Battery? - Part 1
- Lecture 24 - Why Lithium Ion Battery? - Part 2
- Lecture 25 - Batteries in Future
- Lecture 26 - Li-Ion Battery Cells
- Lecture 27 - SoH and SoC estimation and Self Discharge - Part 1
- Lecture 28 - SoH and SoC estimation and Self Discharge - Part 2
- Lecture 29 - Battery Pack Development - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Battery Pack Development - Part 2
- Lecture 31 - Computation of Effective cost of battery - Part 1
- Lecture 32 - Computation of Effective cost of battery - Part 2
- Lecture 33 - Charging Batteries
- Lecture 34 - Fundamentals of Battery Pack Design
- Lecture 35 - Electrical Design of Battery Pack - Part 1
- Lecture 36 - Electrical Design of Battery Pack - Part 2
- Lecture 37 - Electrical Design of Battery Pack - Part 3
- Lecture 38 - Mechanical Design of Battery Pack - Part 1
- Lecture 39 - Mechanical Design of Battery Pack - Part 2
- Lecture 40 - Mechanical Design of Battery Pack - Part 3
- Lecture 41 - Mechanical Design of Battery Pack - Part 4
- Lecture 42 - Thermal Design of Battery Pack - Part 1
- Lecture 43 - Thermal Design of Battery Pack - Part 2
- Lecture 44 - Thermal Design of Battery Pack - Part 3
- Lecture 45 - Thermal Design of Battery Pack - Part 4
- Lecture 46 - BMS Design and Embedded System - Part 1
- Lecture 47 - BMS Design and Embedded System - Part 2
- Lecture 48 - BMS Design and Embedded System - Part 3
- Lecture 49 - BMS Design and Embedded System - Part 4
- Lecture 50 - BMS Design and Embedded System - Part 5
- Lecture 51 - Cell Testing and Characterization - Part 1
- Lecture 52 - Cell Testing and Characterization - Part 2
- Lecture 53 - EV Motors and Controllers - Vehicle Dynamics - Part 1
- Lecture 54 - EV Motors and Controllers - Vehicle Dynamics - Part 2
- Lecture 55 - EV Motors and Controllers - Understanding Flow - Part 1
- Lecture 56 - EV Motors and Controllers - Understanding Flow - Part 2
- Lecture 57 - Power and Efficiency
- Lecture 58 - Torque Production - Part 1
- Lecture 59 - Torque Production - Part 2
- Lecture 60 - Torque Production - Part 3
- Lecture 61 - Speed and Back EMF
- Lecture 62 - The d-q Equivalent circuit - Part 1
- Lecture 63 - The d-q Equivalent circuit - Part 2
- Lecture 64 - Field-oriented Control
- Lecture 65 - Three phase AC - Part 1
- Lecture 66 - Three phase AC - Part 2
- Lecture 67 - Thermal Design - Part 1
- Lecture 68 - Thermal Design - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Thermal Design - Part 3
- Lecture 70 - Engineering Considerations - Part 1
- Lecture 71 - Engineering Considerations - Part 2
- Lecture 72 - Engineering Considerations - Part 3 and Future Frontiers
- Lecture 73 - EV Charger Introduction
- Lecture 74 - Charger Parameters and Types
- Lecture 75 - Slow Fast chargers and Swapping
- Lecture 76 - Swapping
- Lecture 77 - Standardization and on board chargers
- Lecture 78 - Public chargers
- Lecture 79 - Public charger economics in Indian Context
- Lecture 80 - Bulk Chargers, Swapping stations and data analytics
- Lecture 81 - Introduction to Energy Scenario in India - Part 1
- Lecture 82 - Introduction to Energy Scenario in India - Part 2
- Lecture 83 - A novel Approach towards 100% RE in India - Part 1
- Lecture 84 - A novel Approach towards 100% RE in India - Part 2
- Lecture 85 - Going Beyond solar, wind, Li Ion and chilled water storage
- Lecture 86 - Solar Photovoltaic
- Lecture 87 - Solar Cell and its Characteristics
- Lecture 88 - Solar Cells to Modules
- Lecture 89 - Wind Energy
- Lecture 90 - The War of Currents
- Lecture 91 - The Birth of Solar - DC
- Lecture 92 - Storage Options for Energy - Part 1
- Lecture 93 - Storage Options for Energy - Part 2
- Lecture 94 - Storage Options for Energy - Part 3
- Lecture 95 - Storage Options for Energy - Part 4
- Lecture 96 - The EV Ecosystem - Part 1
- Lecture 97 - The EV Ecosystem - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Phase-locked loops

Subject Co-ordinator - Dr. Saurabh Saxena

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction and Motivation - Part I
- Lecture 2 - Course Introduction and Motivation - Part II
- Lecture 3 - Basic Operation of a Phase Locked Loop
- Lecture 4 - Simple Implementation of a Phase Locked Loop
- Lecture 5 - Input Output Characteristics of Basic PLL Blocks
- Lecture 6 - Time Domain Analysis of a Simple PLL
- Lecture 7 - Time Domain Versus Small Signal Analysis of a Simple PLL
- Lecture 8 - Type and Order of PLL
- Lecture 9 - Small Signal Analysis of Type-I/II/III PLLs for Phase Step, Frequency Step and Frequency Ramp
- Lecture 10 - Frequency Acquisition Range for PLLs
- Lecture 11 - Frequency Acquisition in Type-I PLLs
- Lecture 12 - Frequency Acquisition Limits in Type-I PLLs
- Lecture 13 - Frequency Acquisition in Type II PLLs
- Lecture 14 - Frequency Acquisition Ranges in Type II PLLs with Ideal and Non Ideal Integrator
- Lecture 15 - Frequency Domain Insight in Frequency Acquisition for Type II PLLs
- Lecture 16 - Introduction to Clock Multipliers
- Lecture 17 - Analog Phase Error Detectors - Part I
- Lecture 18 - Analog Phase Error Detectors - Part II
- Lecture 19 - Digital Phase Error Detectors - Part I
- Lecture 20 - Digital Phase Error Detectors - Part II
- Lecture 21 - Range Extension for Phase Error Detectors
- Lecture 22 - Phase Frequency Detector
- Lecture 23 - Digital Frequency Detector
- Lecture 24 - Charge Pump PLL
- Lecture 25 - Small Signal and Stability Analysis of Type II Order 2 Charge Pump PLL
- Lecture 26 - Problems in Charge Pump PLL - Dead Zone in PFD
- Lecture 27 - Problems in Charge Pump PLL - Reference Spur
- Lecture 28 - Design Procedure for Type-II Order 3 Charge Pump PLL
- Lecture 29 - Design Procedure for Charge Pump Clock Multiplier

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sources of Non-Linearities in CP-PLL - Part I
- Lecture 31 - Sources of Non-Linearities in CP-PLL - Part II
- Lecture 32 - Noise Analysis in CP-PLL - Part I
- Lecture 33 - Noise Analysis in CP PLL - Part II
- Lecture 34 - Noise Analysis in CP-PLL - Part III
- Lecture 35 - Noise Simulations for CP-PLL Blocks
- Lecture 36 - Introduction to Oscillators
- Lecture 37 - Low Swing Ring Oscillator - Part I
- Lecture 38 - Low-Swing Ring Oscillator - Part II
- Lecture 39 - Large-Swing Ring Oscillator - Part I
- Lecture 40 - Large-Swing Ring Oscillator - Part II
- Lecture 41 - Large-Swing Ring Oscillator - Part III
- Lecture 42 - Large-Swing Ring Oscillator - Part IV
- Lecture 43 - Large-Swing Ring Oscillator - Part V
- Lecture 44 - Supply Regulated VCO - Part I
- Lecture 45 - Supply Regulated VCO - Part II
- Lecture 46 - Supply Regulated VCO - Part III
- Lecture 47 - Phase Noise in Ring Oscillators
- Lecture 48 - Circuit level Design of PFD - Part I
- Lecture 49 - Circuit level Design of PFD - Part II
- Lecture 50 - Circuit level Design of PFD - Part III
- Lecture 51 - Circuit level Design of Charge Pump - Part I
- Lecture 52 - Circuit-level Design of Charge Pump - Part II
- Lecture 53 - Circuit-level Design of Charge Pump - Part III
- Lecture 54 - Circuit-level Design of Charge Pump - Part IV
- Lecture 55 - Circuit-level Design of Charge Pump - Part V
- Lecture 56 - Circuit-level Design of Charge Pump - Part VI
- Lecture 57 - Circuit-level Design of Clock Frequency Divider
- Lecture 58 - Techniques for Wide Frequency Range Clock Multiplier
- Lecture 59 - Introduction to Digital PLL
- Lecture 60 - Design of Time-to-Digital Converter
- Lecture 61 - Small Signal Analysis of Digital PLL
- Lecture 62 - Noise Analysis in Digital PLL
- Lecture 63 - Analog/Digital Hybrid PLL - Part I
- Lecture 64 - Analog/Digital Hybrid PLL - Part II
- Lecture 65 - Course Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Nano and Quantum Photonics

Subject Co-ordinator - Prof. Naresh Kumar Emani

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of Maxwell's Equations
- Lecture 2 - Wave Equation
- Lecture 3 - Dispersion Relation
- Lecture 4 - Propagating and Evanescent Waves
- Lecture 5 - Diffraction Limit and Spatial Frequencies
- Lecture 6 - Plane Waves
- Lecture 7 - Optical Response of Materials
- Lecture 8 - Lorentz Model
- Lecture 9 - Properties of Lorentz Oscillator Model
- Lecture 10 - Drude-Lorentz Model for Metals
- Lecture 11 - Kramers-Kronig Relation
- Lecture 12 - Engineering Optical Response of Materials
- Lecture 13 - Low dimensional systems
- Lecture 14 - Absorption in Semiconductors
- Lecture 15 - Optical gain in semiconductors
- Lecture 16 - Absorption in low-dimensional semiconductors
- Lecture 17 - Selection rules for optical processes
- Lecture 18 - Scattering of EM radiation
- Lecture 19 - LSPR: Quasi-static approximation
- Lecture 20 - Size dependence of Plasmon Resonance
- Lecture 21 - Tuning Plasmonic Resonances
- Lecture 22 - Surface Plasmon Polariton(SPP)
- Lecture 23 - Understanding SPP Dispersion Diagram
- Lecture 24 - Exciting Surface Plasmon Polaritons
- Lecture 25 - Analytical Calculation of Scattering Coefficients - IPython code overview
- Lecture 26 - EM Waves in Multilayer Stack - T Matrix formulation
- Lecture 27 - Photonic Bandgap in 1D
- Lecture 28 - EM Waves in 1D Photonic Crystal
- Lecture 29 - Diffracton Grating

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Applications of Photonic Crystals
- Lecture 31 - PhC in 1D - T-matrix examples
- Lecture 32 - Introduction to Metamaterials
- Lecture 33 - Metamaterials at GHz and THz frequencies
- Lecture 34 - Negative index materials at optical frequencies
- Lecture 35 - Plasmonic Metasurfaces
- Lecture 36 - Dielectric Metasurfaces
- Lecture 37 - Tunable and Active Metamaterials
- Lecture 38 - Radiative Absorption and Emission
- Lecture 39 - Miniaturization of Integrated Photonic Devices
- Lecture 40 - Recent trends in nanoscale lasers
- Lecture 41 - Non-Hermitian Systems
- Lecture 42 - Resonant light-atom interactions
- Lecture 43 - Experimental observation of Rabi oscillations
- Lecture 44 - Atom-Cavity Interaction - Weak and strong coupling regimes
- Lecture 45 - Experimental observation of weak and strong coupling
- Lecture 46 - Fabrication of nanophotonic structures - 1
- Lecture 47 - Fabrication of nanophotonic structures - 2
- Lecture 48 - Measuring light quanta
- Lecture 49 - Photon Statistics
- Lecture 50 - Photodetection and shot noise limit
- Lecture 51 - Second order correlation function
- Lecture 52 - Hanbury Brown-Twiss Experiment with Photons
- Lecture 53 - EM Waves as harmonic oscillator
- Lecture 54 - Vacuum fluctuations
- Lecture 55 - Coherent and squeezed states
- Lecture 56 - Squeezed and photon number states
- Lecture 57 - Application of squeezed states
- Lecture 58 - Preliminaries for quantum theory of light
- Lecture 59 - Quantum theory of light
- Lecture 60 - Operator solution of quantum harmonic oscillator
- Lecture 61 - Photon number states
- Lecture 62 - Field quadratures and operators
- Lecture 63 - Uncertainty relations for quantum light
- Lecture 64 - Applications of quantum light - Quantum Key Distribution



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Analog Electronic Circuits (IITM)

Subject Co-ordinator - Prof. Shanthi Pavan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction Linear and Nonlinear Network
- Lecture 2 - Small Signal Analysis of Nonlinear Networks
- Lecture 3 - Small Signal Analysis
- Lecture 4 - Incremental Model for Common Two Terminal Element Passive Two Terminal Elements
- Lecture 5 - Linear and Nonlinear Two Ports and the Incremental Y Matrix
- Lecture 6 - Graphical Representation of the Y Matrix
- Lecture 7 - Nonlinear Two Ports With Incremental Gain
- Lecture 8 - IV Characteristic of a Nonlinear 2 port with Incremental Gain
- Lecture 9 - The MOSFET and its Characteristics
- Lecture 10 - Deriving the Common V Source Amplifier - Part 1
- Lecture 11 - The Common Source Amplifier
- Lecture 12 - Large Signal Behaviour of the Common Source Amplifier
- Lecture 13 - The Common Source Amplifier Swing Limits
- Lecture 14 - Introduction to Robust Biasing
- Lecture 15 - Robust Biasing Part 1 Common Source Amplifier with DC Drain Feedback
- Lecture 16 - Robust Biasing with the Current Mirror and Drain Gate Resistor
- Lecture 17 - Robust Biasing With Source Feedback - Part 1
- Lecture 18 - Robust Biasing with Source Feedback - Part 2
- Lecture 19 - Robust Biasing with Source Degeneration
- Lecture 20 - Introduction to Negative Feedback
- Lecture 21 - The Ideal Operational Amplifier
- Lecture 22 - Negative Feedback (Continued...)
- Lecture 23 - Robust Biasing with Drain Measurement and Source Feedback
- Lecture 24 - Robust biasing with source measurement and gate feedback
- Lecture 25 - The Incremental Voltage Controlled Voltage Source The Common drain Amplifier Incremental Picture
- Lecture 26 - Biasing of the Common Drain Amplifier and Signal Swings
- Lecture 27 - The VCVS Continued, the Incremental
- Lecture 28 - Introducing the Current Controlled Voltage Source
- Lecture 29 - The Incremental Current Controlled Voltage Source Transimpedance Amplifier

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Transimpedance amplifier (Continued...)
- Lecture 31 - The Incremental current controlled current source, the common gate amplifier
- Lecture 32 - Summary of controlled Sources and finite output Impedance of the Transistor
- Lecture 33 - Effect of Finite Output Resistance on the Basic Building Blocks - Part 1
- Lecture 34 - Effect of Finite Output Resistance on the Basic Building Blocks - Part 2
- Lecture 35 - Effect of Finite Output Resistance on the Basic Building Blocks - Part 3
- Lecture 36 - Finite output Effect in current Mirrors the Cascode Current Mirror
- Lecture 37 - Comparison of Current Mirrors The High Swing Cascode
- Lecture 38 - Precision High Swing Cascode
- Lecture 39 - The PMOS transistor
- Lecture 40 - Small Signal Model and Bias Stabilization
- Lecture 41 - Basic Building Blocks with PMOS Devices
- Lecture 42 - Fixed Transconductance Bias Circuits from First Principles
- Lecture 43 - Limitation of a Resistive Load
- Lecture 44 - The Active Load
- Lecture 45 - The Active Load (Continued...)
- Lecture 46 - The CMOS Inverter
- Lecture 47 - The CMOS Inverter (Continued...)
- Lecture 48 - The Differential Amplifier
- Lecture 49 - Half - Circuit Analysis
- Lecture 50 - The Different Amplifier with Active Load - Part 1
- Lecture 51 - The Different Amplifier with Active Load - Part 2
- Lecture 52 - Large Signal Behaviour of the Different Pair
- Lecture 53 - The two Stage Opamp and Single Supply Operation
- Lecture 54 - The two Stage Opamp (Continued...)
- Lecture 55 - The Two Stage Opamp (Continued...)
- Lecture 56 - Swing Limits of the Two Stage OTA
- Lecture 57 - The Two-Stage Opamp
- Lecture 58 - The Bandgap Reference Principle
- Lecture 59 - The Bandgap Reference - Part 1
- Lecture 60 - The Bandgap Reference - Part 2
- Lecture 61 - Memory Effects in MOS Transistors
- Lecture 62 - The Common Source Amplifier with Parasitic Capacitances
- Lecture 63 - The Common Source Amplifier with Parasitic Capacitances
- Lecture 64 - Frequency Response of the Common Drain Amplifier
- Lecture 65 - Frequency Response of the Common Gate Amplifier
- Lecture 66 - Stability of Negative Feedback System The First Order Forward Amplifier
- Lecture 67 - Stability of Second Order Feedback System
- Lecture 68 - Stability of Third Order Negative Feedback System

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Dominant Pole Compensation - Part 1
- Lecture 70 - Dominant Pole Compensation - Part 2
- Lecture 71 - Phase Margin
- Lecture 72 - Example Phase Margin Calculations
- Lecture 73 - Dominant Pole Compensation Summary
- Lecture 74 - Phase Margin Example
- Lecture 75 - The 2 Stage Miller Compensated Amplifier
- Lecture 76 - 2 Stage Operational Amplifier and Miller Compensation (Continued...)
- Lecture 77 - Intuition Behind the Dominant and Second Poles in a Miller Compensated OTA
- Lecture 78 - 2 Stage Operational Amplifier and Miller Compensation Cancelling the RHP Zero
- Lecture 79 - Miller Compensation OTA Schematic
- Lecture 80 - Bipolar Junction Transistor Circuits-Device Equations and Small Signal Model
- Lecture 81 - BJT Biasing and Basic Building Blocks
- Lecture 82 - Bipolar Junction Transistor Circuits Swing Limits and Two Stage Opamp
- Lecture 83 - Input Stage of the 741 Opamp
- Lecture 84 - Basic Analysis of the 741

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Modern Computer Vision

Subject Co-ordinator - Prof. A. N. Rajagopalan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course introduction - 1  
Lecture 2 - Course introduction - 2  
Lecture 3 - Introduction to Deep Learning - 1  
Lecture 4 - Introduction to Deep Learning - 2  
Lecture 5 - Introduction to Deep Learning - 3  
Lecture 6 - Introduction to Neuron - 1  
Lecture 7 - Introduction to Neuron - 2  
Lecture 8 - Introduction to Neuron - 3  
Lecture 9 - Multilayer Perceptron  
Lecture 10 - Regression and classification losses  
Lecture 11 - Training a neural network  
Lecture 12 - Gradient descent  
Lecture 13 - Activation function  
Lecture 14 - Backpropagation in MLP - 1  
Lecture 15 - Backpropagation in MLP - 2  
Lecture 16 - Optimization and Regularization - 1  
Lecture 17 - Optimization and Regularization - 2  
Lecture 18 - Regularization  
Lecture 19 - Dropout  
Lecture 20 - Pre-processing  
Lecture 21 - Convolutional Neural Networks - 1  
Lecture 22 - Convolutional Neural Networks - 2  
Lecture 23 - Convolutional Neural Networks - 3  
Lecture 24 - CNN Properties  
Lecture 25 - Alexnet  
Lecture 26 - CNN Architectures - 1  
Lecture 27 - CNN Architectures - 2  
Lecture 28 - CNN Architectures - 3  
Lecture 29 - Introduction to RNN - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to RNN - 2
- Lecture 31 - Encoder-Decoder models in RNN
- Lecture 32 - LSTM
- Lecture 33 - Low-level vision - 1
- Lecture 34 - Low-level vision - 2
- Lecture 35 - Low-level vision - 3
- Lecture 36 - Spatial Domain Filtering
- Lecture 37 - Frequency Domain Filtering
- Lecture 38 - Edge Detection - 1
- Lecture 39 - Edge Detection - 2
- Lecture 40 - DeepNets for Edge Detection
- Lecture 41 - Line detection
- Lecture 42 - Feature detectors
- Lecture 43 - Harris Corner Detector - 1
- Lecture 44 - Harris Corner Detector - 2
- Lecture 45 - Harris Corner Detector - 3
- Lecture 46 - Blob detection - 1
- Lecture 47 - Blob detection - 2
- Lecture 48 - Blob detection - 3
- Lecture 49 - SIFT - 1
- Lecture 50 - SIFT - 2
- Lecture 51 - Feature descriptors - 1
- Lecture 52 - Feature descriptors - 2
- Lecture 53 - SURF - 1
- Lecture 54 - SURF - 2
- Lecture 55 - Single-View Geometry - 1
- Lecture 56 - Single-View Geometry - 2
- Lecture 57 - 2D Geometric transformations - 1
- Lecture 58 - 2D Geometric transformations - 2
- Lecture 59 - Camera intrinsics and extrinsics - 1
- Lecture 60 - Camera intrinsics and extrinsics - 2
- Lecture 61 - Two-view stereo - 1
- Lecture 62 - Two-view stereo - 2
- Lecture 63 - Two-view stereo - 3
- Lecture 64 - Algebraic representation of epipolar geometry - 1
- Lecture 65 - Algebraic representation of epipolar geometry - 2
- Lecture 66 - Fundamental matrix computation - 1
- Lecture 67 - Fundamental matrix computation - 2
- Lecture 68 - Structure from Motion - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Structure from Motion - 2
- Lecture 70 - Structure from Motion - 3
- Lecture 71 - Batch processing in SFM
- Lecture 72 - Multi-view SFM
- Lecture 73 - Factorization methods in SFM
- Lecture 74 - Bundle adjustment
- Lecture 75 - Dense 3D reconstruction
- Lecture 76 - Some results in Stereo and SFM
- Lecture 77 - Deepnets for stereo and SFM - 1
- Lecture 78 - Deepnets for stereo and SFM - 2
- Lecture 79 - Mid-level vision - 1
- Lecture 80 - Mid-level vision - 2
- Lecture 81 - Lucas-Kanade method for OF
- Lecture 82 - Handling large motion in optical flow
- Lecture 83 - Image segmentation
- Lecture 84 - GMM for clustering
- Lecture 85 - Deepnets for Segmentation and OF -1
- Lecture 86 - Deepnets for Segmentation and OF -2
- Lecture 87 - Deepnets for Segmentation and OF -3
- Lecture 88 - Deepnets for Object Detection - 1
- Lecture 89 - Deepnets for Object Detection - 2
- Lecture 90 - Vision and Language

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Optical Wireless Communications for Beyond 5G Networks and

Subject Co-ordinator - Prof. Anand Srivastava

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Optical Wireless Communications (OWC)
- Lecture 2 - Basics of Lighting System
- Lecture 3 - Optical Sources (LED)
- Lecture 4 - Optical Sources (LASER)
- Lecture 5 - Photodetectors
- Lecture 6 - Photodetectors (Continued...)
- Lecture 7 - SNR for PIN and APD
- Lecture 8 - Indoor OWC channel modelling
- Lecture 9 - Indoor OWC channel modelling (Continued...)
- Lecture 10 - Channel model for single source
- Lecture 11 - Channel model for multiple sources
- Lecture 12 - MIMO channel
- Lecture 13 - MIMO channel (Continued...)
- Lecture 14 - Outdoor Optical Channel Modelling
- Lecture 15 - Range equation of FSO link
- Lecture 16 - Range equation of FSO link (Continued...)
- Lecture 17 - Atmospheric Turbulence
- Lecture 18 - Atmospheric Turbulence (Continued...)
- Lecture 19 - Turbulence Mitigation techniques
- Lecture 20 - Underwater OWC Channel Model
- Lecture 21 - Underwater OWC Channel Model (Continued...)
- Lecture 22 - Modulation Schemes for OWC, BER for OOK
- Lecture 23 - BER of M-PPM, BER of L-PPM
- Lecture 24 - Differential Pulse Interval Modulation (DPIM) and (DAPPM)
- Lecture 25 - Variable Pulse Position Modulation (VPPM)
- Lecture 26 - OFDM Basics
- Lecture 27 - Cyclic Prefix (CP), OFDM with CP, BER of OFDM System
- Lecture 28 - Frequency Offset in OFDM, PAPR in OFDM
- Lecture 29 - OFDM in VLC, DCO-OFDM

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - ACO-OFDM
- Lecture 31 - Color Shift Keying (CSK)
- Lecture 32 - Higher order CSK
- Lecture 33 - NOMA
- Lecture 34 - NOMA VLC
- Lecture 35 - MIMO
- Lecture 36 - VLC based MIMO NOMA
- Lecture 37 - Power allocation in VLC based MIMO NOMA
- Lecture 38 - Hybrid Network LiFi and WiFi Coexistence
- Lecture 39 - Vehicle to Vehicle communication using Visible light
- Lecture 40 - Anand Singh Part - 1
- Lecture 41 - Anand Singh Part - 2
- Lecture 42 - Dilnashin lecture - 1
- Lecture 43 - Saswati Paramita
- Lecture 44 - Dilnashin Tutorial - 2
- Lecture 45 - Guriendar Prof Anand 001
- Lecture 46 - Rehana Prof Anand



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:VLSI Design Flow: RTL to GDS

Subject Co-ordinator - Prof. Sneha Saurabh

Co-ordinating Institute - IIIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Concepts of Integrated Circuit - I  
Lecture 2 - Basic Concepts of Integrated Circuit - II  
Lecture 3 - Overview of VLSI Design Flow - I  
Lecture 4 - Overview of VLSI Design Flow - II  
Lecture 5 - Tutorial 1  
Lecture 6 - Overview of VLSI Design Flow - III  
Lecture 7 - Overview of VLSI Design Flow - IV  
Lecture 8 - Overview of VLSI Design Flow - V  
Lecture 9 - Overview of VLSI Design Flow - VI  
Lecture 10 - Introduction to TCL  
Lecture 11 - Hardware Modeling: Introduction to Verilog - I  
Lecture 12 - Hardware Modeling: Introduction to Verilog - II  
Lecture 13 - Functional Verification using Simulation  
Lecture 14 - High-level synthesis using Bambu - Tutorial 3  
Lecture 15 - RTL Synthesis - Part I  
Lecture 16 - RTL Synthesis - Part II  
Lecture 17 - Logic Optimization - Part I  
Lecture 18 - Simulation-based Verification using Icarus  
Lecture 19 - Logic Optimization - Part II  
Lecture 20 - Logic Optimization - Part III  
Lecture 21 - Formal Verification - I  
Lecture 22 - Logic Synthesis using Yosys  
Lecture 23 - Formal Verification - II  
Lecture 24 - Formal Verification - III  
Lecture 25 - Formal Verification - IV  
Lecture 26 - Technology Library  
Lecture 27 - Logic Optimization using Yosys  
Lecture 28 - Static Timing Analysis - I  
Lecture 29 - Static Timing Analysis - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Static Timing Analysis - III
- Lecture 31 - Static Timing Analysis using OpenSTA
- Lecture 32 - Constraints - I
- Lecture 33 - Constraints - II
- Lecture 34 - Technology Mapping
- Lecture 35 - Timing-driven Optimization
- Lecture 36 - Technology Library and Constraints
- Lecture 37 - Power Analysis
- Lecture 38 - Power Optimization
- Lecture 39 - Basic Concepts of DFT
- Lecture 40 - Scan Design Flow
- Lecture 41 - Power Analysis using OpenSTA
- Lecture 42 - Automatic Test Pattern Generation (ATPG)
- Lecture 43 - Built-in Self Test (BIST)
- Lecture 44 - Basic Concepts for Physical Design - I
- Lecture 45 - Basic Concepts for Physical Design - II
- Lecture 46 - Installation of OpenRoad
- Lecture 47 - Chip Planning - I
- Lecture 48 - Chip Planning - II
- Lecture 49 - Placement
- Lecture 50 - Chip Planning and Placement
- Lecture 51 - Clock Tree Synthesis (CTS)
- Lecture 52 - Routing
- Lecture 53 - Post-layout Verification and Signoff
- Lecture 54 - Clock Tree Synthesis (CTS) and Routing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Wireless Communication (Hindi)

Subject Co-ordinator - Dr.Vivek Bohara

Co-ordinating Institute - IIIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the Course  
Lecture 2 - Basics of Wireless Communication Systems  
Lecture 3 - Path-Loss Models for a Wireless Channel  
Lecture 4 - Log-Normal Shadowing  
Lecture 5 - Small-Scale Fading  
Lecture 6 - Statistical Multipath Channel Models  
Lecture 7 - MATLAB programming for Path Loss Models  
Lecture 8 - Statistical Multipath Channel Models - Part 1  
Lecture 9 - Statistical Multipath Channel Models - Part 2  
Lecture 10 - Digital Modulation and Detection (Binary Modulations) - Part 1  
Lecture 11 - Digital Modulation and Detection (Binary Modulations) - Part 2  
Lecture 12 - Digital Modulation and Detection (Binary Modulations) - Part 3  
Lecture 13 - MATLAB programming for Wireless Fading Channels  
Lecture 14 - Digital Modulation and Detection (Binary Modulations) - Part 1  
Lecture 15 - Digital Modulation and Detection (Binary Modulations) - Part 2  
Lecture 16 - Digital Modulation and Detection (M-ary Modulation) - Part 1  
Lecture 17 - Digital Modulation and Detection (M-ary Modulation) - Part 2  
Lecture 18 - Digital Modulation and Detection (M-ary Modulation) - Part 3  
Lecture 19 - MATLAB programming for Modulation Schemes  
Lecture 20 - Digital Modulation and Detection (GMSK)  
Lecture 21 - Performance of Digital Modulation over Wireless Channels  
Lecture 22 - Performance of Digital Modulation over Wireless Channels  
Lecture 23 - MATLAB programming: Error performance in AWGN channel  
Lecture 24 - Receiver Diversity Techniques - Part 1  
Lecture 25 - Receiver Diversity Techniques - Part 2  
Lecture 26 - Receiver Diversity Techniques - Part 3  
Lecture 27 - Error performance in Fading Channel Part 1  
Lecture 28 - Error performance in Fading Channel Part 2  
Lecture 29 - Multi-Carrier Modulation and OFDM - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multi-Carrier Modulation and OFDM - Part 2
- Lecture 31 - Multi-Carrier Modulation and OFDM - Part 3
- Lecture 32 - Multi-Carrier Modulation and OFDM - Part 4
- Lecture 33 - Numerical on OFDM
- Lecture 34 - Programming for OFDM
- Lecture 35 - OFDM System with Cyclic Prefix
- Lecture 36 - OFDM Signal Transmission and OFDM System Design
- Lecture 37 - Advantages and Drawbacks of OFDM System
- Lecture 38 - OFDM Standards
- Lecture 39 - Multiple Access Schemes
- Lecture 40 - Technologies for Wireless Cellular Standards

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Sensor Technologies: Physics, Fabrication, and Circuits

Subject Co-ordinator - Prof.Mitradip Bhattacharjee

Co-ordinating Institute - IISER - Bhopal

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Sensors and Transducers - Basics  
Lecture 2 - Introduction to Sensors  
Lecture 3 - Materials for sensors  
Lecture 4 - Multidisciplinary Aspects of Sensors  
Lecture 5 - Introduction to Sensor Parameters  
Lecture 6 - Sensor Parameters - II  
Lecture 7 - Sensor Parameters - III  
Lecture 8 - Sensor Parameters - IV  
Lecture 9 - Sensor Parameters - V  
Lecture 10 - Numerical Examples  
Lecture 11 - Introduction: Physics of Sensors  
Lecture 12 - Capacitive Sensor Architecture  
Lecture 13 - Different Types of Capacitive Sensors  
Lecture 14 - Thermal Sensors Basics  
Lecture 15 - Dynamic Condition of Thermal Sensors  
Lecture 16 - Classification of Thermal Sensors  
Lecture 17 - Chemical Sensor Basics  
Lecture 18 - Electrochemical Sensors  
Lecture 19 - Impedimetric Sensors  
Lecture 20 - Numerical Examples  
Lecture 21 - Physics of Optical Sensors  
Lecture 22 - Physics of Magnetic Sensors  
Lecture 23 - Physics of Acoustic Sensors  
Lecture 24 - Physics of Microfluidic Sensors  
Lecture 25 - Various Sensor Geometries and Examples  
Lecture 26 - Microfabrication Technologies  
Lecture 27 - Deposition Techniques  
Lecture 28 - Physical Vapor Deposition  
Lecture 29 - Chemical Vapor Deposition

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- Lecture 30 - Patterning Techniques
- Lecture 31 - Lithography Techniques
- Lecture 32 - Basics of Etching Techniques
- Lecture 33 - Dry Etching Techniques
- Lecture 34 - Optical and Electron Microscopy
- Lecture 35 - Other Microscopy Techniques
- Lecture 36 - Sensor System: Basic Circuits
- Lecture 37 - Amplifier Circuits
- Lecture 38 - Instrumentation Amplifier
- Lecture 39 - Filter Circuits
- Lecture 40 - Sensor System: Experimental Demonstration

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Advanced topics in Wireless Communication (Hindi)

Subject Co-ordinator - Prof. Vivek Ashok Bohara

Co-ordinating Institute - IIIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of Advanced Topics in Wireless Communication System - Part A
- Lecture 2 - Overview of Advanced Topics in Wireless Communication System - Part B
- Lecture 3 - Revision of Wireless Fundamentals - Part A
- Lecture 4 - Revision of Wireless Fundamentals - Part B
- Lecture 5 - Revision of Wireless Fundamentals - Part C
- Lecture 6 - Revision of Wireless Fundamentals - Part D
- Lecture 7 - Revision of Wireless Fundamentals - Part E
- Lecture 8 - Channel Capacity in AWGN channel
- Lecture 9 - Channel Capacity in flat fading channel
- Lecture 10 - Channel Capacity with Optimal Power Adaptation
- Lecture 11 - Tutorial 1 - MATLAB Tutorial: Channel Capacity
- Lecture 12 - Introduction to Channel Coding
- Lecture 13 - Channel Coding: Uncoded and Coded Performance
- Lecture 14 - Introduction to Linear Block Codes
- Lecture 15 - Tutorial 2 - MATLAB Tutorial: Linear Block Codes
- Lecture 16 - Linear Block Codes: Error Detection
- Lecture 17 - Linear Block Codes: Error Correction
- Lecture 18 - Examples of Linear Block Codes
- Lecture 19 - Introduction to Convolution Codes
- Lecture 20 - Convolution Code: Decoder-Viterbi Algorithm
- Lecture 21 - Tutorial 3 - MATLAB Tutorial: Syndrome Identification and Correction
- Lecture 22 - Convolution Codes: State Diagram and Transfer Function
- Lecture 23 - Turbo codes
- Lecture 24 - Low Density Parity Check (LDPC) Codes: Encoding
- Lecture 25 - Low Density Parity Check (LDPC) Codes: Decoding
- Lecture 26 - Introduction to Polar Codes
- Lecture 27 - Polar Codes: Encoding and Decoding
- Lecture 28 - Introduction to MIMO systems
- Lecture 29 - Spatial Diversity Techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Space Time Block Codes
- Lecture 31 - Tutorial 4 - Convolution Codes: Hard and Soft Decoding
- Lecture 32 - MIMO Zero-Forcing Receiver
- Lecture 33 - MIMO MMSE Receiver
- Lecture 34 - Introduction to MIMO SVD
- Lecture 35 - Diagonalization of MIMO channel
- Lecture 36 - Optimal Capacity of MIMO channel and MIMO Beamforming
- Lecture 37 - Tutorial 5 - Random Access Technoques: ALOHA and CSMA
- Lecture 38 - MIMO V-BLAST Receivers
- Lecture 39 - Introduction to Adaptive Modulation and Coding
- Lecture 40 - Modulation and Coding with Variable MQAM
- Lecture 41 - Conventional Multiple Access Schemes
- Lecture 42 - Next generation Multiple Access Schemes and Multi-User Channels
- Lecture 43 - Overview of Cellular and Wi-Fi Standards
- Lecture 44 - Evolution of Cellular and Wi-Fi Standards
- Lecture 45 - Tutorial 6 - MIMO SVD Example
- Lecture 46 - Tutorial 7 - Rate Splitting Multiple Access



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:State Space Approach to Control System Analysis and Design

Subject Co-ordinator - Prof A P Tiwari

Co-ordinating Institute - IIT - Mandi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Standard State-space Representation of Physical Systems

Lecture 3 - Mathematical Modeling from First Principles

Lecture 4 - Mathematical Modeling from First Principles

Lecture 5 - State-space Representation of Transfer Functions

Lecture 6 - State-space Representation of Transfer Functions (Continued...)

Lecture 7 - Equivalent Dynamical Equations

Lecture 8 - Transformation of State Equations into Canonical forms

Lecture 9 - Solution of State Equations

Lecture 10 - Solution of State Equations: Methods to determine the STM

Lecture 11 - Simulation: An Overview

Lecture 12 - Numerical Solution of State Equations

Lecture 13 - Controllability

Lecture 14 - Controllability

Lecture 15 - Controllability

Lecture 16 - Observability

Lecture 17 - Lypunov's Stability - 1

Lecture 18 - Lypunov's Stability - 2

Lecture 19 - Lypunov's Stability - 3

Lecture 20 - Pole Placement Design-I: Concept of State feedback

Lecture 21 - Pole Placement Design-II: Properties of State Feedback

Lecture 22 - Pole Placement Design-III: Pole placement formulae, Selection of Closed loop pole locations

Lecture 23 - Linear Quadratic Optimal Control - Part 1

Lecture 24 - Linear Quadratic Optimal Control - Part 2

Lecture 25 - Linear Observers-Full Order Observer

Lecture 26 - Linear Observers-Reduced Order Observer

Lecture 27 - Separation Principle

Lecture 28 - Multirate Sampling Controllers-Relationship between System state, multirate output samples and i

Lecture 29 - Multirate Output Controller (MROC)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fast Output Sampling (FOS) Controller
- Lecture 31 - Periodic Output Feedback (POF) Controller
- Lecture 32 - Continuous-Time Kalman Filter
- Lecture 33 - Discrete-Time Kalman Filter
- Lecture 34 - Case Study of Nuclear Reactor: Nonlinear Model Development
- Lecture 35 - Case Study of Nuclear Reactor: Model Linearization
- Lecture 36 - Case Study of Nuclear Reactor: Output Feedback Control Design
- Lecture 37 - Case Study of Nuclear Reactor: Periodic Output Feedback Design
- Lecture 38 - Case Study of Nuclear Reactor: Fast Output Sampling based Control Design
- Lecture 39 - Case Study of Nuclear Reactor: Application of Kalman Filtering to Response Improvement of Vanadi

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Optimal Control

Subject Co-ordinator - Prof. Barjeev Tyagi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Performance Index
- Lecture 2 - Basic Concepts of Calculus of Variation
- Lecture 3 - The Basic Variational Problem
- Lecture 4 - Fixed End Point Problem
- Lecture 5 - Free End Point Problem
- Lecture 6 - Free End Point Problem (Continued...)
- Lecture 7 - Free End Point Problem (Continued...)
- Lecture 8 - Free End Point Problem (Continued...)
- Lecture 9 - Optimum of Functions with Conditions
- Lecture 10 - Optimum of Functions with Conditions (Lagrange Multiplier Method)
- Lecture 11 - Optimum of Functional with Conditions
- Lecture 12 - Variational Approach to Optimal Control Systems
- Lecture 13 - Variational Approach to Optimal Control Systems (Continued...)
- Lecture 14 - Linear Quadratic Optimal Control Systems
- Lecture 15 - Linear Quadratic Optimal Control Systems (Continued...)
- Lecture 16 - Linear Quadratic Optimal Control Systems (Continued...)
- Lecture 17 - Linear Quadratic Optimal Control Systems (Continued...)
- Lecture 18 - Linear Quadratic Optimal Control Systems (Continued...)
- Lecture 19 - Linear Quadratic Optimal Control Systems (Optimal Value of Performance Index)
- Lecture 20 - Infinite Horizon Regulator Problem
- Lecture 21 - Infinite Horizon Regulator Problem (Continued...)
- Lecture 22 - Analytical Solution of MDRE - State Transition Matrix Approach
- Lecture 23 - Analytical Solution of MDRE - Similarity Transformation Approach
- Lecture 24 - Analytical Solution of MDRE - Similarity Transformation Approach (Continued...)
- Lecture 25 - Frequency Domain Interpretation of LQR - Linear Time Invariant System
- Lecture 26 - Frequency Domain Interpretation of LQR - Linear Time Invariant System (Continued...)
- Lecture 27 - LQR with a Specified Degree of Stability
- Lecture 28 - Inverse Matrix Riccati Equation
- Lecture 29 - Linear Quadratic Tracking System

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Discrete-Time Optimal Control Systems
- Lecture 31 - Discrete-Time Optimal Control Systems (Continued...)
- Lecture 32 - Discrete-Time Optimal Control Systems (Continued...)
- Lecture 33 - Matrix Discrete Riccati Equation
- Lecture 34 - Analytical Solution of Matrix Difference Riccati Equation
- Lecture 35 - Analytical Solution of Matrix Difference Riccati Equation (Continued...)
- Lecture 36 - Optimal Control using Dynamic Programming
- Lecture 37 - The Hamilton-Jacobi-Bellman (HJB) Equation
- Lecture 38 - LQR System Using HJB Equation
- Lecture 39 - Time Optimal Control System - Constrained Input
- Lecture 40 - Time Optimal Control System (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Basics of Software Defined Radios and Pr

Subject Co-ordinator - Dr. Meenakshi Rawat

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Foundation for software defined radio
- Lecture 2 - Components of a software defined radio
- Lecture 3 - Software defined radio architectures - Part I
- Lecture 4 - Software defined radio architectures - Part II
- Lecture 5 - Software defined radio architectures - Part III
- Lecture 6 - Software defined radio architectures - Part IV
- Lecture 7 - Distortion Parameters - Part I
- Lecture 8 - Distortion Parameters - Part II
- Lecture 9 - Distortion Parameters
- Lecture 10 - Distortion Parameters
- Lecture 11 - Power Amplifiers
- Lecture 12 - Power Amplifiers
- Lecture 13 - Case study-I
- Lecture 14 - Case study-II
- Lecture 15 - Behavioral models for representing nonlinear distortions
- Lecture 16 - Linearization Techniques for nonlinear distortion
- Lecture 17 - Predistortion Techniques for nonlinearity distortion in SDR
- Lecture 18 - Basic Digital Predistortion Techniques for nonlinear distortion in SDR
- Lecture 19 - State-of-the-art Digital Predistortion Techniques for Nonlinear Distortion in SDR
- Lecture 20 - Digital Predistortion Techniques for Linear as well as Nonlinear Distortion in SDR

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electrical Distribution System Analysis

Subject Co-ordinator - Prof. G. B. Kumbhar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Electrical Distribution System
- Lecture 2 - Components of Distribution System Substation and Busbar Layouts
- Lecture 3 - Components of Distribution System and Feeder Configurations
- Lecture 4 - Nature of Loads in a Distribution System
- Lecture 5 - Load Allocation in a Distribution System
- Lecture 6 - K Factors and Their Applications
- Lecture 7 - Analysis of Uniformly Distributed
- Lecture 8 - Lumping Loads in Geometric Configurations Rectangular
- Lecture 9 - Lumping Loads in Geometric Configurations Triangular
- Lecture 10 - Impedance of Distribution Lines and Feeders - Part I
- Lecture 11 - Series Impedance of Distribution Lines and Feeders - Part II
- Lecture 12 - Models of Distribution Lines and Cables
- Lecture 13 - Modelling of Single-Phase and Three-Phase Transformers
- Lecture 14 - Modelling of Three-Phase Transformers - Part I
- Lecture 15 - Modelling of Three-Phase Transformers - Part II
- Lecture 16 - Modelling of Three-Phase Transformers - Part III
- Lecture 17 - Modelling of Three-Phase Transformers - Part IV
- Lecture 18 - Modelling of Step Voltage Regulators - Part I
- Lecture 19 - Modelling of Step Voltage Regulators - Part II
- Lecture 20 - Modelling of Step Voltage Regulators - Part III
- Lecture 21 - Modelling of Step Voltage Regulators - Part IV
- Lecture 22 - Load Models in Distribution System - Part I
- Lecture 23 - Load Models in Distribution System - Part II
- Lecture 24 - Modelling of Distributed Generation
- Lecture 25 - Applications and Modeling of Capacitor Banks
- Lecture 26 - Summary of Modelling of Distribution System Components
- Lecture 27 - Backward/Forward Sweep Load Flow Analysis - Part I
- Lecture 28 - Backward/Forward Sweep Load Flow Analysis - Part II
- Lecture 29 - Direct Approach Based Load Flow Analysis - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Direct Approach Based Load Flow Analysis - Part II
- Lecture 31 - Direct Approach Based Load Flow Analysis - Part III
- Lecture 32 - Direct Approach Based Load Flow Analysis
- Lecture 33 - Gauss Implicit Z-matrix Method
- Lecture 34 - Sequence Component Based Short Circuit Analysis
- Lecture 35 - Thevenin's Equivalent and Phase Variable Based Short Circuit Analysis
- Lecture 36 - Direct Approach for Short-Circuit Analysis
- Lecture 37 - Direct Approach for Short-Circuit Analysis
- Lecture 38 - Direct Approach for Short-Circuit Analysis
- Lecture 39 - Direct Approach for Short-Circuit Analysis
- Lecture 40 - Applications of Distribution System Analysis

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Introduction to Smart Grid

Subject Co-ordinator - Prof. Premalata Jena, Prof. N.P. Padhy

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Smart Grid - I  
Lecture 2 - Introduction to Smart Grid - II  
Lecture 3 - Architecture of smart grid system  
Lecture 4 - Standards for smart grid system  
Lecture 5 - Elements and Technologies of smart grid system - I  
Lecture 6 - Elements and Technologies of smart grid system - II  
Lecture 7 - Distributed Generation Resources - I  
Lecture 8 - Distributed Generation Resources - II  
Lecture 9 - Distributed Generation Resources - III  
Lecture 10 - Distributed Generation Resources - IV  
Lecture 11 - Wide Area Monitoring System - I  
Lecture 12 - Wide Area Monitoring System - II  
Lecture 13 - Phasor Estimation - I  
Lecture 14 - Phasor Estimation - II  
Lecture 15 - Digital Relays for Smart Grid Protection  
Lecture 16 - Islanding Detection Techniques - I  
Lecture 17 - Islanding Detection Techniques - II  
Lecture 18 - Islanding Detection Techniques - III  
Lecture 19 - Smart Grid Protection - I  
Lecture 20 - Smart Grid Protection - II  
Lecture 21 - Smart Grid Protection - III  
Lecture 22 - Smart Grid Protection - IV  
Lecture 23 - Modelling of Storage Devices  
Lecture 24 - Modelling of DC Smart Grid Components  
Lecture 25 - Operation and Control of AC Microgrid - I  
Lecture 26 - Operation and Control of AC Microgrid - II  
Lecture 27 - Operation and Control of DC Microgrid - I  
Lecture 28 - Operation and Control of DC Microgrid - II  
Lecture 29 - Operation and Control of AC-DC hybrid Microgrid - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Operation and Control of AC-DC hybrid Microgrid - II
- Lecture 31 - Simulation and Case Study of AC Microgrid
- Lecture 32 - Simulation and Case Study of DC Microgrid
- Lecture 33 - Simulation and Case Study of AC-DC Hybrid Microgrid
- Lecture 34 - Demand Side Management in Smart Grid
- Lecture 35 - Demand Response Analysis of Smart Grid
- Lecture 36 - Energy Management
- Lecture 37 - Design of Smart Grid and Practical Smart Grid Case Study - I
- Lecture 38 - Design of Smart Grid and Practical Smart Grid Case Study - II
- Lecture 39 - System Analysis of AC/DC Smart Grid
- Lecture 40 - Conclusions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Facts Devices

Subject Co-ordinator - Prof. Avik Bhattacharya

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - I  
Lecture 2 - Introduction - II  
Lecture 3 - Switch Realization  
Lecture 4 - PWM - I  
Lecture 5 - PWM - II  
Lecture 6 - Closed Loop Control  
Lecture 7 - Multi Level Inverter - I  
Lecture 8 - Multi Level Inverter - II  
Lecture 9 - Multi Level Inverter - III  
Lecture 10 - Shunt Compensator Analysis  
Lecture 11 - Shunt Compensator TCR and TSC - I  
Lecture 12 - Shunt Compensator TCR and TSC - II  
Lecture 13 - Static Var Compensator - I  
Lecture 14 - Static Var Compensator - II  
Lecture 15 - STATCOM - I  
Lecture 16 - STATCOM - II  
Lecture 17 - STATCOM/SVC Comparisons  
Lecture 18 - External Control Design of Static Var Compensator  
Lecture 19 - DSTATCOM  
Lecture 20 - Design of DSTATCOM  
Lecture 21 - Series Compensator - I  
Lecture 22 - Series Compensator - II  
Lecture 23 - GCSC and SSSC  
Lecture 24 - SSSC - II  
Lecture 25 - SSSC - III and TSSC  
Lecture 26 - TSSC - II and TCSC  
Lecture 27 - TCSC Characteristics and Control  
Lecture 28 - Voltage and Phase Angle Regulation  
Lecture 29 - Voltage and Phase Angle Regulator Device - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Voltage and Phase Angle Regulator Device - II
- Lecture 31 - UPQC Introduction and Classification
- Lecture 32 - UPQC Classification - I
- Lecture 33 - Operation and Control of UPQC - II
- Lecture 34 - Operation and Control of UPQC - III
- Lecture 35 - UPFC
- Lecture 36 - Control Structure of UPFC
- Lecture 37 - Comparison of UPFC with PAR and Series Compensators
- Lecture 38 - Interline Power Flow Controller (IPFC) - I
- Lecture 39 - Interline Power Flow Controller (IPFC) - II
- Lecture 40 - Practical Application and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Advanced Linear Continuous Control Systems: Applications wi

Subject Co-ordinator - Prof. Yogesh Vijay Hote

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to State Space
- Lecture 2 - State Space Representation
- Lecture 3 - State Space Representation
- Lecture 4 - State Space Representation
- Lecture 5 - State Space Representation
- Lecture 6 - State Space Representation
- Lecture 7 - State Space Representation
- Lecture 8 - State Space Representation
- Lecture 9 - State Space Representation
- Lecture 10 - State Space Representation
- Lecture 11 - Modelling of Mechanical Systems in State Space
- Lecture 12 - Modelling of DC Servo Motor - Part I
- Lecture 13 - Modelling of DC Servo Motor - Part II
- Lecture 14 - Determination of Transfer Function from State Space Model - Part I
- Lecture 15 - Determination of Transfer Function from State Space Model - Part II
- Lecture 16 - Stability Analysis in State Space
- Lecture 17 - Stability Analysis in State Space - Part II
- Lecture 18 - Stability Analysis in State Space
- Lecture 19 - Stability Analysis in State Space
- Lecture 20 - Stability Analysis in State Space
- Lecture 21 - Concept of Diagonalization
- Lecture 22 - Solution of State Equation
- Lecture 23 - Solution of State Equation (Forced System)
- Lecture 24 - Steady State Error for State Space System
- Lecture 25 - State Transition Matrix - Part I
- Lecture 26 - State Transition Matrix - Part II
- Lecture 27 - State Transition Matrix using Cayley-Hamilton Theorem - Part III
- Lecture 28 - MATLAB Programming with State Space
- Lecture 29 - Controllability in State Space - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Controllability in State Space - Part II
- Lecture 31 - Observability in State Space - Part I
- Lecture 32 - Observability in State Space - Part II
- Lecture 33 - Pole Placement by State Feedback - Part I
- Lecture 34 - Pole Placement by State Feedback - Part II
- Lecture 35 - Pole Placement by State Feedback - Part III
- Lecture 36 - Tracking Problem in State Feedback Design - Part I
- Lecture 37 - Tracking Problem in State Feedback Design - Part II
- Lecture 38 - State Observer Design - Part I
- Lecture 39 - State Observer Design - Part II
- Lecture 40 - State Observer Design - Part III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Computer Aided Power System Analysis

Subject Co-ordinator - Prof. Biswarup Das

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Modeling of Power System Components
- Lecture 2 - Modeling of Power System Components (Continued...)
- Lecture 3 - Bus Admittance Matrix
- Lecture 4 - Bus Admittance Matrix with Mutual Impedance
- Lecture 5 - Bus Admittance Matrix with mutual impedance (Continued...)
- Lecture 6 - Power flow equations and classification of buses
- Lecture 7 - Basic Gauss - Seidel Numerical Method
- Lecture 8 - Gauss - Seidel Load Flow (GSLF)
- Lecture 9 - GSLF with Multiple Generators
- Lecture 10 - Example of GSLF
- Lecture 11 - Basics of Newton Raphson Numerical Method
- Lecture 12 - Newton - Raphson Load Flow (NRLF) in Polar Co-Ordinate
- Lecture 13 - NRLF in polar co-ordinate (Continued...)
- Lecture 14 - NRLF in polar co-ordinate (Continued...)
- Lecture 15 - NRLF (Polar) Algorithm and Example
- Lecture 16 - NRLF in rectangular coordinate
- Lecture 17 - NRLF in rectangular coordinate (Continued...)
- Lecture 18 - NRLF in rectangular coordinate (Continued...)
- Lecture 19 - Example of NRLF (Rectangular) Method
- Lecture 20 - Fast decoupled load flow (FDLF)
- Lecture 21 - FDLF (Continued...)
- Lecture 22 - FDLF (Continued...)
- Lecture 23 - AC- DC Load Flow
- Lecture 24 - AC- DC Load Flow (Continued...)
- Lecture 25 - AC- DC Load Flow (Continued...)
- Lecture 26 - Sparsity and Gaussian Elimination
- Lecture 27 - Gaussian Elimination Method
- Lecture 28 - Example of Gaussian Elimination Method
- Lecture 29 - Gaussian Elimination and Optimal Ordering

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Triangular Factorization
- Lecture 31 - LU Decomposition
- Lecture 32 - Introduction to Contingency Analysis
- Lecture 33 - Linear Sensitivity Factor
- Lecture 34 - Linear Sensitivity Factors (Continued...)
- Lecture 35 - Line outage sensitivity factor
- Lecture 36 - Line outage sensitivity factor (Continued...)
- Lecture 37 - Line outage sensitivity factor (Continued...)
- Lecture 38 - State Estimation Technique
- Lecture 39 - Weighted Least Square (WLS) Method
- Lecture 40 - WLS (Continued...)
- Lecture 41 - WLS Examples
- Lecture 42 - Error Analysis
- Lecture 43 - Error Analysis (Continued...)
- Lecture 44 - Bad Data Detection
- Lecture 45 - Power system state estimation
- Lecture 46 - Power system state estimation (Continued...)
- Lecture 47 - Power system state estimation (Continued...)
- Lecture 48 - Power system state estimation (Continued...)
- Lecture 49 - Fault Analysis
- Lecture 50 - Fault Analysis (Continued...)
- Lecture 51 - Fault Analysis (Continued...)
- Lecture 52 - Fault Analysis (Continued...)
- Lecture 53 - Fault Analysis (Continued...)
- Lecture 54 - Fault Analysis (Continued...)
- Lecture 55 - Fault Analysis (Continued...)
- Lecture 56 - Fault Analysis (Continued...)
- Lecture 57 - Fault Analysis (Continued...)
- Lecture 58 - Fault Analysis (Continued...)
- Lecture 59 - Fault Analysis (Continued...)
- Lecture 60 - Fault Analysis (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Advance Power Electronics and Control

Subject Co-ordinator - Prof. Avik Bhattacharya

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Basic Concept of Switches  
Lecture 3 - Device Physics - I  
Lecture 4 - Device Physics - II  
Lecture 5 - Device Physics - III  
Lecture 6 - Device Physics - IV  
Lecture 7 - Application and Analysis of Switches - I  
Lecture 8 - Application and Analysis of Switches - II  
Lecture 9 - Single Phase Converter  
Lecture 10 - Single Phase Converters - II  
Lecture 11 - Single Phase Converters - III  
Lecture 12 - Three Phase Converters - I  
Lecture 13 - Three Phase Converters - II  
Lecture 14 - Multipulse Converters II  
Lecture 15 - Effect of Source Inductance and PWM Rectifiers  
Lecture 16 - PWM Rectifiers - II  
Lecture 17 - PWM Rectifiers - III and Power Factor Improvement Techniques  
Lecture 18 - PWM Rectifiers - IV and Power Factor Improvement Techniques - II  
Lecture 19 - Power Factor Improvement Techniques III and Non Isolated DC- DC Converters  
Lecture 20 - Non Isolated DC- DC Converters - II  
Lecture 21 - Non Isolated and Isolated DC- DC Converters and Choppers  
Lecture 22 - Isolated DC-DC Converters and Choppers  
Lecture 23 - Isolated DC-DC Converters - II  
Lecture 24 - Isolated DC-DC Converters - III  
Lecture 25 - Isolated DC-DC Converters - IV and VSI and CSI  
Lecture 26 - VSI and CSI  
Lecture 27 - VSI and CSI II and MLI  
Lecture 28 - PWM Techniques II and MLI  
Lecture 29 - MLI II and ZSI

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- Lecture 30 - ZSI II and Space Vector Modulation (SVM)
- Lecture 31 - SVM II and AC to AC Converters
- Lecture 32 - SVM III and AC to AC Converters
- Lecture 33 - Cycloconverters and Matrix Converters
- Lecture 34 - Matrix Converter - II
- Lecture 35 - Matrix Converter - III and Power Quality Mitigation Devices
- Lecture 36 - Power Quality Mitigation Devices - II
- Lecture 37 - Linear and Non Linear Control in Power Electronics - I
- Lecture 38 - Linear and Non Linear Control in Power Electronics - II
- Lecture 39 - Non-Linear Control in Power Electronics
- Lecture 40 - Application and Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:CMOS Digital VLSI Design

Subject Co-ordinator - Prof. Sudeb Dasgupta

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - MOS Transistor Basics - I  
Lecture 2 - MOS Transistor Basics - II  
Lecture 3 - MOS Transistor Basics - III  
Lecture 4 - MOS Parasitics and SPICE Model  
Lecture 5 - CMOS Inverter Basics - I  
Lecture 6 - CMOS Inverter Basics - II  
Lecture 7 - CMOS Inverter Basics - III  
Lecture 8 - Power Analysis - I  
Lecture 9 - Power Analysis - II  
Lecture 10 - SPICE Simulation - I  
Lecture 11 - SPICE Simulation - II  
Lecture 12 - Combinational Logic Design - I  
Lecture 13 - Combinational Logic Design - II  
Lecture 14 - Combinational Logic Design - III  
Lecture 15 - Combinational Logic Design - IV  
Lecture 16 - Combinational Logic Design - V  
Lecture 17 - Combinational Logic Design - VI  
Lecture 18 - Combinational Logic Design - VII  
Lecture 19 - Combinational Logic Design - VIII  
Lecture 20 - Combinational Logic Design - IX  
Lecture 21 - Combinational Logic Design - X  
Lecture 22 - Logical Efforts - I  
Lecture 23 - Logical Efforts - II  
Lecture 24 - Logical Efforts - III  
Lecture 25 - Sequential Logic Design - I  
Lecture 26 - Sequential Logic Design - II  
Lecture 27 - Sequential Logic Design - III  
Lecture 28 - Sequential Logic Design - IV  
Lecture 29 - Sequential Logic Design - V

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sequential Logic Design - VI
- Lecture 31 - Sequential Logic Design - VII
- Lecture 32 - Sequential Logic Design - VIII
- Lecture 33 - Clocking Strategies for Sequential Design - I
- Lecture 34 - Clocking Strategies for Sequential Design - II
- Lecture 35 - Clocking Strategies for Sequential Design - III
- Lecture 36 - Clocking Strategies for Sequential Design - IV
- Lecture 37 - Sequential Logic Design - IX
- Lecture 38 - Clocking Strategies for Sequential Design - V
- Lecture 39 - Concept of Memory and its Designing - I
- Lecture 40 - Concept of Memory and its Designing - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Microelectronics: Devices to Circuits

Subject Co-ordinator - Prof. Sudeb Dasgupta

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Bipolar Junction Transistor  
Lecture 2 - Bipolar Junction Transistor  
Lecture 3 - Bipolar Junction Transistor  
Lecture 4 - BJT Operation in active mode Circuit symbol and conventions - I  
Lecture 5 - BJT Operation in active mode Circuit symbol and conventions - II  
Lecture 6 - BJT as an amplifier small circuit model - I  
Lecture 7 - BJT as an amplifier small circuit model - II  
Lecture 8 - BJT Small Signal Circuit Model - I  
Lecture 9 - BJT Small Signal Circuit Model - II  
Lecture 10 - BJT as a switch and Ebers Moll Model  
Lecture 11 - Simple BJT Inverter and second order effects  
Lecture 12 - BJT Second order effects - I  
Lecture 13 - BJT Second order effects - II  
Lecture 14 - MOS Transistor basics - I  
Lecture 15 - MOS Transistor basics - II  
Lecture 16 - MOS Transistor basics - III  
Lecture 17 - MOS Parasitic and SPICE Model  
Lecture 18 - CMOS Inverter Basics - I  
Lecture 19 - CMOS Inverter Basics - II  
Lecture 20 - CMOS Inverter Basics - III  
Lecture 21 - Power Analysis - I  
Lecture 22 - Logical Efforts - I  
Lecture 23 - Fabrication-Process - I  
Lecture 24 - Fabrication-Process - II  
Lecture 25 - Biasing of Amplifier and its behaviour as an Analog switch - I  
Lecture 26 - Biasing of Amplifier and its behaviour as an Analog switch - II  
Lecture 27 - Biasing of Amplifier and its behaviour as an Analog switch - III  
Lecture 28 - CMOS CS/CG/CD Amplifier Configuration  
Lecture 29 - CMOS CG/CD Amplifier Configuration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Internal CAP Models and high frequency Modelling - I
- Lecture 31 - Internal CAP Models and high frequency Modelling - II
- Lecture 32 - JFET, Structure and Operation
- Lecture 33 - Multistage and Differential Amplifier - I
- Lecture 34 - Multistage and Differential Amplifier - II
- Lecture 35 - MOS Differential Amplifier - I
- Lecture 36 - MOS Differential Amplifier - II
- Lecture 37 - Small signal operation and Differential Amplifiers - I
- Lecture 38 - Small signal operation and Differential Amplifiers - II
- Lecture 39 - Multistage Amplifier with SPICE Simulation
- Lecture 40 - S-Domain Analysis, Transfer Function, Poles and Zeros - I
- Lecture 41 - S-Domain Analysis, Transfer Function, Poles and Zeros - II
- Lecture 42 - High Frequency response of CS and CE Amplifier
- Lecture 43 - High Frequency response of CC and SF Configuration
- Lecture 44 - Frequency response of Differential Amplifier
- Lecture 45 - General Feedback Structure and properties of negative Feedback
- Lecture 46 - Basic Feedback Topologies
- Lecture 47 - Design of feedback amplifier for all configuration
- Lecture 48 - Stability and amplifier poles
- Lecture 49 - Bode plots and Frequency Plot
- Lecture 50 - Ideal Operational Amplifier and its terminal
- Lecture 51 - Op-amp as a Integrator and Differentiator
- Lecture 52 - Large Signal Operation of Op-amp and second order effects
- Lecture 53 - Combinational logic design - I
- Lecture 54 - Combinational logic design - II
- Lecture 55 - Combinational logic design - III
- Lecture 56 - Combinational logic design - IV
- Lecture 57 - Sequential logic design - I
- Lecture 58 - Clocking strategies For Sequential design - I
- Lecture 59 - Clocking strategies For Sequential design - II
- Lecture 60 - Memory Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:DC Microgrid

Subject Co-ordinator - Prof. Avik Bhattacharya

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of Microgrids
- Lecture 2 - Concept of Microgrids
- Lecture 3 - Microgrid and distributed generation
- Lecture 4 - Microgrid vs Conventional Power System
- Lecture 5 - AC and DC Microgrid with Distributed Energy Resources (AC Microgrid Part)
- Lecture 6 - AC and DC Microgrid with Distributed Energy Resources (AC Microgrid Part) (Continued...)
- Lecture 7 - Power Electronics for Microgrid
- Lecture 8 - Power Electronic Converters in Microgrid Applications
- Lecture 9 - Power Electronic Converters in Microgrid Applications (Power Electronic for Interfacing )
- Lecture 10 - Power Electronic Converters in Microgrid Applications (Converter Modulation Techniques)
- Lecture 11 - Modeling of converters in microgrid power system (AC/DC and DC/AC Converters Modeling)
- Lecture 12 - Modeling of Power Converters in Microgrid Power System (DC/DC Converter Modeling and Control)
- Lecture 13 - Modeling of Renewable Energy Resources (Modeling of Wind Energy System)
- Lecture 14 - Modeling of Renewable Energy Resources (Modeling of Photovoltaic System)
- Lecture 15 - Modeling of Energy Storage System
- Lecture 16 - Microgrid Dynamics and Modeling
- Lecture 17 - Microgrid Dynamics and Modeling (Continued...)
- Lecture 18 - Microgrid Operation Modes and Standards - Part I
- Lecture 19 - Microgrid Operation Modes and Standards - Part II
- Lecture 20 - Microgrid Control Architectures
- Lecture 21 - Microgrid Control Architectures (Continued...)
- Lecture 22 - Intelligent Microgrid Operation and Control
- Lecture 23 - Intelligent Microgrid Operation and Control (Continued...)
- Lecture 24 - Intelligent Microgrid Operation and Control (Continued...)
- Lecture 25 - Energy Management in Microgrid System (Continued...)
- Lecture 26 - DC Microgrid System Architecture and AC Interface
- Lecture 27 - DC Microgrid System Architecture and AC Interface (Continued...)
- Lecture 28 - DC Microgrid System Architecture and AC Interface (Continued...)
- Lecture 29 - DC Microgrid Dynamics and Modeling

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- Lecture 30 - DC Microgrid Dynamics and Modeling (Continued...)
- Lecture 31 - Control of DC Microgrid System
- Lecture 32 - Control of DC Microgrid System (Continued...)
- Lecture 33 - Applications of DC Microgrids
- Lecture 34 - Stability in Microgrid
- Lecture 35 - Stability Analysis of DC Microgrid
- Lecture 36 - Stability Analysis of DC Microgrid (Continued...)
- Lecture 37 - DC Microgrid stabilization strategies (Passive damping method)
- Lecture 38 - DC Microgrid Stabilization Strategies (Impedance/Admittance stability criteria)
- Lecture 39 - DC microgrid stabilization using nonlinear Techniques
- Lecture 40 - General Summary of DC Microgrids

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Power Quality Improvement Technique

Subject Co-ordinator - Prof. Avik Bhattacharya

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Overview - I  
Lecture 3 - Overview - II  
Lecture 4 - Overview - III  
Lecture 5 - Source of Poor Power Quality - I  
Lecture 6 - Source of Poor Power Quality - II  
Lecture 7 - AC Power Quality Standard  
Lecture 8 - Improvement of Power Factor by Capacitor  
Lecture 9 - Passive Filter - I  
Lecture 10 - Passive Filter - II  
Lecture 11 - Passive Filter Design - I  
Lecture 12 - Passive Filter Design - II  
Lecture 13 - PWM Rectifier - I  
Lecture 14 - PWM Rectifier - II  
Lecture 15 - PWM Rectifier - III  
Lecture 16 - Three phase converters - I  
Lecture 17 - Three Phase Converters - II and multi pulse Converters  
Lecture 18 - Three Phase Converters - III and multi-pulse Converters  
Lecture 19 - VSI and CSI  
Lecture 20 - Multilevel Inverter - I  
Lecture 21 - Multilevel Inverter - II  
Lecture 22 - Multilevel Inverter - III  
Lecture 23 - PWM for Voltage Source Inverter - I  
Lecture 24 - PWM for Voltage Source Inverter - II  
Lecture 25 - PWM for Voltage Source inverter - III  
Lecture 26 - PWM for Voltage Source Inverter - IV  
Lecture 27 - Operation and Control of Grid-Connected VSC  
Lecture 28 - Grid Connected VSC with inner Current Control  
Lecture 29 - Shunt Active Power Filter - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Shunt Active Power Filter - II
- Lecture 31 - Shunt Active Power Filter - III
- Lecture 32 - Shunt Active Power Filter - IV
- Lecture 33 - Hybrid Active Power Filter - I
- Lecture 34 - Hybrid Active power Filter - II
- Lecture 35 - Hybrid Shunt Active Power Filter
- Lecture 36 - UPQC Introduction and classification
- Lecture 37 - UPQC Classification
- Lecture 38 - Operation and Control of UPQC
- Lecture 39 - Control of UPQC
- Lecture 40 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Power System Protection and Switchgear

Subject Co-ordinator - Prof. Bhaveshkumar R. Bhalja

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Protective Relaying - I
- Lecture 2 - Fundamentals of Protective Relaying - II
- Lecture 3 - Fundamentals of Protective Relaying - III
- Lecture 4 - Fundamentals of Protective Relaying - IV
- Lecture 5 - Fundamentals of Protective Relaying - V
- Lecture 6 - Current based Relaying Scheme - I
- Lecture 7 - Current based Relaying Scheme - II
- Lecture 8 - Current based Relaying Scheme - III
- Lecture 9 - Current based Relaying Scheme - IV
- Lecture 10 - Current based Relaying Scheme - V
- Lecture 11 - Current based Relaying Scheme - VI
- Lecture 12 - Current based Relaying Scheme - VII
- Lecture 13 - Current based Relaying Scheme - VIII
- Lecture 14 - Protection of Transmission Lines using Distance Relays - I
- Lecture 15 - Protection of Transmission Lines using Distance Relays - II
- Lecture 16 - Protection of Transmission Lines using Distance Relays - III
- Lecture 17 - Protection of Transmission Lines using Distance Relays - IV
- Lecture 18 - Protection of Transmission Lines using Distance Relays - V
- Lecture 19 - Carrier Aided Schemes for Transmission Lines - I
- Lecture 20 - Carrier Aided Schemes for Transmission Lines - II
- Lecture 21 - Carrier Aided Schemes for Transmission Lines - III
- Lecture 22 - Carrier Aided Schemes for Transmission Lines - IV
- Lecture 23 - Auto-reclosing and Synchronizing - I
- Lecture 24 - Auto-reclosing and Synchronizing - II
- Lecture 25 - Auto-reclosing and Synchronizing - III
- Lecture 26 - Protection of Transformers - I
- Lecture 27 - Protection of Transformers - II
- Lecture 28 - Protection of Generators - I
- Lecture 29 - Protection of Generators - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Protection of Induction Motors
- Lecture 31 - Protection of Busbars
- Lecture 32 - Protection against Transients and Surges along with System Response to Severe Upsets - I
- Lecture 33 - Protection against Transients and Surges along with System Response to Severe Upsets - II
- Lecture 34 - Arc Interruption Theory in Circuit Breaker - I
- Lecture 35 - Arc Interruption Theory in Circuit Breaker - II
- Lecture 36 - Arc Interruption Theory in Circuit Breaker - III
- Lecture 37 - Arc Interruption Theory in Circuit Breaker - IV
- Lecture 38 - Types of Circuit Breakers
- Lecture 39 - Testing, Commissioning and Maintenance of Relays - I
- Lecture 40 - Testing, Commissioning and Maintenance of Relays - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:RF Transceiver of Design

Subject Co-ordinator - Prof. Darshak Bhatt

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic of Wireless Communication - I
- Lecture 2 - Basic of Wireless Communication - II
- Lecture 3 - Basic of Wireless Communication - III
- Lecture 4 - Basic of Wireless Communication - IV
- Lecture 5 - Basic of Wireless Communication - V
- Lecture 6 - Basic of Wireless Communication - VI
- Lecture 7 - Noise in RF Systems - I
- Lecture 8 - Noise in RF Systems - II
- Lecture 9 - Noise in RF Systems - III
- Lecture 10 - Noise in RF Systems - IV
- Lecture 11 - Non-Linearity in RF Systems - I
- Lecture 12 - Non-Linearity in RF Systems - II
- Lecture 13 - Non-Linearity in RF Systems - III
- Lecture 14 - Transceiver Architecture - I
- Lecture 15 - Transceiver Architecture - II
- Lecture 16 - Transceiver Architecture - III
- Lecture 17 - Transceiver Architecture - IV
- Lecture 18 - Transceiver Architecture - V
- Lecture 19 - Transceiver Architecture - VI
- Lecture 20 - Transceiver Architecture - VII
- Lecture 21 - Active Devices - I
- Lecture 22 - Active Devices - II
- Lecture 23 - Active Devices - III
- Lecture 24 - Active Devices - IV
- Lecture 25 - Passive Components and Impedance Matching - I
- Lecture 26 - Passive Components and Impedance Matching - II
- Lecture 27 - Passive Components and Impedance Matching - III
- Lecture 28 - Passive Components and Impedance Matching - IV
- Lecture 29 - Passive Components and Impedance Matching - V

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Passive Components and Impedance Matching - VI
- Lecture 31 - Passive Components and Impedance Matching - VII
- Lecture 32 - Stability and Amplifier Design - I
- Lecture 33 - Stability and Amplifier Design - II
- Lecture 34 - Stability and Amplifier Design - III
- Lecture 35 - Stability and Amplifier Design - IV
- Lecture 36 - Low Noise Amplifier Design - I
- Lecture 37 - Low Noise Amplifier Design - II
- Lecture 38 - Low Noise Amplifier Design - III
- Lecture 39 - Low Noise Amplifier Design - IV
- Lecture 40 - Low Noise Amplifier Design - V
- Lecture 41 - Low Noise Amplifier Design - VI
- Lecture 42 - Mixer Design - I
- Lecture 43 - Mixer Design - II
- Lecture 44 - Mixer Design - III
- Lecture 45 - Mixer Design - IV
- Lecture 46 - Mixer Design - V
- Lecture 47 - Mixer Design - VI
- Lecture 48 - Mixer Design - VII
- Lecture 49 - Mixer Design - VIII
- Lecture 50 - Mixer Design - IX
- Lecture 51 - Oscillator Design - I
- Lecture 52 - Oscillator Design - II
- Lecture 53 - Oscillator Design - III
- Lecture 54 - Oscillator Design - IV
- Lecture 55 - Power Amplifier Design - I
- Lecture 56 - Power Amplifier Design - II
- Lecture 57 - Power Amplifier Design - III
- Lecture 58 - Basics of Phase Locked Loop - I
- Lecture 59 - Basics of Phase Locked Loop - II
- Lecture 60 - System Level Considerations
- Lecture 61 - RF Testing and Measurement Techniques

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:VLSI Physical Design with Timing Analysis

Subject Co-ordinator - Prof. Bishnu Prasad Das

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to VLSI Design  
Lecture 2 - Introduction to VLSI Physical Design  
Lecture 3 - Complexity Analysis for Algorithms  
Lecture 4 - Graphs for Physical Design  
Lecture 5 - Graph searching Algorithms  
Lecture 6 - Spanning Tree and Shortest Path Algorithms  
Lecture 7 - Overview of Timing Analysis  
Lecture 8 - Timing Arcs and Unateness  
Lecture 9 - Delay Parameters of a Combinational Circuit  
Lecture 10 - Delay Parameters of a Sequential Circuit  
Lecture 11 - Timing Analysis in a Sequential Circuit  
Lecture 12 - STA in Sequential Circuit with Clock Skew - I  
Lecture 13 - STA in Sequential Circuit with Clock Skew - II  
Lecture 14 - STA in Sequential Circuit with Clock Jitter  
Lecture 15 - STA considering OCV and CRPR (Setup check)  
Lecture 16 - STA considering OCV and CRPR (Hold check)  
Lecture 17 - STA for Combinational Circuits - I  
Lecture 18 - STA for Combinational Circuits - II  
Lecture 19 - Introduction to Partitioning - I  
Lecture 20 - Introduction to Partitioning - II  
Lecture 21 - Partitioning Algorithms  
Lecture 22 - Kernighan-Lin (KL) Algorithm  
Lecture 23 - Fiduccia-Mattheyses (FM) Algorithm  
Lecture 24 - Introduction to Floorplanning  
Lecture 25 - Floorplanning Representations  
Lecture 26 - Floorplanning Algorithms - 1  
Lecture 27 - Floorplanning Algorithms - 2  
Lecture 28 - Pin Assignment and Power - Ground Routing  
Lecture 29 - Introduction to Placement

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- Lecture 30 - Wirelength estimation techniques
- Lecture 31 - Min-cut placement
- Lecture 32 - Placement Algorithms
- Lecture 33 - Placement algorithms and legalization
- Lecture 34 - Introduction to Clock Tree Synthesis
- Lecture 35 - Clock Routing Algorithms - I
- Lecture 36 - Clock Routing Algorithms - II
- Lecture 37 - Clock Routing Algorithms - III
- Lecture 38 - Introduction and Optimization Goals - Global Routing
- Lecture 39 - Single net routing (Rectilinear routing)
- Lecture 40 - Global Routing in the connectivity graph
- Lecture 41 - Finding Shortest Paths with Dijkstra's Algorithm
- Lecture 42 - Full-Netlist Routing
- Lecture 43 - Introduction: Detailed Routing
- Lecture 44 - Channel Routing Algorithms - I
- Lecture 45 - Channel Routing Algorithms - II
- Lecture 46 - Switchbox and Over the cell routing
- Lecture 47 - Timing Constraints in latch based system
- Lecture 48 - Timing Constraints in Pulsed Latch-based System
- Lecture 49 - Time Borrowing in Latch
- Lecture 50 - Crosstalk Analysis
- Lecture 51 - Standard Cell Library
- Lecture 52 - Low Power Cells in Standard Cell Library
- Lecture 53 - Sub-threshold Standard Cell Library
- Lecture 54 - Timing Library for Standard Cells
- Lecture 55 - PDK and Other files
- Lecture 56 - Open-Source Tool Installation and Qflow
- Lecture 57 - Open-Source tool - YOSYS
- Lecture 58 - OpenSTA Static Timing Analyzer
- Lecture 59 - OpenROAD Physical Synthesis Flow - I
- Lecture 60 - OpenROAD Physical Synthesis Flow - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - An Introduction to Electronics Systems Packaging

Subject Co-ordinator - Prof. G.V. Mahesh

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Objectives of the course
- Lecture 2 - Definition of a system and history of semiconductors
- Lecture 3 - Products and levels of packaging
- Lecture 4 - Packaging aspects of handheld products; Case studies in applications
- Lecture 5 - Case Study (continued); Definition of PWB, summary and Questions for review
- Lecture 6 - Basics of Semiconductor and Process flowchart; Video on "Sand-to-Silicon"
- Lecture 7 - Wafer fabrication, inspection and testing
- Lecture 8 - Wafer packaging; Packaging evolution; Chip connection choices
- Lecture 9 - Wire bonding, TAB and flipchip-1
- Lecture 10 - Wire bonding, TAB and flipchip-2; Tutorials
- Lecture 11 - Why packaging? & Single chip packages or modules (SCM)
- Lecture 12 - Commonly used packages and advanced packages; Materials in packages
- Lecture 13 - Advances packages (continued); Thermal mismatch in packages; Current trends in packaging
- Lecture 14 - Multichip modules (MCM)-types; System-in-package (SIP); Packaging roadmaps; Hybrid circuits; Quid
- Lecture 15 - Electrical Issues I; Resistive Parasitic
- Lecture 16 - Electrical Issues II; Capacitive and Inductive Parasitic
- Lecture 17 - Electrical Issues III; Layout guidelines and the Reflection problem
- Lecture 18 - Electrical Issues IV; Interconnection
- Lecture 19 - Quick Tutorial on packages; Benefits from CAD; Introduction to DFM, DFR & DFT
- Lecture 20 - Components of a CAD package and its highlights
- Lecture 21 - Design Flow considerations; Beginning a circuit design with schematic work and component layout
- Lecture 22 - Demo and examples of layout and routing; Technology file generation from CAD; DFM check list and
- Lecture 23 - Review of CAD output files for PCB fabrication; Photo plotting and mask generation
- Lecture 24 - Process flow-chart; Vias; PWB substrates
- Lecture 25 - Substrates continued; Video highlights; Surface preparation
- Lecture 26 - Photoresist and application methods; UV exposure and developing; Printing technologies for PWBs
- Lecture 27 - PWB etching; Resist stripping; Screen-printing technology
- Lecture 28 - Through-hole manufacture process steps; Panel and pattern plating methods
- Lecture 29 - Video highlights on manufacturing; Solder mask for PWBs; Multilayer PWBs; Introduction to microv

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- Lecture 30 - Microvia technology and Sequential build-up technology process flow for high-density interconnect
- Lecture 31 - Conventional Vs HDI technologies; Flexible circuits; Tutorial session
- Lecture 32 - SMD benefits; Design issues; Introduction to soldering
- Lecture 33 - Reflow and Wave Soldering methods to attach SMDs
- Lecture 34 - Solders; Wetting of solders; Flux and its properties; Defects in wave soldering
- Lecture 35 - Vapour phase soldering, BGA soldering and Desoldering/Repair; SMT failures
- Lecture 36 - SMT failure library and Tin Whiskers
- Lecture 37 - Tin-lead and lead-free solders; Phase diagrams; Thermal profiles for reflow soldering; Lead-free
- Lecture 38 - Lead-free solder considerations; Green electronics; RoHS compliance and e-waste recycling issues
- Lecture 39 - Thermal Design considerations in systems packaging
- Lecture 40 - Introduction to embedded passives; Need for embedded passives; Design Library; Embedded resistor
- Lecture 41 - Embedded capacitors; Processes for embedding capacitors; Case study examples; Summary of materia
- Lecture 42 - Chapter-wise summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Power Electronics and Distributed Generation

Subject Co-ordinator - Dr. Vinod John

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course introduction and overview
- Lecture 2 - Distributed generation technologies
- Lecture 3 - Distributed storage technologies
- Lecture 4 - Distribution system protection
- Lecture 5 - Circuit breaker coordination
- Lecture 6 - Symmetrical component analysis and sequence excitation
- Lecture 7 - Modeling of distribution system components
- Lecture 8 - Protection components
- Lecture 9 - Impact of distributed generation on distribution protection
- Lecture 10 - Consumption and distribution grounding
- Lecture 11 - Islanding of distribution systems
- Lecture 12 - Modeling of islanded distribution systems
- Lecture 13 - Distribution system problems and examples
- Lecture 14 - Distribution system problems and examples continued
- Lecture 15 - Anti-islanding methods
- Lecture 16 - Solid state circuit switching
- Lecture 17 - Relaying for distributed generation
- Lecture 18 - Feeder voltage regulation
- Lecture 19 - Grounding, distribution protection coordination problems and examples
- Lecture 20 - Ring and network distribution
- Lecture 21 - Economic evaluation of DG systems
- Lecture 22 - Design for effective initial cost
- Lecture 23 - Single phase inverters
- Lecture 24 - DC bus design in voltage source inverter
- Lecture 25 - Electrolytic capacitor reliability and lifetime
- Lecture 26 - Inverter switching and average model
- Lecture 27 - Common mode and differential mode model of inverters
- Lecture 28 - Two leg single phase inverter
- Lecture 29 - Distribution system problems, and examples

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - DG evaluation problems and examples
- Lecture 31 - Switch selection in two level voltage source inverters and loss evaluation
- Lecture 32 - Thermal model, management and cycling failure of IGBT modules
- Lecture 33 - Semiconductor switch design reliability considerations
- Lecture 34 - AC filters for grid connected inverters
- Lecture 35 - AC inductor design and need for LCL filter
- Lecture 36 - LCL filter design
- Lecture 37 - Examples in power electronic design for DG systems
- Lecture 38 - Examples in power electronic design for DG systems continued
- Lecture 39 - Higher order passive damping design for LCL filters
- Lecture 40 - Balance of hardware component for inverters in DG systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Pulse width Modulation for Power Electronic Converters

Subject Co-ordinator - Dr. G. Narayanan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Electronic switches
- Lecture 2 - DC - DC converters
- Lecture 3 - DC - AC converters
- Lecture 4 - Multilevel converters - I
- Lecture 5 - Multilevel converters - II
- Lecture 6 - Applications of voltage source converter - I
- Lecture 7 - Applications of voltage source converter - II
- Lecture 8 - Applications of voltage source converter - III
- Lecture 9 - Purpose of PWM - I
- Lecture 10 - Purpose of PWM - II
- Lecture 11 - Low switching frequency PWM - I
- Lecture 12 - Low switching frequency PWM - II
- Lecture 13 - Selective harmonic elimination
- Lecture 14 - Off-line optimized pulsewidth modulation
- Lecture 15 - Sine-triangle pulsewidth modulation
- Lecture 16 - Harmonic injection pulsewidth modulation
- Lecture 17 - Bus-clamping pulsewidth modulation
- Lecture 18 - Triangle-comparison based PWM for three-phase inverter
- Lecture 19 - Concept of space vector
- Lecture 20 - Conventional space vector PWM
- Lecture 21 - Space vector based bus-clamping PWM
- Lecture 22 - Space vector based advanced bus-clamping PWM
- Lecture 23 - Harmonic analysis of PWM techniques
- Lecture 24 - Analysis of RMS line current ripple using the notion of stator flux ripple
- Lecture 25 - Evaluation of RMS line current ripple using the notion of stator flux ripple
- Lecture 26 - Analysis and design of PWM techniques from line current ripple perspective
- Lecture 27 - Instantaneous and average dc link current in a voltage source inverter
- Lecture 28 - DC link current and DC capacitor current in a voltage source inverter
- Lecture 29 - Analysis of torque ripple in induction motor drives - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of torque ripple in induction motor drives - II
- Lecture 31 - Evaluation of conduction loss in three-phase inverter
- Lecture 32 - Evaluation of switching loss in three-phase inverter
- Lecture 33 - Design of PWM for reduced switching loss in three-phase inverter
- Lecture 34 - Effect of dead-time on inverter output voltage for continuous PWM schemes
- Lecture 35 - Effect of dead-time on inverter output voltage for bus-clamping PWM schemes
- Lecture 36 - Analysis of overmodulation in sine-triangle PWM from space vector perspective
- Lecture 37 - Overmodulation in space vector modulated inverter
- Lecture 38 - PWM for three-level neutral-point-clamped inverter - I
- Lecture 39 - PWM for three-level neutral-point-clamped inverter - II
- Lecture 40 - PWM for three-level neutral-point-clamped inverter - III

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Switched Mode Power Conversion

Subject Co-ordinator - Prof. L. Umanand, Prof. V. Ramanarayanan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to DC-DC converter  
Lecture 2 - Diode  
Lecture 3 - Controlled Switches  
Lecture 4 - Prior Art  
Lecture 5 - Inductor  
Lecture 6 - Transformer  
Lecture 7 - Capacitor  
Lecture 8 - Issues related to switches  
Lecture 9 - Energy storage - Capacitor  
Lecture 10 - Energy storage - Inductor  
Lecture 11 - Primitive Converter  
Lecture 12 - Non-Isolated converter - I  
Lecture 13 - Non-Isolated converter - II  
Lecture 14 - Isolated Converters - I  
Lecture 15 - Isolated Converters - II  
Lecture 16 - Conduction Mode  
Lecture 17 - Problem set - I  
Lecture 18 - Problem set - II  
Lecture 19 - Modeling DC-DC converters  
Lecture 20 - State space representation - I  
Lecture 21 - State Space representation - II  
Lecture 22 - Circuit Averaging - I  
Lecture 23 - Circuit Averaging - II  
Lecture 24 - State Space Model of Boost Converter  
Lecture 25 - DC-DC converter controller  
Lecture 26 - Controller Structure  
Lecture 27 - PID Controller - I  
Lecture 28 - PID Controller - II  
Lecture 29 - PID Controller - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Implementation of PID controller
- Lecture 31 - Pulse Width Modulator
- Lecture 32 - Controller Design - I
- Lecture 33 - Controller Design - II
- Lecture 34 - Controllers and Sensing Circuit
- Lecture 35 - Regulation of Multiple outputs - I
- Lecture 36 - Regulation of Multiple outputs - II
- Lecture 37 - Current Control
- Lecture 38 - Unity Power Factor Converter
- Lecture 39 - Magnetic Design
- Lecture 40 - DC-DC Converter Design

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Basic Electrical Technology

Subject Co-ordinator - Prof. L. Umanand

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Electrical Technology  
Lecture 2 - Passive Components  
Lecture 3 - Sources  
Lecture 4 - Kirchoff's Law  
Lecture 5 - Modelling of Circuit - Part 1  
Lecture 6 - Modelling of Circuit - Part 2  
Lecture 7 - Analysis Using MatLab  
Lecture 8 - Sinusoidal steady state  
Lecture 9 - Transfer Function and Pole Zero domain  
Lecture 10 - Transfer function & pole zero  
Lecture 11 - The Sinusoid  
Lecture 12 - Phasor Analysis - Part 1  
Lecture 13 - Phasor Analysis - Part 2  
Lecture 14 - Power Factor  
Lecture 15 - Power ports  
Lecture 16 - Transformer Basics - Part 1  
Lecture 17 - Transformer Basics - Part 2  
Lecture 18 - Transformer Basics - Part 3  
Lecture 19 - The Practical Transformer - Part 1  
Lecture 20 - The Practical Transformer - Part 2  
Lecture 21 - The Practical Transformer - Part 3  
Lecture 22 - DC Machines - Part 1  
Lecture 23 - DC Machines - Part 2  
Lecture 24 - DC Generators - Part 1  
Lecture 25 - DC Generators - Part 2  
Lecture 26 - DC Motors - Part 1  
Lecture 27 - DC Motors - Part 2  
Lecture 28 - DC Motors - Part 3  
Lecture 29 - Three Phase System - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Three Phase System - Part 2
- Lecture 31 - Three Phase System - Part 3
- Lecture 32 - Three Phase System - Part 4
- Lecture 33 - Three Phase Transformer - Part 1
- Lecture 34 - Three Phase Transformer - Part 2
- Lecture 35 - Induction Motor - Part 1
- Lecture 36 - Induction Motor - Part 2
- Lecture 37 - Induction Motor - Part 3
- Lecture 38 - Induction Motor - Part 4
- Lecture 39 - Synchronous Machine

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - Industrial Drives - Power Electronics

Subject Co-ordinator - Prof. K. Gopakumar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Electric Drive
- Lecture 2 - Controlled Rectifier - Part-1
- Lecture 3 - Controlled Rectifier - Part-2 (Three phase)
- Lecture 4 - Controlled Rectifier - Part-3 (Three phase)
- Lecture 5 - Controlled Rectifier - Part-4 (Three Phase)
- Lecture 6 - Controlled Rectifier - Part-5 (Three Phase)
- Lecture 7 - Power Electronics Improvements
- Lecture 8 - Four Quadrant Dc to Dc Converter
- Lecture 9 - Sine Triangle PWM Control of Converter
- Lecture 10 - Front-end Ac-Dc Converter with harmonic control
- Lecture 11 - Ac to Dc Converter Close Loop Control Schematic
- Lecture 12 - Ac-Dc Converter Close loop Control Block Diagram
- Lecture 13 - Design of the Converter Controller & AC to DC
- Lecture 14 - Front-End Ac to Dc Converter-Design
- Lecture 15 - Front-End Ac to Dc Converter - Simulation study
- Lecture 16 - Dc Motor Speed Control - Introduction
- Lecture 17 - Dc Motor Speed Control - Block Diagram
- Lecture 18 - Dc Motor Speed Control Current Control & S C L
- Lecture 19 - Dc-Motor Speed Control Controller Design - Part-1
- Lecture 20 - Dc Motor Speed Control Controller Design - Part-2
- Lecture 21 - Dc Motor Speed Control Controller Design - Part-3
- Lecture 22 - Basics of DC to AC Converter - Part-1
- Lecture 23 - Basics of DC to AC Converter - Part-2
- Lecture 24 - Inverter Sine Triangle PWM
- Lecture 25 - Inverter - Current Hysteresis Controlled PWM
- Lecture 26 - C H controlled & Basics of space vector PWM
- Lecture 27 - Space Vector PWM - Part-2
- Lecture 28 - Space Vector PWM - Part-3
- Lecture 29 - Space Vector PWM Signal Generation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Speed Control of Induction Motor - Part-1
- Lecture 31 - Speed Control of Induction Motor - Part-2
- Lecture 32 - High dynamic performance of I M Drive
- Lecture 33 - Dynamic Model of Induction Motor - Part-1
- Lecture 34 - Dynamic Model of Induction Motor - Part-2
- Lecture 35 - Vector Control of Induction Motor
- Lecture 36 - Effect of Switching Time lag in Inverter
- Lecture 37 - Power Switch Protection - Snubbers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Design for Internet of Things

Subject Co-ordinator - Prof. T.V. Prabhakar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to IOTs - Part I
- Lecture 2 - Introduction to IOTs - Part II
- Lecture 3 - Introduction to IOTs - Examples
- Lecture 4 - IOT applications - I
- Lecture 5 - IOT applications - II
- Lecture 6 - Power management in IOT device
- Lecture 7 - Introduction to LDO
- Lecture 8 - Design with an LDO
- Lecture 9 - Introduction to switching regulators
- Lecture 10 - Designing with LDO's, switching regulators and case studies - Part I
- Lecture 11 - Designing with LDO's, switching regulators and case studies - Part II
- Lecture 12 - Designing with LDO's, switching regulators and case studies - Part II
- Lecture 13 - Designing with LDO's, switching regulators and case studies - Part IV
- Lecture 14 - Power Conditioning with Energy Harvesters - I
- Lecture 15 - Power Conditioning with Energy Harvesters - II
- Lecture 16 - Power Conditioning with Energy Harvesters - III
- Lecture 17 - Battery less power supply and battery life calculation for embedded devices - I
- Lecture 18 - Battery less power supply and battery life calculation for embedded devices - II
- Lecture 19 - Battery less power supply and battery life calculation for embedded devices - III
- Lecture 20 - Introduction to MQTT
- Lecture 21 - Quality of Service in MQTT
- Lecture 22 - Standards and Security in MQTT
- Lecture 23 - Introduction and Implementation of AMQP
- Lecture 24 - Implementation of CoAP and MDNS
- Lecture 25 - Basics of RFID
- Lecture 26 - RFID protocol and applications
- Lecture 27 - BLE Security
- Lecture 28 - LPWAN technologies
- Lecture 29 - Choice of Microcontrollers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Case Study 1 - Joule Jotter  
Lecture 31 - Case Study 2 - Cloud Based Systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Advances in UHV Transmission and Distribution

Subject Co-ordinator - Prof Subba Reddy B

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Advantages of HVAC/DC Transmission, Introduction to Grid Management
- Lecture 2 - Transmission system development, Important components of transmission system
- Lecture 3 - Insulation coordination, over voltage in power systems
- Lecture 4 - Design/selection of insulators, Importance of grading/cc rings
- Lecture 5 - Non ceramic insulators performance-service experience
- Lecture 6 - Failure of apparatus in the field, importance of reliability and testing
- Lecture 7 - Pollution flashover phenomena, modeling etc
- Lecture 8 - Planning of High Voltage laboratories
- Lecture 9 - Importance of High Voltage testing and techniques employed
- Lecture 10 - Basic philosophy of HV testing, tests for various HV apparatus
- Lecture 11 - HV testing techniques for various apparatus
- Lecture 12 - HV testing on Composite Insulators
- Lecture 13 - Surface degradation studies on composite insulators
- Lecture 14 - Surface morphological techniques for composite insulators
- Lecture 15 - Conductors used for EHV/UHV transmission
- Lecture 16 - Corona and interference on transmission lines
- Lecture 17 - Introduction of HTLS conductors and their advantages
- Lecture 18 - Mechanical considerations for HV conductors
- Lecture 19 - Introduction to Towers and importance of foundations
- Lecture 20 - Selection/Design of clearances for HV towers
- Lecture 21 - Design Optimization for UHV towers
- Lecture 22 - Introduction to 1100kV HVDC
- Lecture 23 - Introduction to HV Substations
- Lecture 24 - Types of Substations, comparison
- Lecture 25 - Insulation coordination, Components in a typical substation
- Lecture 26 - Preventive maintenance of Substation
- Lecture 27 - Electric and magnetic fields, mitigations techniques
- Lecture 28 - Importance of Grounding, reducing Earthing resistance
- Lecture 29 - Introduction to the use of Fiber optic cables, OPGW

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to communication and SCADA
- Lecture 31 - Precautions and safety measures in substation
- Lecture 32 - Electrical hazards, minimum clearances in substation
- Lecture 33 - Importance of Generation of HVDC in the laboratory
- Lecture 34 - Importance of Generation of HVAC, Impulse Voltage and Currents in the laboratory
- Lecture 35 - Measurements of High Voltages
- Lecture 36 - Measurements of High Voltages (Continued...)
- Lecture 37 - Introduction to digital recorders, measurement
- Lecture 38 - Upgradation/uprating of transmission lines- advantages
- Lecture 39 - Upgradation/uprating of transmission lines- advantages (Continued...)
- Lecture 40 - Summary of the course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Mathematical Methods and Techniques in Signal Processing

Subject Co-ordinator - Prof. Shayan Srinivasa Garani

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to signal processing
- Lecture 2 - Basics of signals and systems
- Lecture 3 - Linear time-invariant systems
- Lecture 4 - Modes in a linear system
- Lecture 5 - Introduction to state space representation
- Lecture 6 - State space representation
- Lecture 7 - Non-uniqueness of state space representation
- Lecture 8 - Introduction to vector space
- Lecture 9 - Linear independence and spanning set
- Lecture 10 - Unique representation theorem
- Lecture 11 - Basis and cardinality of basis
- Lecture 12 - Norms and inner product spaces
- Lecture 13 - Inner products and induced norm
- Lecture 14 - Cauchy Schwartz inequality
- Lecture 15 - Orthonormality
- Lecture 16 - Problem on sum of subspaces
- Lecture 17 - Linear independence of orthogonal vectors
- Lecture 18 - Hilbert space and linear transformation
- Lecture 19 - Gram Schmidt orthonormalization
- Lecture 20 - Linear approximation of signal space
- Lecture 21 - Gram Schmidt orthogonalization of signals
- Lecture 22 - Problem on orthogonal complement
- Lecture 23 - Problem on signal geometry (4-QAM)
- Lecture 24 - Basics of probability and random variables
- Lecture 25 - Mean and variance of a random variable
- Lecture 26 - Introduction to random process
- Lecture 27 - Statistical specification of random processes
- Lecture 28 - Stationarity of random processes
- Lecture 29 - Problem on mean and variance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problem on MAP Detection
- Lecture 31 - Fourier transform of dirac comb sequence
- Lecture 32 - Sampling theorem
- Lecture 33 - Basics of multirate systems
- Lecture 34 - Frequency representation of expanders and decimators
- Lecture 35 - Decimation and interpolation filters
- Lecture 36 - Fractional sampling rate alterations
- Lecture 37 - Digital filter banks
- Lecture 38 - DFT as filter bank
- Lecture 39 - Noble Identities
- Lecture 40 - Polyphase representation
- Lecture 41 - Efficient architectures for interpolation and decimation filters
- Lecture 42 - Problems on simplifying multirate systems using noble identities
- Lecture 43 - Problem on designing synthesis bank filters
- Lecture 44 - Efficient architecture for fractional decimator
- Lecture 45 - Multistage filter design
- Lecture 46 - Two-channel filter banks
- Lecture 47 - Amplitude and phase distortion in signals
- Lecture 48 - Polyphase representation of 2-channel filter banks, signal flow graphs and perfect reconstruction
- Lecture 49 - M-channel filter banks
- Lecture 50 - Polyphase representation of M-channel filter bank
- Lecture 51 - Perfect reconstruction of signals
- Lecture 52 - Nyquist and half band filters
- Lecture 53 - Special filter banks for perfect reconstruction
- Lecture 54 - Introduction to wavelets
- Lecture 55 - Multiresolution analysis and properties
- Lecture 56 - The Haar wavelet
- Lecture 57 - Structure of subspaces in MRA
- Lecture 58 - Haar decomposition - 1
- Lecture 59 - Haar decomposition - 2
- Lecture 60 - Wavelet Reconstruction
- Lecture 61 - Haar wavelet and link to filter banks
- Lecture 62 - Demo on wavelet decomposition
- Lecture 63 - Problem on circular convolution
- Lecture 64 - Time frequency localization
- Lecture 65 - Basic analysis
- Lecture 66 - Basic Analysis
- Lecture 67 - Fourier series and notions of convergence
- Lecture 68 - Convergence of Fourier series at a point of continuity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Convergence of Fourier series for piecewise differentiable periodic functions
- Lecture 70 - Uniform convergence of Fourier series of piecewise smooth periodic function
- Lecture 71 - Convergence in norm of Fourier series
- Lecture 72 - Convergence of Fourier series for all square integrable periodic functions
- Lecture 73 - Problem on limits of integration of periodic functions
- Lecture 74 - Matrix Calculus
- Lecture 75 - KL transform
- Lecture 76 - Applications of KL transform
- Lecture 77 - Demo on KL Transform
- Lecture 78 - Live Session
- Lecture 79 - Live Session 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electronics Enclosures Thermal Issues

Subject Co-ordinator - Prof. N. V Chalapathi Rao

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Electronic Equipment Thermal issues

Lecture 2 - Practical Examples - 1

Lecture 3 - Practical Examples - 2

Lecture 4 - CEDT worked examples - 1

Lecture 5 - CEDT worked examples - 2

Lecture 6 - Text book theory

Lecture 7 - Sample heat sinks

Lecture 8 - Published correlations - 1

Lecture 9 - Published correlations - 2

Lecture 10 - Parallel combined effects

Lecture 11 - Mounting of packages

Lecture 12 - Combined Rth of devices

Lecture 13 - Schonholzer moduls

Lecture 14 - 1972 model paper

Lecture 15 - Jensen model

Lecture 16 - Thermal management - 1

Lecture 17 - Thermal management - 2

Lecture 18 - Round up of full model

Lecture 19 - Fan cooling

Lecture 20 - Thermo-electric cooling

Lecture 21 - On-the-net DIY work

Lecture 22 - Practical video

Lecture 23 - Lecture 23

Lecture 24 - Lecture 24

Lecture 25 - Lecture 25

Lecture 26 - Lecture 26

Lecture 27 - Real packages

Lecture 28 - Prior art

Lecture 29 - OTS standard profiles

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - CAD detailed design of profiles
- Lecture 31 - Round up
- Lecture 32 - 4X Peltier Cooler
- Lecture 33 - Manufacturing Video
- Lecture 34 - Peltier heat sink

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC: Integrated Circuits, MOSFETs, Op-Amps and their Application

Subject Co-ordinator - Prof. Hardik Jeetendra Pandya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Integrated Circuits (IC) Technology
- Lecture 2 - Introduction to fabrication of IC
- Lecture 3 - Introduction to IC fabrication
- Lecture 4 - Introduction to IC fabrication (Continued...)
- Lecture 5 - Introduction to the fabrication of sensors
- Lecture 6 - Introduction to fabrication technology
- Lecture 7 - Introduction to fabrication technology (Continued...)
- Lecture 8 - Introduction to fabrication technology (Continued...)
- Lecture 9 - Introduction to fabrication technology (Continued...)
- Lecture 10 - Introduction to fabrication technology (Continued...)
- Lecture 11 - Process flow for Fabrication of MOSFETs
- Lecture 12 - Operation of Enhancement type MOSFET
- Lecture 13 - Operation of Depletion type MOSFET
- Lecture 14 - MOSFETs Characteristics and Applications (Current Mirrors)
- Lecture 15 - Introduction to Operational Amplifiers
- Lecture 16 - Operational Amplifier Characteristics
- Lecture 17 - Operational Amplifier Characteristics (Continued...)
- Lecture 18 - Characteristics of an op-amp (Continued...)
- Lecture 19 - Operational Amplifier Configurations
- Lecture 20 - Operational Amplifier Configurations (Continued...)
- Lecture 21 - Applications of Operational Amplifier
- Lecture 22 - Applications of Operational Amplifier
- Lecture 23 - Applications of Operational Amplifier
- Lecture 24 - Introduction to Passive and Active Filters and op-amp as Low Pass Filter
- Lecture 25 - Operational Amplifier as a High Pass Filter
- Lecture 26 - Operational Amplifier as a Band Pass and Band Reject Filter
- Lecture 27 - Introduction to Oscillator
- Lecture 28 - RC Phase Shift Oscillator using Op-amp
- Lecture 29 - Wein Bridge Oscillator using Op-amp

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hartley and Colpitts Oscillator using Op-amp
- Lecture 31 - Working of Crystal Oscillators
- Lecture 32 - Construction and Operation of UJT Relaxation Oscillators
- Lecture 33 - Introduction to Noise and its Types
- Lecture 34 - Analysis of Data Sheets of an Op-Amp
- Lecture 35 - Analysis of Data Sheets of an Op-Amp (Continued...)
- Lecture 36 - Analysis of Data Sheets of an Op-Amp (Continued...)
- Lecture 37 - Experiment - Introduction to Laboratory Equipment
- Lecture 38 - Experiment - Measurement of Active and Passive elements using Multimeter
- Lecture 39 - Experiment - Working with Laboratory Equipment
- Lecture 40 - Experiment - Working with Laboratory Equipment
- Lecture 41 - Experiment - Op-Amp Characteristics
- Lecture 42 - Experiment - Op-Amp Characteristics
- Lecture 43 - Experiment - Op-Amp Characteristics
- Lecture 44 - Experiment - Op-Amp as Inverting Amplifier
- Lecture 45 - Experiment - Op-Amp as Non-Inverting Amplifier
- Lecture 46 - Experiment - To study input and output voltage range of an Op-Amp
- Lecture 47 - Experiment - Differential amplifier using op-amp
- Lecture 48 - Experiment - To study the gain of instrumentation amplifier
- Lecture 49 - Experiment - Summing amplifier using op-amp
- Lecture 50 - Experiment - To study op-amp based comparator
- Lecture 51 - Experiment - To study op-amp based integrator and differentiator
- Lecture 52 - Experiment - Study of passive low pass filter
- Lecture 53 - Experiment - Op-amp based active low pass filter
- Lecture 54 - Experiment - Passive and active high pass filter
- Lecture 55 - Experiment - Introduction to experimental set-up of band pass filter
- Lecture 56 - Experiment - Passive and active band pass filter
- Lecture 57 - Experiment - Introduction to experimental set-up for band reject filter
- Lecture 58 - Experiment - Active band reject filter
- Lecture 59 - Experiment - Peak detector circuit using Op-Amp

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Semiconductor Devices and Circuits

Subject Co-ordinator - Prof. Sanjiv Sambandan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Quantum Mechanics
- Lecture 2 - Quantum Mechanics
- Lecture 3 - Quantum Mechanics
- Lecture 4 - Solids
- Lecture 5 - Solids
- Lecture 6 - Solids
- Lecture 7 - Solids
- Lecture 8 - Solids
- Lecture 9 - Density of States
- Lecture 10 - Density of States (Continued...), Fermi Function
- Lecture 11 - Fermi Function - Carrier Concentration
- Lecture 12 - Doping
- Lecture 13 - Doping (Continued...)
- Lecture 14 - Recombination and Generation
- Lecture 15 - Recombination and Generation (Continued...)
- Lecture 16 - Recombination and Generation (Continued...), Charge Transport
- Lecture 17 - Charge Transport (Continued...)
- Lecture 18 - Continuity Equation
- Lecture 19 - Junctions
- Lecture 20 - Metal Semiconductor Junctions
- Lecture 21 - Schottky Contact
- Lecture 22 - Schottky Contact
- Lecture 23 - Schottky Contact
- Lecture 24 - Schottky Contact
- Lecture 25 - PN Junctions
- Lecture 26 - PN Junctions
- Lecture 27 - PN Junctions
- Lecture 28 - PN Junctions
- Lecture 29 - Bipolar Junction Transistors (BJT)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - BJT
- Lecture 31 - BJT
- Lecture 32 - Metal Oxide Semiconductor Capacitor (MOSCAP)
- Lecture 33 - MOSCAP (Continued...)
- Lecture 34 - MOSCAP
- Lecture 35 - MOSCAP
- Lecture 36 - MOSFET
- Lecture 37 - MOSFET
- Lecture 38 - MOSFET
- Lecture 39 - MOSFET
- Lecture 40 - Subthreshold swing, Additional concepts
- Lecture 41 - Trapped charge, Body-bias
- Lecture 42 - Scaling of MOSFETs
- Lecture 43 - Scaling of MOSFETs (Continued...), Leakage currents in MOSFETs
- Lecture 44 - MOSFET characterization
- Lecture 45 - MOSFET characterization
- Lecture 46 - MOSFET as a switch
- Lecture 47 - MOSFET as a switch (Continued...)
- Lecture 48 - Amplifiers using MOSFET
- Lecture 49 - Amplifiers using MOSFET (Continued...)
- Lecture 50 - Circuits
- Lecture 51 - Introduction
- Lecture 52 - Thin Film Transistors
- Lecture 53 - Tutorials Session - 1
- Lecture 54 - Tutorials Session - 2
- Lecture 55 - Tutorials Session - 3



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fabrication Techniques for MEMs-based Sensors: Clinical Per

Subject Co-ordinator - Prof. Hardik Jeetendra Pandya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Microengineering Devices
- Lecture 2 - Introduction to Microengineering Devices (Continued...)
- Lecture 3 - Introduction to Microengineering Devices (Continued...)
- Lecture 4 - Silicon, silicon di-oxide and photolithography
- Lecture 5 - Silicon, silicon di-oxide and photolithography (Continued...)
- Lecture 6 - Physical Vapour Deposition
- Lecture 7 - Physical Vapour Deposition (Continued...)
- Lecture 8 - Photolithography
- Lecture 9 - Mask Aligner
- Lecture 10 - Mask Aligner (Continued...)
- Lecture 11 - Micromachining
- Lecture 12 - Micromachining
- Lecture 13 - Micromachining
- Lecture 14 - Micromachining
- Lecture 15 - Chemical Vapour Deposition
- Lecture 16 - Typical Microfabricated Devices for Biomedical Applications
- Lecture 17 - Cancer Diagnostic Tool
- Lecture 18 - Process flow for Fabrication of Micro Heater
- Lecture 19 - Process flow for Fabrication of Interdigitated Electrodes
- Lecture 20 - Process flow for Fabrication of Interdigitated Electrodes (Continued...)
- Lecture 21 - Process flow for Fabrication of ETM phenotyping
- Lecture 22 - Process flow for Fabrication of Piezo canteliver
- Lecture 23
- Lecture 24
- Lecture 25
- Lecture 26
- Lecture 27 - Microchip for Rapid Drug Screening
- Lecture 28 - Microchip for Rapid Drug Screening (Continued...)
- Lecture 29 - A Microfluidic chip for rapid bacterial antibiotic Susceptibility testing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Smart Catheter
- Lecture 31 - Smart Catheter
- Lecture 32 - Smart Catheter
- Lecture 33 - Tissue and Cell Culture Techniques
- Lecture 34 - Clean Room
- Lecture 35 - GLP
- Lecture 36 - Introduction to Equipments
- Lecture 37 - Gowning Procedure for using Biological Lab Setup
- Lecture 38 - Introduction to Equipments
- Lecture 39 - Introduction to Equipments
- Lecture 40 - Introduction to Equipments
- Lecture 41 - Function generator, Multimeter, Sampling, LabVIEW, NI-CDAQ
- Lecture 42 - Introduction to Equipments
- Lecture 43 - Introduction to Equipments
- Lecture 44 - Introduction to Equipments
- Lecture 45 - Introduction to Equipments
- Lecture 46 - Introduction to Equipments
- Lecture 47 - Introduction to Equipments
- Lecture 48 - Introduction to Equipments
- Lecture 49 - Introduction to Equipments
- Lecture 50 - Introduction to Equipments
- Lecture 51 - PDMS Moulding
- Lecture 52 - 3D Printing
- Lecture 53 - Introduction to Fabricated Sensors
- Lecture 54 - Simulation
- Lecture 55 - Simulation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Op-Amp Practical Applications: Design, Simulation and Implementation

Subject Co-ordinator - Prof. Hardik Jeetendra Pandya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction/Summary on Op-amps
- Lecture 2 - Introduction/Summary on Op-amps (Continued...)
- Lecture 3 - Introduction/Summary on Op-amps (Continued...)
- Lecture 4 - Effect of Loading and Input Impedance - Part 1
- Lecture 5 - Effect of Loading and Input Impedance - Part 2
- Lecture 6 - Effect of Loading and Input Impedance - Part 3
- Lecture 7 - Effect of Loading and Input Impedance - Part 4
- Lecture 8 - Introduction to an Analog Circuit Development Board (TI ASLK Pro)
- Lecture 9 - Op-amp Applications
- Lecture 10 - Op-amp Applications
- Lecture 11 - Op-amp Applications
- Lecture 12 - Op-amp Circuits using Diodes
- Lecture 13 - Understanding the Range of Feedback Amplifiers
- Lecture 14 - Op-amps as Phase Shift Oscillator
- Lecture 15 - Op-amp as Wein Bridge Oscillator
- Lecture 16 - Op-amp as Hartley Oscillator
- Lecture 17 - Op-amp as Colpitts Oscillator
- Lecture 18 - Op-amps as Comparator
- Lecture 19 - Op-amp with Positive Feedback
- Lecture 20 - Op-amp with Positive Feedback
- Lecture 21 - Op-amp with Positive Feedback
- Lecture 22 - Op-amp with Positive Feedback
- Lecture 23 - Op-amp based Voltage Controlled Current Source
- Lecture 24 - Measure of Unknown Resistance by Constant Current Drive Circuit Implemented using Op-amp
- Lecture 25 - Design and Development of Temperature Controlled Circuit using Op-amp as ON-OFF, Proportional and Integral Controller
- Lecture 26 - Implementation of Error Detector Circuit and Signal Conditioning Circuit for Temperature Control
- Lecture 27 - Implementation of Plant/Heating Circuit and ON-OFF Controller
- Lecture 28 - Implementation of P and PI Controllers
- Lecture 29 - Experiment on Controlling the Temperature on the Plant using different Controllers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Experiment
- Lecture 31 - Introduction to ECG Experiment
- Lecture 32 - Design and Implementation of ECG Preprocessing Stage - Part 1
- Lecture 33 - Design and Implementation of ECG Preprocessing Stage - Part 2
- Lecture 34 - Design and Implementation of ECG Preprocessing Stage - Part 3
- Lecture 35 - Design and Implementation of ECG Preprocessing Stage - Part 4
- Lecture 36 - Design and Implementation of Peak Detector and Thresholding Circuit for ECG Signal Conditioning
- Lecture 37 - Live Demonstration on ECG Signal Acquisition, Conditioning and Measurement of BPM
- Lecture 38 - Understanding Analog Multipliers using Development Board
- Lecture 39 - Application
- Lecture 40 - Introduction to Data-Acquisition
- Lecture 41 - Analog to Digital Conversion Circuits and Experiment on 2-bit Flash Type ADC
- Lecture 42 - Digital to Analog Conversion Circuits and Experiment on 4-bit R-2R DAC
- Lecture 43 - DAC Basics using Development Board - Introduction
- Lecture 44 - Understanding DAC 7821 Datasheet
- Lecture 45 - Basic DAC Experiment on Variable Gain Amplifier
- Lecture 46 - Understanding DAC
- Lecture 47 - Introduction to CDAQ (Compact DAQ)
- Lecture 48 - Software-in-Loop based Temperature Controller using CDAQ and LabVIEW

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Physical Modelling for Electronics Enclosures using Rapid p

Subject Co-ordinator - Prof. N. V Chalapathi Rao

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Products prototyping
- Lecture 2 - Prototype concepts
- Lecture 3 - Physical simulation
- Lecture 4 - Rapid Prototyping
- Lecture 5 - Products detailing
- Lecture 6 - Advantages of Design Modelling
- Lecture 7 - Sample product concept
- Lecture 8 - Product sample exercise 1
- Lecture 9 - Exercise in product sample 2
- Lecture 10 - Integration of components 1
- Lecture 11 - Components integration in models
- Lecture 12 - 3D printing detail 1
- Lecture 13 - 3D printing detail 2
- Lecture 14 - 3D print assembly design
- Lecture 15 - Heat spreader to 3D print
- Lecture 16 - Metallic, 3D, build up 1
- Lecture 17 - 3D build up 2
- Lecture 18 - 3D design 1 from Photo snap
- Lecture 19 - 3D design 2 from Photo snap
- Lecture 20 - 3D Laser cuts 1, prints
- Lecture 21 - 3D Laser cuts 2, open source public prints
- Lecture 22 - Demo of 3D Part print
- Lecture 23 - Building a model 1
- Lecture 24 - Building a model 2
- Lecture 25 - Common place objects
- Lecture 26 - Materials
- Lecture 27 - Future 3D In biology
- Lecture 28 - Product clamp variants
- Lecture 29 - Product clamp build up

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multi direction features
- Lecture 31 - Multi direction features (Continued...)
- Lecture 32 - Fastening detail
- Lecture 33 - Flat objects
- Lecture 34 - Modularity
- Lecture 35 - Creative design work
- Lecture 36 - Creative designs
- Lecture 37 - Using flat features
- Lecture 38 - Organic shapes
- Lecture 39 - Simulation for alternate use

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Recent Advances in Transmission Insulators

Subject Co-ordinator - Prof Subba Reddy B

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Transmission and distribution Insulators
- Lecture 2 - Manufacturing process for Ceramic/glass Insulators
- Lecture 3 - Manufacturing process for Polymeric Insulators
- Lecture 4 - Design Considerations of Transmission Insulators
- Lecture 5 - Field experience of Ceramic/Glass and Polymeric Insulators
- Lecture 6 - Comparison of Transmission Insulators
- Lecture 7 - Environmental issues with transmission Insulators
- Lecture 8 - Reliability and Philosophy of Testing
- Lecture 9 - Testing of Ceramic, Glass and Composite Insulators
- Lecture 10 - Cleaning methods adopted for Insulators
- Lecture 11 - Cleaning methods adopted for Insulators (Continued...)
- Lecture 12 - Coating techniques for Insulators
- Lecture 13 - Introduction to Hybrid Insulators

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Semiconductor Devices

Subject Co-ordinator - Prof. Digbijoy N. Nath

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to semiconductors
- Lecture 2 - Introduction to energy bands
- Lecture 3 - Fundamentals of band structure
- Lecture 4 - Band structure (Continued...) and Fermi-Dirac distribution
- Lecture 5 - Density of states
- Lecture 6 - Doping and intrinsic carrier concentration
- Lecture 7 - Equilibrium carrier concentration
- Lecture 8 - Temperature-dependence of carrier concentration
- Lecture 9 - High doping effects and incomplete ionization
- Lecture 10 - Carrier scattering and mobility
- Lecture 11 - Low-field and high-field transport, introduction to diffusion
- Lecture 12 - Drift-diffusion and trap statistics
- Lecture 13 - Current continuity equation
- Lecture 14 - Continuity equation (Continued...) and introduction to p-n junction
- Lecture 15 - p-n junction under equilibrium
- Lecture 16 - p-n junction under equilibrium (Continued...)
- Lecture 17 - p-n junction under bias
- Lecture 18 - p-n junction under bias (Continued...)
- Lecture 19 - p-n junction
- Lecture 20 - Application of p-n junctions
- Lecture 21 - Breakdown of junction and C-V profiling
- Lecture 22 - Introduction to Schottky junction
- Lecture 23 - Schottky junction under equilibrium
- Lecture 24 - Schottky junction under bias
- Lecture 25 - Introduction to transistors
- Lecture 26 - Basics of BJT
- Lecture 27 - Working of BJT
- Lecture 28 - Working of BJT (Continued...)
- Lecture 29 - Delays in BJT

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - MOS
- Lecture 31 - MOS
- Lecture 32 - Ideal MOS system
- Lecture 33 - MOS C-V in more details
- Lecture 34 - MOSFET - An introduction
- Lecture 35 - Gradual Channel Approximation
- Lecture 36 - Substrate bias effect and subthreshold conduction in MOSFET
- Lecture 37 - Short Channel Effects in MOSFET
- Lecture 38 - Introduction to compound semiconductors
- Lecture 39 - Basics of heterojunctions
- Lecture 40 - Band diagram of heterojunctions
- Lecture 41 - Heterojunctions (Continued....)
- Lecture 42 - Heterojunction transistors
- Lecture 43 - III-nitrides
- Lecture 44 - Solar cell basics
- Lecture 45 - Solar cell (Continued...)
- Lecture 46 - Solar cell
- Lecture 47 - Basics of photodetectors
- Lecture 48 - Photodetectors
- Lecture 49 - Junction photodetectors
- Lecture 50 - Basics of recombination
- Lecture 51 - Basics of LED
- Lecture 52 - LED
- Lecture 53 - Visible LED
- Lecture 54 - Transistors for power electronics
- Lecture 55 - Transistors for power electronics (Continued...) and for RF electronics
- Lecture 56 - Transistors for RF (Continued...) and transistors for Memory
- Lecture 57 - Basics of microelectronic fabrication
- Lecture 58 - Microelectronic fabrication (Continued...)
- Lecture 59 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Advanced IOT Applications

Subject Co-ordinator - Prof. T V Prabhakar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of localization using IoT sensors
- Lecture 2 - Outdoor localization without GPS - I
- Lecture 3 - Outdoor localization without GPS - II
- Lecture 4 - Outdoor localization using elevation - pressure mapping
- Lecture 5 - Localization using IMU sensors - I
- Lecture 6 - Localization using IMU sensors - II
- Lecture 7 - Localization using IMU sensors - III
- Lecture 8 - RFID based localization - I
- Lecture 9 - RFID based localization - II
- Lecture 10 - Simulation of simple algorithms for object detection
- Lecture 11 - Building smart vehicle for collision avoidance
- Lecture 12 - Basic computer vision algorithms - Part 1
- Lecture 13 - Basic computer vision algorithms - Part 2
- Lecture 14 - Code walkthrough of computer vision algorithm
- Lecture 15 - Introduction to LiDAR
- Lecture 16 - Range estimation and Obstacle avoidance
- Lecture 17 - Introduction to vehicle platooning
- Lecture 18 - Building blocks for autonomous vehicles - 1
- Lecture 19 - Building blocks for autonomous vehicles - 2
- Lecture 20 - On Board Diagnostics and protocols
- Lecture 21 - Diagnostic services and fuel-injection ratio control unit
- Lecture 22 - Real time event processing and Anomaly detection
- Lecture 23 - OBD-II and stream processing demonstration
- Lecture 24 - Speech recognition - Part 1
- Lecture 25 - Speech recognition - Part 2
- Lecture 26 - Speech recognition - Part 3
- Lecture 27 - Speech recognition - Part 4
- Lecture 28 - Device Security - Part 1
- Lecture 29 - Device Security - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Device Security - Part 3
- Lecture 31 - Need for air quality monitoring
- Lecture 32 - Air quality
- Lecture 33 - Introduction to air quality sensors
- Lecture 34 - Calibration techniques for IoT air quality sensors
- Lecture 35 - Sensor types
- Lecture 36 - Air quality
- Lecture 37 - Air quality
- Lecture 38 - Air quality
- Lecture 39 - Air quality
- Lecture 40 - Introduction to First Responder networks
- Lecture 41 - First Responders - Applications - Part 1
- Lecture 42 - First Responders - Applications - Part 2
- Lecture 43 - Cargo monitoring for tamper detection - Part 1
- Lecture 44 - Cargo monitoring for tamper detection - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electronic Systems for Cancer Diagnosis

Subject Co-ordinator - Prof. Hardik Jeetendra Pandya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Tissue and Cell Culture Techniques

Lecture 2 - Tissue and Cell Culture Techniques

Lecture 3 - Tissue and Cell Culture Techniques

Lecture 4 - Cleanroom Equipments

Lecture 5 - Cleanroom Equipments (Continued...)

Lecture 6 - Introduction to photolithography

Lecture 7 - Photolithography

Lecture 8 - Photolithography

Lecture 9 - Micromachining Techniques

Lecture 10 - Breast Cancer and Oral Cancer Statistics

Lecture 11 - Fabrication of MEMs-based Biochip for cancer diagnosis

Lecture 12 - Fabrication of MEMs-based Biochip for cancer diagnosis (Continued...)

Lecture 13 - Fabrication of Piezoresistive Sensor

Lecture 14 - Fabrication of Piezoresistive Sensor (Continued...)

Lecture 15 - Fabrication of SU-8 pillar on piezoresistive Sensor

Lecture 16 - Portable Cancer Diagnostic Tool Using a Disposable MEMS-Based Biochip

Lecture 17 - Mechanical Phenotyping of Breast Cancer using MEMS

Lecture 18 - Electrical characterization of Breast Tissue Cores

Lecture 19 - Fabrication of MEMS-based sensor for electro-mechanical phenotyping of breast cancer

Lecture 20 - Fabrication of electro-mechanical sensor (Continued...)

Lecture 21 - Assembly of the electro-mechanical sensor

Lecture 22 - Silicon substrate devices for breast cancer diagnosis

Lecture 23 - Understanding the methods and mechanism to study cell morphology

Lecture 24 - Cytology - A detail study on Spin Coater and Cytospin

Lecture 25 - Techniques in oral cytology studies

Lecture 26 - Techniques in cell morphology analysis

Lecture 27 - Comparative study on diagnostic tools for oral cancer screening

Lecture 28 - Basic building blocks of Electronics System

Lecture 29 - Basic building blocks of Electronics System

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Basic building blocks of Electronics System
- Lecture 31 - Basic building blocks of Electronics System
- Lecture 32 - Basic building blocks of Electronics System
- Lecture 33 - Basic building blocks of Electronics System
- Lecture 34 - Basic building blocks of Electronics System
- Lecture 35 - Basic building blocks of Electronics System
- Lecture 36 - Basic building blocks of Electronics System
- Lecture 37 - Etching Process and Figure of Merits
- Lecture 38 - ECG Signal Processing to calculate BPM
- Lecture 39 - ECG Signal Processing to calculate BPM (Continued...)
- Lecture 40 - ECG Signal Processing to calculate BPM (Continued...)
- Lecture 41 - ECG Signal Processing to calculate BPM (Continued...)
- Lecture 42 - ECG Signal Processing to calculate BPM (Continued...)
- Lecture 43 - ECG Signal Processing to calculate BPM [Continued...)
- Lecture 44 - MEMS based Force Sensor for Catheter Contact Force Measurement
- Lecture 45 - 3D Printing
- Lecture 46 - 3D Fabrication Techniques
- Lecture 47 - Gowning Procedure in Clean Room
- Lecture 48 - Introduction to Equipments
- Lecture 49 - PDMS Moulding procedure
- Lecture 50 - Introduction to Equipments
- Lecture 51 - Introduction to Equipments
- Lecture 52 - Micromanipulator
- Lecture 53 - Biosafety Cabinet and Ultrasonicbath
- Lecture 54 - Incubator Shaker
- Lecture 55 - Hotplate and Microcentrifuge
- Lecture 56 - Autoclave
- Lecture 57 - Impedance Analyser
- Lecture 58 - Rapid Prototyping using 3D Printer
- Lecture 59 - Etching Process
- Lecture 60 - Electronic System for Drug Screening
- Lecture 61 - Introduction to Equipments
- Lecture 62 - Introduction to Equipments
- Lecture 63 - Electronic Module for Gas sensor
- Lecture 64 - Fabrication process flow for a metal oxide gas sensor
- Lecture 65 - MEMS Simulation using Comsol Multiphysics
- Lecture 66 - Introduction to COMSOL Multiphysics
- Lecture 67 - COMSOL Examples for MEMS Applications
- Lecture 68 - COMSOL Examples for MEMS Applications (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Demonstration of Thermal Actuator and Understanding of Application Builder
- Lecture 70 - Closed loop control of temperature sensor
- Lecture 71 - Experimental Set-up of closed loop control of temperature sensor

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electronic Modules for Industrial Applications using Op-Amp

Subject Co-ordinator - Prof. Hardik Jeetendra Pandya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Op-amp

Lecture 2 - Introduction Wafer Manufacturing Process and Clean room Protocols

Lecture 3 - Introduction to Fabrication Process Technology and Op-amp

Lecture 4 - Op-amp Characteristics and Datasheet Parameters

Lecture 5 - Overview of Active Filters and Oscillators

Lecture 6 - Overview of Op-amp Oscillators

Lecture 7 - Introduction to ECG Experiment

Lecture 8 - Design and Implementation of ECG Preprocessing Stage - Part 1

Lecture 9 - Design and Implementation of ECG Preprocessing Stage - Part 2

Lecture 10 - Design and Implementation of ECG Preprocessing Stage - Part 3

Lecture 11 - Design and Implementation of ECG Preprocessing Stage - Part 4

Lecture 12 - Design and Implementation of Peak Detector and Thresholding Circuit for ECG Signal Conditioning

Lecture 13 - Experiment

Lecture 14 - Application

Lecture 15 - Photolithography

Lecture 16 - Understanding the process of photolithography

Lecture 17 - Photolithography

Lecture 18 - Photolithography

Lecture 19 - Fabrication of Piezoresistive Sensor

Lecture 20 - Fabrication of MEMS based Catheter Contact Force Sensor

Lecture 21 - Design of Speed Control of DC Motor

Lecture 22 - Design of Speed Control of DC Motor

Lecture 23 - Design of Speed Control of DC Motor

Lecture 24 - Design of Speed Control of DC Motor

Lecture 25 - Design of Speed Control of DC Motor

Lecture 26 - Design of Speed Control of DC Motor

Lecture 27 - Design of Speed Control of DC Motor

Lecture 28 - Design of Speed Control of DC Motor

Lecture 29 - Design of Speed Control of a DC Motor using Op-amp

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design of Speed Control of a DC Motor using Op-amp
- Lecture 31 - Design of Speed Control of a DC Motor using DAQ - Part 1
- Lecture 32 - Design of Speed Control of a DC Motor using DAQ - Part 2
- Lecture 33 - Design of Speed Control of a DC Motor using DAQ - Part 3
- Lecture 34 - Introduction to Hot-Wire Anemometer
- Lecture 35 - Signal-conditioning Circuit for Hot-Wire Anemometer
- Lecture 36 - Signal-conditioning Circuit for Hot-Wire Anemometer Part 2
- Lecture 37 - Signal-conditioning Circuit for Hot-Wire Anemometer
- Lecture 38 - Signal-conditioning Circuit for Hot-Wire Anemometer
- Lecture 39 - Introduction to Gas Sensors
- Lecture 40 - Fabrication Process for Gas Sensor
- Lecture 41 - Signalconditioning Circuit for Operating Heater Voltage of MQ-7 Gas Sensor - Part 1
- Lecture 42 - Signalconditioning Circuit for Operating Heater Voltage of MQ-7 Gas Sensor - Part 2
- Lecture 43 - Signalconditioning Circuit for Operating Heater Voltage of MQ-7 Gas Sensor - Part 3
- Lecture 44 - Fundamentals of Electrophysiological signals
- Lecture 45 - Fundamentals of EEG Signal
- Lecture 46 - Application of EEG Signal for Detection of Hearing Loss
- Lecture 47 - Closed loop control of temperature using DAQ and LabVIEW
- Lecture 48 - Experimental Set-up of closed loop control of temperature sensor
- Lecture 49 - Introduction to MEMS Simulation using Comsol Multiphysics
- Lecture 50 - Introduction to COMSOL Multiphysics
- Lecture 51 - COMSOL Examples for MEMS Applications
- Lecture 52 - COMSOL Examples for MEMS Applications (Continued...)
- Lecture 53 - Demonstration of Thermal Acuator and Understanding of Application Builder



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Sensors and Actuators

Subject Co-ordinator - Prof. Hardik Jeetendra Pandya

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Sensors - Part 1  
Lecture 2 - Sensors - Part 2  
Lecture 3 - Sensors - Part 3  
Lecture 4 - Sensors - Part 4  
Lecture 5 - Sensors - Part 5  
Lecture 6 - Recent Microsensors based system  
Lecture 7 - Recent Microsensors based system  
Lecture 8 - Microfabrication Basics  
Lecture 9 - Introduction to cleanroom  
Lecture 10 - Cleanroom Protocols  
Lecture 11 - Introduction to Cleanroom Equipments  
Lecture 12 - Fabrication Process Flow of Microheater and Micromachining  
Lecture 13 - Wafer Bonding and PDMS moulding  
Lecture 14 - Overview of MEMS based sensors  
Lecture 15 - Introduction to Cleanroom Equipments  
Lecture 16 - Introduction to Cleanroom Equipments  
Lecture 17 - Process Sensor Process Flow, Cell based Diagnosis Device  
Lecture 18 - Basics of Patterning and Drug Screening Device  
Lecture 19 - MEMS applications in automobile system  
Lecture 20 - Arduino Interfacing for Sensors and Actuators  
Lecture 21 - Demonstration of DC Motor as an actuator  
Lecture 22 - Demonstration of peristaltic pump using Arduino  
Lecture 23 - Demonstration of PDMS Patterning  
Lecture 24 - Crystal Orientation and Si-SiO<sub>2</sub> interface  
Lecture 25 - Surface Profilometry and Physical Vapour Deposition Techniques  
Lecture 26 - Introduction to COMSOL Multiphysics and Modelling Examples  
Lecture 27 - Demonstration of Thermal Actuators using COMSOL  
Lecture 28 - Demonstration of MQ3 Gas sensor using Arduino  
Lecture 29 - Photolithography - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Signal Conditioning Circuit for Temperature Sensors
- Lecture 31 - Demonstration of Microheaters in COMSOL Multiphysics
- Lecture 32 - Introduction to Cleanroom facilities for biomedical applications
- Lecture 33 - Physical Deposition Techniques
- Lecture 34 - Demonstration on peristaltic pump in cleanroom
- Lecture 35 - Installation of Oxygen Plasma System
- Lecture 36 - Demonstration of IR Based Sensor using Arduino
- Lecture 37 - Illustration of fabricated Microfluidic Device for biochips with PDMS moulding
- Lecture 38 - Photolithography - Part 2
- Lecture 39 - Photolithography - Part 3
- Lecture 40 - Introduction and Demonstration of Shape Memory Alloy
- Lecture 41 - Applications of Shape Memory Alloy as a light weight actuators
- Lecture 42 - Discussion on Fabricated Sensor with Silicon as Substrate
- Lecture 43 - Discussion and Microscopic Inspection of Fabricated Sensor with Silicon as a Substrate
- Lecture 44 - Tissue Deparaffinization for Biosensors
- Lecture 45 - Clean room guidelines and Cancer Diagnostic tool
- Lecture 46 - Basics of Pressure Sensor and Demonstration using Arduino Microcontroller
- Lecture 47 - Basics of Stepper Motor and Demonstration using Arduino Microcontroller
- Lecture 48 - Microscopic Inspection of Diced wafers and CNT Sensing Layer for fabricated sensor
- Lecture 49 - Process flow for Microcantilever for Mechanical Phenotyping of breast cancer tissues
- Lecture 50 - Applications of microcantilever for Mechanical Phenotyping of breast cancer tissues
- Lecture 51 - Installation and Introduction to Physical Vapour Deposition System
- Lecture 52 - Human Machine Interface for Controlling Deposition System
- Lecture 53 - Flexible MEMS for phenotyping tissue properties - I
- Lecture 54 - Flexible MEMS for phenotyping tissue properties - II
- Lecture 55 - System Demonstration for Physical Vapor Deposition
- Lecture 56 - Introduction to CAD Modelling - I
- Lecture 57 - Introduction to CAD Modelling - II
- Lecture 58 - Biosensors for ETM Phenotyping of breast cancer tissues for better prognosis
- Lecture 59 - Biosensors for Electrothermal sensor
- Lecture 60 - MEMS based sensor for catheter contact force measurement
- Lecture 61 - Microfluidics based Drug Screening
- Lecture 62 - Basic aspects of 3D Printing
- Lecture 63 - 3D Printing Materials and Demonstration of Remote 3D Printing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Neural Networks for Signal Processing-I

Subject Co-ordinator - Prof. Shayan Srinivasa Garani

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The human brain
- Lecture 2 - Introduction to Neural Networks
- Lecture 3 - Models of a neuron
- Lecture 4 - Feedback and network architectures
- Lecture 5 - Knowledge representation
- Lecture 6 - Prior information and invariances
- Lecture 7 - Learning processes
- Lecture 8 - Perceptron - 1
- Lecture 9 - Perceptron - 2
- Lecture 10 - Batch perceptron algorithm
- Lecture 11 - Perceptron and Bayes classifier
- Lecture 12 - Linear regression - 1
- Lecture 13 - Linear regression - 2
- Lecture 14 - Linear regression - 3
- Lecture 15 - Logistic regression
- Lecture 16 - Multi-layer perceptron - 1
- Lecture 17 - Multi-layer perceptron - 2
- Lecture 18 - Back propagation - 1
- Lecture 19 - Back propagation - 2
- Lecture 20 - XOR problem
- Lecture 21 - Universal approximation function
- Lecture 22 - Complexity Regularization and Cross validation
- Lecture 23 - Convolutional Neural Networks (CNN)
- Lecture 24 - Cover's Theorem
- Lecture 25 - Multivariate interpolation problem
- Lecture 26 - Radial basis functions (RBF)
- Lecture 27 - Recursive least squares algorithm
- Lecture 28 - Comparison of RBF with MLP
- Lecture 29 - Kernel regression using RBFs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Kernel Functions
- Lecture 31 - Basics of constrained optimization
- Lecture 32 - Optimization with equality constraint
- Lecture 33 - Optimization with inequality constraint
- Lecture 34 - Support Vector Machines (SVM)
- Lecture 35 - Optimal hyperplane for linearly separable patterns
- Lecture 36 - Quadratic optimization for finding optimal hyperplane
- Lecture 37 - Optimal hyperplane for non-linearly separable patterns
- Lecture 38 - Inner product kernel and Mercer's theorem
- Lecture 39 - Optimal design of an SVM
- Lecture 40 -  $\mu$ -insensitive loss function
- Lecture 41 - XOR problem revisited using SVMs
- Lecture 42 - Hilbert Space
- Lecture 43 - Reproducing Kernel Hilbert Space
- Lecture 44 - Representer Theorem
- Lecture 45 - Generalized applicability of the representer theorem
- Lecture 46 - Regularization Theory
- Lecture 47 - Euler-Lagrange Equation
- Lecture 48 - Regularization Networks
- Lecture 49 - Generalized RBF networks
- Lecture 50 - XOR problem revisited using RBF
- Lecture 51 - Structural Risk Minimization
- Lecture 52 - Bias-Variance Dilemma
- Lecture 53 - Estimation of regularization parameters
- Lecture 54 - Basics of L1 regularization
- Lecture 55 - Grafting
- Lecture 56 - Kernel PCA
- Lecture 57 - Hebbian based maximum eigen filter - 1
- Lecture 58 - Hebbian based maximum eigen filter - 2
- Lecture 59 - Hebbian based maximum eigen filter - 3
- Lecture 60 - VC dimension
- Lecture 61 - Autoencoders
- Lecture 62 - Denoising Autoencoders
- Lecture 63 - Demo - Perceptron
- Lecture 64 - Demo - Motivation for CNN
- Lecture 65 - Back propagation in Convolutional Neural Network
- Lecture 66 - Ethics in AI research and coverage summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Electronics Equipment Integration and Prototype Building

Subject Co-ordinator - Prof. N.V.Chalapathi Rao

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to electronics products
- Lecture 2 - Examples from real life
- Lecture 3 - Common Simulation of flat prismatic parts
- Lecture 4 - Common flat parts enclosures
- Lecture 5 - Real life parts to scale on a graph
- Lecture 6 - Early First steps
- Lecture 7 - Top down, outside to internals
- Lecture 8 - Using a print and fabrication video
- Lecture 9 - Details of displays and keys
- Lecture 10 - Improvement on marking and skill
- Lecture 11 - Mass production in sheet metal
- Lecture 12 - Prototyping of user interfaces for concepts
- Lecture 13 - Stacking of equipment to make a system
- Lecture 14 - Recapitulating a sub system
- Lecture 15 - Off the shelf enclosures and making a user interface
- Lecture 16 - Looking around for concepts and integration
- Lecture 17 - Representation on paper
- Lecture 18 - Example features of surfaces and solids
- Lecture 19 - Simple and curved surfaces
- Lecture 20 - Describing inclined surfaces
- Lecture 21 - Basics of engineering Drawing
- Lecture 22 - Introduction to sizing and fits
- Lecture 23 - Practical mechanical assemblies
- Lecture 24 - Analogous Mechanical - Electronics detailing
- Lecture 25 - Solid modelling
- Lecture 26 - Importance of dimensioning
- Lecture 27 - Ease of editing redesign
- Lecture 28 - Dimensioning of electronics components
- Lecture 29 - 2D flat representation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Electronics to Mechanical interfacing
- Lecture 31 - Complexity of 3D assemblies with wiring
- Lecture 32 - Illustrative simple design
- Lecture 33 - Practical detailing
- Lecture 34 - Rendered on screen
- Lecture 35 - Fastenings and hardware
- Lecture 36 - Fastener representation, detailing
- Lecture 37 - Practical detailing.
- Lecture 38 - Recapitulation, context of course
- Lecture 39 - Low cost is the key

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Design and Simulation of Power Conversion using Open Source

Subject Co-ordinator - Prof. L. Umanand

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Getting started with NgSpice  
Lecture 2 - Refractoring the .cir  
Lecture 3 - Sub-circuits  
Lecture 4 - gschem and netlist generation  
Lecture 5 - Setting up for simulation with Octave  
Lecture 6 - Getting started with equation based simulation  
Lecture 7 - Resuming a simulation in Octave  
Lecture 8 - PV cell model - review  
Lecture 9 - PV cell characteristic - review  
Lecture 10 - PV cell - symbol and subcircuit  
Lecture 11 - Rectifier-capacitor filter - operation review  
Lecture 12 - Rectifier-capacitor filter - NgSpice simulation  
Lecture 13 - Rectifier-capacitor filter with non-idealities  
Lecture 14 - 3 phase Rectifier-capacitor filter  
Lecture 15 - Equation based simulation in Octave  
Lecture 16 - Passive power factor improvement - review  
Lecture 17 - Passive power factor circuit in NgSpice  
Lecture 18 - Buck converter - review  
Lecture 19 - Buck converter - NgSpice  
Lecture 20 - Boost converter - review  
Lecture 21 - Boost converter - NgSpice  
Lecture 22 - Buck-boost converter - review  
Lecture 23 - Buck-boost converter - NgSpice  
Lecture 24 - Equation based simulation of converters  
Lecture 25 - Forward Converter - review  
Lecture 26 - Forward Converter simulation  
Lecture 27 - Understanding Core flux reset  
Lecture 28 - Core flux reset - simulation  
Lecture 29 - Flyback converter - review

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Flyback converter - simulation
- Lecture 31 - Pushpull converter - review
- Lecture 32 - Pushpull converter - simulation
- Lecture 33 - Half bridge converter - review
- Lecture 34 - Half bridge converter - simulation
- Lecture 35 - Full bridge converter - review
- Lecture 36 - Full bridge converter - simulation
- Lecture 37 - Close loop operation
- Lecture 38 - Close loop with feed forward control
- Lecture 39 - NgSpice simulation of close loop control
- Lecture 40 - Battery charging with current control
- Lecture 41 - Slope compensation for current control
- Lecture 42 - NgSpice simulation of battery charging
- Lecture 43 - Single phase PWM for single phase inverter
- Lecture 44 - NgSpice simulation of single phase PWM
- Lecture 45 - 2-axes theory for 3-phase systems
- Lecture 46 - Transformations for 2 and 3 axes systems
- Lecture 47 - Maximum power point tracking - NgSpice
- Lecture 48 - Space vector PWM - digital
- Lecture 49 - Space vector PWM - analog
- Lecture 50 - SVPWM analog - NgSpice simulation
- Lecture 51 - Induction motor model
- Lecture 52 - Induction motor simulation in Octave
- Lecture 53 - V/F control of induction motor - NgSpice



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC: Introductory Neuroscience and Neuro-Instrumentation

Subject Co-ordinator - Prof. Mahesh Jayachandra

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Cellular (Microscopic) Structure of the Central Nervous System (CNS)
- Lecture 2 - Anatomical (Macroscopic) structure of the CNS
- Lecture 3 - Introduction to Cleanroom and IC Fabrication Techniques
- Lecture 4 - Introduction to EEG applications for Hearing Loss
- Lecture 5 - Electrophysiological Recordings
- Lecture 6 - Neocortical Circuits
- Lecture 7 - The resting Membrane Potential
- Lecture 8 - Applications of MEMS Fabrication Technologies
- Lecture 9 - Fundamentals of biopotentials and applications
- Lecture 10 - Fundamentals of EEG and applications
- Lecture 11 - The Action Potential (1)
- Lecture 12 - The Action Potential (2)
- Lecture 13 - Axonology, Neuronal Biophysics (1)
- Lecture 14 - Axonology, Neuronal Biophysics (2)
- Lecture 15 - Experimental Setup for EEG Recording
- Lecture 16 - Introduction to Cleanroom Protocols and Demonstration of Gowning Procedure
- Lecture 17 - Electromagnetic Stimulation of the Brain (1)
- Lecture 18 - Electromagnetic Stimulation of the Brain (2)
- Lecture 19 - Introduction to Event Related Potentials
- Lecture 20 - Introduction to 3D Printing
- Lecture 21 - 3D Printing
- Lecture 22 - Introduction to Event Related Potentials (2)
- Lecture 23 - Different Event Related Potentials (1)
- Lecture 24 - Different Event Related Potentials (2)
- Lecture 25 - Introduction to Silicone Wafer Processing Techniques
- Lecture 26 - Basics of Silicone Dioxide
- Lecture 27 - Inverse Problem, EEG source localization (1)
- Lecture 28 - Inverse Problem, EEG source localization (2)
- Lecture 29 - Introduction to Brain Computer Interfaces

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Signal Conditioning Circuit for EEG Bioamplifiers
- Lecture 31 - Basics of BCI Experimentation
- Lecture 32 - Different Brain Computer Interfaces
- Lecture 33 - Introduction to EEGLAB, ERPLAB and AEP Demonstration (1)
- Lecture 34 - Introduction to EEGLAB, ERPLAB and AEP Demonstration (2)
- Lecture 35 - Introduction to Photolithography
- Lecture 36 - Basics of BCI Experimentation
- Lecture 37 - MMN Demonstration with EEGLAB and ERPLAB (1)
- Lecture 38 - MMN Demonstration with EEGLAB and ERPLAB (2)
- Lecture 39 - Introduction to Photolithography (2)
- Lecture 40 - Basics of Instrumentation Amplifier and Online Simulation
- Lecture 41 - Basics of BCI Experimentation
- Lecture 42 - P300 Demonstration with EEGLAB/ERPLAB (1)
- Lecture 43 - P300 Demonstration with EEGLAB/ERPLAB (2)
- Lecture 44 - Wavelet Analysis with VEP (1)
- Lecture 45 - Details of Lithography, E-beam Lithography and Mask Aligner
- Lecture 46 - Basics of BCI Experimentation
- Lecture 47 - Wavelet Analysis with VEP (2)
- Lecture 48 - Demonstration
- Lecture 49 - Demonstration
- Lecture 50 - Photoresist (SU-8) and soft lithography
- Lecture 51 - Physical Vapour Deposition
- Lecture 52 - Introduction to Epilepsy and Classification
- Lecture 53 - Epileptogenesis
- Lecture 54 - Demonstration
- Lecture 55 - Demonstration
- Lecture 56 - Demonstration
- Lecture 57 - Demonstration
- Lecture 58 - Physical Vapour Deposition
- Lecture 59 - Physical Vapour Deposition
- Lecture 60 - Recent Trends
- Lecture 61 - Demonstration
- Lecture 62 - Basics of EEG, ERP and acquisition
- Lecture 63 - Photolithography with example
- Lecture 64 - Stress Tissue Analysis using COMSOL Multiphysics
- Lecture 65 - Recent Trends

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Information Theory

Subject Co-ordinator - Prof. Himanshu Tyagi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is information?

Lecture 2 - How to model uncertainty?

Lecture 3 - Basic concepts of probability

Lecture 4 - Estimates of random variables

Lecture 5 - Limit theorems

Lecture 6 - Review

Lecture 7 - Source model

Lecture 8 - Motivating examples

Lecture 9 - A compression problem

Lecture 10 - Shannon entropy

Lecture 11 - Random hash

Lecture 12 - Review 2

Lecture 13 - Uncertainty and randomness

Lecture 14 - Total variation distance

Lecture 15 - Generating almost random bits

Lecture 16 - Generating samples from a distribution using uniform randomness

Lecture 17 - Typical sets and entropy

Lecture 18 - Review 3

Lecture 19 - Hypothesis testing and estimation

Lecture 20 - Examples

Lecture 21 - The log-likelihood ratio test

Lecture 22 - Kullback-Leibler divergence and Stein's lemma

Lecture 23 - Properties of KL divergence

Lecture 24 - Review 4

Lecture 25 - Information per coin-toss

Lecture 26 - Multiple hypothesis testing

Lecture 27 - Error analysis of multiple hypothesis testing

Lecture 28 - Mutual information

Lecture 29 - Fano's inequality

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Measures of information
- Lecture 31 - Chain rules
- Lecture 32 - Shape of measures of information
- Lecture 33 - Data processing inequality
- Lecture 34 - Midyear Review
- Lecture 35 - Proof of Fano's inequality
- Lecture 36 - Variational formulae
- Lecture 37 - Capacity as information radius
- Lecture 38 - Proof of Pinsker's inequality
- Lecture 39 - Continuity of entropy
- Lecture 40 - Lower bound for compression
- Lecture 41 - Lower bound for hypothesis testing
- Lecture 42 - Review 7
- Lecture 43 - Lower bound for random number generation
- Lecture 44 - Strong converse
- Lecture 45 - Lower bound for minmax statistical estimation
- Lecture 46 - Variable length source codes
- Lecture 47 - Review 8
- Lecture 48 - Kraft's inequality
- Lecture 49 - Shannon code
- Lecture 50 - Huffman code
- Lecture 51 - Minmax Redundancy
- Lecture 52 - Type based universal compression
- Lecture 53 - Review 9
- Lecture 54 - Arithmetic code
- Lecture 55 - Online probability assignment
- Lecture 56 - Compression of databases
- Lecture 57 - Compression of databases
- Lecture 58 - Repetition code
- Lecture 59 - Channel capacity
- Lecture 60 - Sphere packing bound for BSC
- Lecture 61 - Random coding bound for BSC
- Lecture 62 - Random coding bound for general channel
- Lecture 63 - Review 11
- Lecture 64 - Converse proof for channel coding theorem
- Lecture 65 - Additive Gaussian Noise channel
- Lecture 66 - Mutual information and differential entropy
- Lecture 67 - Channel coding theorem for Gaussian channel
- Lecture 68 - Parallel channels and water-filling

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Photonic Integrated Circuit

Subject Co-ordinator - Prof. Shankar Kumar Selvaraja

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Photonic integrated circuits course introduction  
Lecture 2 - Wave optics review  
Lecture 3 - Electromagnetic theory review - 1  
Lecture 4 - Electromagnetic theory review - 2  
Lecture 5 - Photonic integrated circuits: an introduction  
Lecture 6 - Photonic integrated circuits evolution  
Lecture 7 - Photonic integrated circuit components - 1  
Lecture 8 - Photonic integrated circuit components - 2  
Lecture 9 - Dispersion  
Lecture 10 - Phase velocity and Group velocity  
Lecture 11 - Anisotropic medium and reciprocity  
Lecture 12 - Polarisation in anisotropic medium  
Lecture 13 - Optical axes  
Lecture 14 - Waveguide structure  
Lecture 15 - Waveguide modes - 1  
Lecture 16 - Waveguide modes - 2  
Lecture 17 - Field Equation  
Lecture 18 - Guided modes in symmetric slab waveguides  
Lecture 19 - Waveguide design - Boundary value formulation  
Lecture 20 - Waveguide design - BVP solution  
Lecture 21 - Waveguide design - Perturbation approach  
Lecture 22 - Waveguide design - Effective Index method  
Lecture 23 - Coupled mode theory - 1  
Lecture 24 - Coupled mode theory - 2  
Lecture 25 - Two-mode coupling  
Lecture 26 - Co and counter propagating mode coupling  
Lecture 27 - Phase matching  
Lecture 28 - Directional coupler  
Lecture 29 - Y-splitter

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multi-Mode Interference coupler
- Lecture 31 - MZI
- Lecture 32 - Micro-Ring Resonators
- Lecture 33 - Light-chip coupling
- Lecture 34 - End-fire coupling
- Lecture 35 - Light Modulator introduction
- Lecture 36 - Electro-Optic effect
- Lecture 37 - Waveguide modulator
- Lecture 38 - Optical transition in semiconductors
- Lecture 39 - Transition rates
- Lecture 40 - Absorption and gain in semiconductors
- Lecture 41 - Semiconductor Light Emitting Diodes
- Lecture 42 - Semiconductor Light Emitting Diodes (Continued...)
- Lecture 43 - Semiconductor Lasers
- Lecture 44 - Semiconductor photodetector
- Lecture 45 - Semiconductor photodetector noise
- Lecture 46 - Fabrication process - 1
- Lecture 47 - Fabrication process - 2
- Lecture 48 - PIC technology - Building a simple circuit
- Lecture 49 - PIC for communication
- Lecture 50 - PIC for sensing - 1
- Lecture 51 - PIC for sensing - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Design for Internet of Things (2021)

Subject Co-ordinator - Prof. T V Prabhakar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Definition of IoT  
Lecture 2 - Location, Applications, and Power  
Lecture 3 - Challenges - Part 1  
Lecture 4 - Challenges - Part 2  
Lecture 5 - Challenges - Part 3  
Lecture 6 - Challenges - Part 4  
Lecture 7 - Unique ID  
Lecture 8 - Introduction to RFID  
Lecture 9 - RFID DEMO  
Lecture 10 - RFID Theory - 1  
Lecture 11 - RFID Theory - 2  
Lecture 12 - RFID Theory - 3  
Lecture 13 - Energy harvesting - 1  
Lecture 14 - Energy harvesting - 2  
Lecture 15 - Energy harvesting - 3  
Lecture 16 - Power management systems - 1  
Lecture 17 - Power management systems - 2  
Lecture 18 - Battery life calculation  
Lecture 19 - Introduction to System Design for low power  
Lecture 20 - LDO - 1  
Lecture 21 - LDO - 2  
Lecture 22 - LDO - 3  
Lecture 23 - Buck converter - 1  
Lecture 24 - Buck converter - 2  
Lecture 25 - Lab experiment  
Lecture 26 - Introduction to Sensors and Actuators  
Lecture 27 - Sensors  
Lecture 28 - Actuators  
Lecture 29 - Case study on Sensing and Actuation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to low power software
- Lecture 31 - ADC driver design and development
- Lecture 32 - Power optimization
- Lecture 33 - Introduction to protocols
- Lecture 34 - MQTT - 1
- Lecture 35 - MQTT - 2
- Lecture 36 - COAP - 1
- Lecture 37 - COAP - 2
- Lecture 38 - Websockets
- Lecture 39 - Introduction to low power wireless - 1
- Lecture 40 - Introduction to low power wireless - 2
- Lecture 41 - Bluetooth low energy (BLE) - 1
- Lecture 42 - Bluetooth low energy (BLE) - 2
- Lecture 43 - IEEE 802.15.4e - 1
- Lecture 44 - IEEE 802.15.4e - 2
- Lecture 45 - IEEE 802.15.4e - 3
- Lecture 46 - Wi-Fi
- Lecture 47 - Introduction to Wide area technologies
- Lecture 48 - LoRa - 1
- Lecture 49 - LoRa - 2
- Lecture 50 - NBIoT, LTE-M
- Lecture 51 - BLE mesh technology
- Lecture 52 - Course conclusion



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Mathematical Aspects of Biomedical Electronic System Design

Subject Co-ordinator - Prof. Chandramani Singh

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Signals and Systems
- Lecture 2 - MATLAB Demo on Signal Types and Moving Average System
- Lecture 3 - Microfabrication Basics for Biomedical Systems
- Lecture 4 - Fluid Flow in Body Lumen
- Lecture 5 - Fourier Series
- Lecture 6 - Continuous Time Fourier Transform
- Lecture 7 - Biological Tissues as disordered systems
- Lecture 8 - Introduction to electrical equivalent circuit models for biological systems
- Lecture 9 - Discrete Time Fourier Transform and Sampling
- Lecture 10 - Percolation Theory and applications in biological tissues
- Lecture 11 - Electrical properties of cells and tissues revisited: Examples and Applications
- Lecture 12 - Linear Algebra - I
- Lecture 13 - MATLAB Live Demo on Moving average and signal acquisition
- Lecture 14 - Oxidation and Thickness Characterization
- Lecture 15 - Basics of Photolithography with Process flow examples
- Lecture 16 - Linear Algebra - II
- Lecture 17 - Introduction to Biomedical Optics
- Lecture 18 - Optical Properties of Tissues and Mathematical modelling
- Lecture 19 - System of Linear Equations
- Lecture 20 - Scaling Laws
- Lecture 21 - Thermal Properties of a tissue
- Lecture 22 - Introduction to Probability
- Lecture 23 - Tissue Electrode Interface
- Lecture 24 - Thermal Properties of a tissue and cells
- Lecture 25 - Probability: Random Variables and CDF
- Lecture 26 - Basics of Silicon, Silicon Dioxide for Microfabrication Process
- Lecture 27 - Mechanical Properties of human brain tissues and modelling
- Lecture 28 - Probability: Important measures and generating functions
- Lecture 29 - Near Infrared Spectroscopy and Ultrasound Techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Thermal Properties of Tissues and Modelling
- Lecture 31 - Multisim Simulations for Biomedical Signal Conditioning Circuit
- Lecture 32 - Cleanroom Entry Demonstration
- Lecture 33 - Spin Coating Demonstration
- Lecture 34 - Common Random Variables
- Lecture 35 - Introduction to signal Conditioning circuits for biomedical devices
- Lecture 36 - Signal Conditioning circuits units and design
- Lecture 37 - E Beam Evaporation System Demonstration
- Lecture 38 - Joint and Marginal Probability Distribution
- Lecture 39 - Temperature Sensor Interfacing Analysis
- Lecture 40 - Demo of Temperature data acquisition system using LabVIEW
- Lecture 41 - Recent Trends in Biomedical Electronic System Design
- Lecture 42 - Aspects of Biomedical Electronics System Design

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Concentration Inequalities

Subject Co-ordinator - Prof. Himanshu Tyagi

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Why study concentration inequalities?
- Lecture 2 - Chernoff bound
- Lecture 3 - Examples of Chernoff bound for common distributions
- Lecture 4 - Hoeffding and Bernstein inequalities
- Lecture 5 - Azuma and McDiarmid inequalities
- Lecture 6 - Bounding variance using the Efron-Stein inequality
- Lecture 7 - The Gaussian-Poincare inequality
- Lecture 8 - Tail bounds using the Efron-Stein inequality
- Lecture 9 - Herbst's argument and the entropy method
- Lecture 10 - Log-Sobolev inequalities
- Lecture 11 - Binary and Gaussian Log-Sobolev inequalities and concentration
- Lecture 12 - Variational formulae for Kullback-Leibler and Bregman Divergence
- Lecture 13 - A modified log-Sobolev inequality and concentration
- Lecture 14 - Introduction to the transportation method for showing concentration bounds
- Lecture 15 - Transportation lemma and a proof of McDiarmid's inequality using the transportation method
- Lecture 16 - Concentration bounds for functions beyond bounded difference using transportation method
- Lecture 17 - Marton's conditional transportation cost inequality
- Lecture 18 - Isoperimetry and concentration of measure
- Lecture 19 - Isoperimetry and bounded difference
- Lecture 20 - Equivalence of Stam's inequality and log Sobolev inequality
- Lecture 21 - An information theoretic proof of log Sobolev inequality
- Lecture 22 - Hypercontractivity and strong data processing inequality for Rényi divergence
- Lecture 23 - An information theoretic characterization of hypercontractivity
- Lecture 24 - Equivalence of Gaussian hypercontractivity and Gaussian log Sobolev inequality
- Lecture 25 - Uniform deviation bounds for random walks and the law of the iterated logarithm
- Lecture 26 - Self normalized concentration inequalities and application to online regression

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Real-Time Digital Signal Processing

Subject Co-ordinator - Prof. Rathna G N

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Basics of Signal Processing  
Lecture 3 - Lab - CCS  
Lecture 4 - Number System  
Lecture 5 - Architecture - 1  
Lecture 6 - Architecture - 2  
Lecture 7 - Real-time Constraints  
Lecture 8 - FIR - Filters  
Lecture 9 - Pipelining and Parallel Processing for Low Power Applications - I  
Lecture 10 - Pipelining and Parallel Processing for Low Power Applications - II  
Lecture 11 - Lab: Sine Generation  
Lecture 12 - IIR Filters - 1  
Lecture 13 - IIR Filters - 2  
Lecture 14 - Lab: Sine Generation, FIR and IIR  
Lecture 15 - Lab 3 IIR Filter as Resonator  
Lecture 16 - Lab 4 Use of FDA tool box to generate co-efficients  
Lecture 17 - Lab: Real-Time Audio Output through Sine Generation  
Lecture 18 - IIR Filters 4  
Lecture 19 - Lab: FIR Filter in generation of music  
Lecture 20 - Lab: Real-Time Audio Output through FIR Filter  
Lecture 21 - DFT, DTFT, twiddle factors, properties, circular convolution and examples  
Lecture 22 - Complexity of Filtering and the FFT  
Lecture 23 - Lab: Filtering Using FFT  
Lecture 24 - Lab: FFT in CCS  
Lecture 25 - FFT - 1  
Lecture 26 - FFT - 2  
Lecture 27 - FFT - 3  
Lecture 28 - Overlap - Add  
Lecture 29 - Overlap Save Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lab: Overlap Add and Save Method using MATLAB
- Lecture 31 - Correlation
- Lecture 32 - Lab: Different ways of implementing FFT in CCS
- Lecture 33 - Adaptive Filter
- Lecture 34 - Lab: LMS Algorithm in MATLAB
- Lecture 35 - LMS Algorithm
- Lecture 36 - Lab: Error surface and error contour
- Lecture 37 - Adaptive Filter Applications
- Lecture 38 - Lab: Application of adaptive filter in MATLAB
- Lecture 39 - Adaptive Echo Cancellation
- Lecture 40 - Lab: Application of adaptive filter in CCS, Echo, scrambling and graphic equalizer in MATLAB
- Lecture 41 - Graphic Equalizer
- Lecture 42 - Lab: Adaptive filters (MATLAB)
- Lecture 43 - Speech Coding - I
- Lecture 44 - Speech Coding - II
- Lecture 45 - Speech Coding - III
- Lecture 46 - Lab: LPC for speech synthesis
- Lecture 47 - Discrete Cosine Transform - 1
- Lecture 48 - Discrete Cosine Transform - 2
- Lecture 49 - Discrete Cosine Transform - 3
- Lecture 50 - Discrete Cosine Transform - 4
- Lecture 51 - Lab: Adaptive filters (CCS) - 1
- Lecture 52 - Lab: Adaptive filters (CCS) - 2
- Lecture 53 - Lab: Discrete Cosine Transformation
- Lecture 54 - Lab: Echogeneration
- Lecture 55 - Lab: Using JiDSP
- Lecture 56 - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Advanced Neural Science for Engineers

Subject Co-ordinator - Prof. Vikas V

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Biomedical Research
- Lecture 2 - Fabricated Biosensors and Systems
- Lecture 3 - Lab 1 - Introduction to the Fabrication lab
- Lecture 4 - Lab 2 - Cleanroom and Gowning Protocol
- Lecture 5 - Developed Systems at a glance
- Lecture 6 - Silicon and Silicon Dioxide
- Lecture 7 - Piranha Cleaning of Silicon Wafer
- Lecture 8 - Polyimide Coating on Silicon Wafer
- Lecture 9 - Thermal Oxidation of Silicon and Thickness measurement
- Lecture 10 - Fundamental of Physical Vapour Deposition
- Lecture 11 - Lab 3 - Lithography: Demonstration
- Lecture 12 - Sputtering
- Lecture 13 - Basics of Photolithography
- Lecture 14 - Lab 4 - E-Beam Evaporation: Demo
- Lecture 15 - Photolithography - II
- Lecture 16 - Photolithography - III
- Lecture 17 - Lab 5 - E-Beam Evaporation: Demo - II
- Lecture 18 - Lab 6 - Liftoff Demonstration
- Lecture 19 - Lithography Optics - I
- Lecture 20 - Soft Lithography - I
- Lecture 21 - Soft Lithography - II
- Lecture 22 - Lab 7 - Sputtering Demonstration - I
- Lecture 23 - Lab 8 - Sputtering Demonstration - II
- Lecture 24 - Thin Film Deposition: CVD - I
- Lecture 25 - Thin Film Deposition: CVD - II
- Lecture 26 - Lithography Optics - II
- Lecture 27 - Role of Fabrication in Neural Engineering
- Lecture 28 - Micromachining
- Lecture 29 - Overview of Experimental Neurophysiology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fabrication of Neural Implants
- Lecture 31 - Introduction to Packaging for Neural Systems
- Lecture 32 - Lab 9 - 3D Printing for neural devices
- Lecture 33 - Introduction to Biopotentials
- Lecture 34 - EEG: Introduction, Demonstration and Applications
- Lecture 35 - Neural Implants: Fabrication and Characterization
- Lecture 36 - Design of Wireless Biphasic Pulse Generator
- Lecture 37 - Basics of EEG/ERP Experimental Design
- Lecture 38 - Micromachining and Etching
- Lecture 39 - Epileptic Seizure Detection and Classification
- Lecture 40 - Newborn Hearing Screening - I
- Lecture 41 - Newborn Hearing Screening - II
- Lecture 42 - Applications of EEG/ERP Experimental Design
- Lecture 43 - Flexible MEA for Electrocorticography Signal Acquisition
- Lecture 44 - Flexible biodegradable MEAs
- Lecture 45 - Microneedle Electrode Array
- Lecture 46 - Neurosurgery-based MEA Implantation - I
- Lecture 47 - Neurosurgery-based MEA Implantation - II
- Lecture 48 - Neurosurgery-based MEA Implantation - III
- Lecture 49 - Neurosurgery-based MEA Implantation - IV
- Lecture 50 - Deep Brain Stimulation/Recording for Parkinson's - I
- Lecture 51 - Deep Brain Stimulation/Recording for Parkinson's - II
- Lecture 52 - Computational Neuroscience Fundamentals
- Lecture 53 - Mathematical Analysis in Neural Science
- Lecture 54 - Neuroanatomy for Neural Engineering

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Design of Electric Motors

Subject Co-ordinator - Dr. Prathap Reddy

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - History Prospect of Electrical Machines
- Lecture 2 - Electric Fields
- Lecture 3 - Magnetic Fields - 1
- Lecture 4 - Magnetic Fields - 2
- Lecture 5 - Electric and Magnetic Circuits Interface
- Lecture 6 - Magnetic Materials and Concepts of BH Curves
- Lecture 7 - Analysis of Magnetic Circuits With and Without Air Gaps
- Lecture 8 - Example Problems of Magnetic Circuits
- Lecture 9 - Magnetic Circuits with Multiple Windings and Permanent Magnets
- Lecture 10 - Force Equations in Electromechanical Systems - 1
- Lecture 11 - Force Equations in Electromechanical Systems - 2
- Lecture 12 - Design of Electromagnetic Systems
- Lecture 13 - Realization of Electrical Machines - 1
- Lecture 14 - Realization of Electrical Machines - 2
- Lecture 15 - Magnetic Fields in DC Machines - 1
- Lecture 16 - Magnetic Fields in AC Machines - 1
- Lecture 17 - Magnetic Fields in AC Machines - 2
- Lecture 18 - Magnetic Fields in AC Machines - 3
- Lecture 19 - MMFDistribution ofAC Machines
- Lecture 20 - Basics of Electrical Machine Windings
- Lecture 21 - Stator winding design-single layer winding
- Lecture 22 - Stator winding design-double layer winding
- Lecture 23 - Stator Winding Design-Fractional Slot Double Layer Winding
- Lecture 24 - Variable Pole Machine Stator Winding Design (Pole-Phase Modulation) - 1
- Lecture 25 - Variable Pole Machine Stator Winding Design (Pole-Phase Modulation) - 2
- Lecture 26 - Importance of Motor Design and Standards of Electric Motors
- Lecture 27 - Electric Machine Sizing Equations-Output Power and Volume (D2L) Product Equation
- Lecture 28 - Lab Session on Re-winding of Induction Motor (Example: Double Layer Winding)
- Lecture 29 - The Figure of Merits for Electric Motors and Aspect Ratio to Decouple the D2L Product

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Electric Machine Sizing Equations-Output Power Equation in terms of D3L Product - 1
- Lecture 31 - Electric Machine Sizing Equations-Output Power Equation in terms of D3L Product - 2
- Lecture 32 - Analysis of Copper Function and Output Function w r t the Electric Machine D3L Product Eqn
- Lecture 33 - Example Problems on Output Power Equation in terms of D3L Product
- Lecture 34 - Electric Machine Sizing Equations-Output Power Equation in terms of D the power 2.5 L Product
- Lecture 35 - Design Procedure of an Electric Machine
- Lecture 36 - Name Plate Details and Datasheets of Induction Motor
- Lecture 37 - Design of Induction Machine- Stator Design - 1 (Stator Core design)
- Lecture 38 - Design of Induction Machine- Stator Design - 2 (Stator Winding Design)
- Lecture 39 - Design of Induction Machine- Stator Design - 3 (Stator Slot Geometry)
- Lecture 40 - Design of Induction Machine- Rotor Design - 1 (Rotor Slots Selection)
- Lecture 41 - Design of Induction Machine- Rotor Design - 2 (Rotor MMF and Bar Currents)
- Lecture 42 - Design of Induction Machine- Rotor Design - 3 (Rotor Slot Geometry)
- Lecture 43 - Design of Induction Machine- Rotor Design - 4 (Skewing of Rotor)
- Lecture 44 - Design of Induction Machine- Rotor Design - 4 (Resistance of Rotor Winding)
- Lecture 45 - Carter's Coefficient of Electrical Machines
- Lecture 46 - Effective Length Equations of the Machine Core with Different Stator and Rotor Lengths
- Lecture 47 - Stator MMF and Magnetizing Current Equations of Induction Machine
- Lecture 48 - Magnetizing Inductance of Induction Machine
- Lecture 49 - Stator and Rotor Leakage Inductances of Induction Machine
- Lecture 50 - Equivalent Circuit Parameters of Induction Machine
- Lecture 51 - Loss Calculation of Induction Machine - 1
- Lecture 52 - Loss Calculation of Induction Machine - 2 and Performance Parameters of Induction Motor
- Lecture 53 - Switched Reluctance Machine Sizing Equations-Output Power and Volume (D2L) Product Equation
- Lecture 54 - The Figure of Merits for SRM and Example Problem on Output Power Equation i t f D2L Product
- Lecture 55 - Design of Switched Reluctance Machine: Stator Design - 1
- Lecture 56 - Design of Switched Reluctance Machine: Stator Design - 2 and Rotor Design
- Lecture 57 - Procedure for Calculation of SRM Inductance: Aligned Inductance - 1
- Lecture 58 - Calculation of SRM Inductance: Aligned Inductance - 2
- Lecture 59 - Efficiency and Loss Calculation of SRM
- Lecture 60 - Importance of Thermal Design and Thermal Limits for Electrical Machines
- Lecture 61 - Electric and Thermal Circuits Interface
- Lecture 62 - Heat Transfer Methods and Basic Equations for Thermal Resistance
- Lecture 63 - Heat Flow in Electrical Machines
- Lecture 64 - Cooling Methods and Standards for Electrical Machines
- Lecture 65 - Basics of Thermal Equivalent Circuits
- Lecture 66 - Thermal Equivalent Circuit - 1
- Lecture 67 - Thermal Equivalent Circuit - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electrical Engineering - NOC:Basics of Semiconductor Microwave Devices

Subject Co-ordinator - Prof Digbijoy N Nath

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Introduction to the course and outline of the course
- Lecture 2 - Historical overview of the development of microwave devices
- Lecture 3 - Applications of semiconductor microwave devices
- Lecture 4 - Applications of semiconductor microwave devices (Continued...)
- Lecture 5 - Heterojunction device physics
- Lecture 6 - Heterojunction device physics (Continued...) and III-nitrides
- Lecture 7 - III-nitrides and polarization
- Lecture 8 - III-nitride high electron mobility transistors
- Lecture 9 - Varactors and Schottky multipliers
- Lecture 10 - Varactors and Schottky multipliers (Continued...)
- Lecture 11 - Diodes for microwave applications
- Lecture 12 - IMPATT diode
- Lecture 13 - Tunnel diodes and Introduction to Gunn diodes
- Lecture 14 - Gunn diode and its modes
- Lecture 15 - Introduction to MESFETs
- Lecture 16 - Advanced concepts of GaAs MESFETs
- Lecture 17 - GaAs MESFET fabrication and practical aspects
- Lecture 18 - Practical aspects of FET design and small-signal model
- Lecture 19 - GaAs MESFETs: cut-off frequency and aspects of power devices
- Lecture 20 - GaAs MESFETs for power amplifiers
- Lecture 21 - Modulation doping in compound semiconductors
- Lecture 22 - Band diagram of MODFETs/HEMTs
- Lecture 23 - Design issues and methodology for microwave HEMTs
- Lecture 24 - Small-signal model and noise in HEMTs
- Lecture 25 - The concept of pseudomorphic or pHEMTs
- Lecture 26 - Multi-finger HEMTs
- Lecture 27 - pHEMTs for low noise and introduction to InP HEMT
- Lecture 28 - InP HEMTs for power and the concept of metamorphic HEMTs
- Lecture 29 - AlGaIn/GaN HEMT: applications, structure, substrates and FOM

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - AlGa<sub>N</sub>/Ga<sub>N</sub> HEMT: device basics, current collapse and passivation
- Lecture 31 - AlGa<sub>N</sub>/Ga<sub>N</sub> HEMT: gate process, field-plate and trade-offs in design
- Lecture 32 - AlGa<sub>N</sub>/Ga<sub>N</sub> HEMT: Practical aspects and commercial HEMTs
- Lecture 33 - Ga<sub>N</sub> RF HEMT on eval board, and emerging topics of research
- Lecture 34 - Linearity in Ga<sub>N</sub> HEMTs - A device perspective
- Lecture 35 - Nanoscale MOSFETs and short channel effects
- Lecture 36 - Parasitic resistances and capacitances in nanoscale MOSFETs
- Lecture 37 - RF MOSFET Layout and RF Silicon-on-insulator
- Lecture 38 - Noise in MOSFETs and Introduction to LDMOS
- Lecture 39 - Working of LDMOS and VDMOS
- Lecture 40 - LDMOS: Parasitics, and the concept of RESURF
- Lecture 41 - LDMOS: HCI, snapback, finger layout and some aspects of commercial devices
- Lecture 42 - BJT: common base and common emitter from the device point of view
- Lecture 43 - BJT: Kirk effect, Ebers-Moll model and base transit time
- Lecture 44 - BJT: small-signal model, gain and cut-off frequency
- Lecture 45 - BJT: Emitter and base designs and drift transistor
- Lecture 46 - Collector design in modern BJT and Introduction to HBTs
- Lecture 47 - HBT: base current and collapse of the current gain
- Lecture 48 - High-frequency HBT and Introduction to SiGe HBT
- Lecture 49 - SiGe HBT: various resistances and capacitances, scaling and aspects of BiCMOS
- Lecture 50 - Basics of microwave: transmission line theory
- Lecture 51 - Waveguides, T-lines and introduction to 2-port networks
- Lecture 52 - S-parameters and the basics of Smith Chart
- Lecture 53 - Smith chart and matching
- Lecture 54 - Impedance matching using Smith Chart and stub line
- Lecture 55 - Passives in microwave circuits
- Lecture 56 - Inductors in microwave circuits
- Lecture 57 - More on passive elements in microwave circuits
- Lecture 58 - On-wafer measurement and S-parameters
- Lecture 59 - On-wafer de-embedding
- Lecture 60 - On-wafer and fixture-based measurements and calibration
- Lecture 61 - More on fixtures and basic transistor concepts for power amplifiers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Adv. Digital Signal Processing - Multirate a

Subject Co-ordinator - Prof. V.M. Gadre

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - The Haar Wavelet

Lecture 3 - The Haar Multiresolution Analysis

Lecture 4 - Wavelets And Multirate Digital Signal Processing

Lecture 5 - Equivalence - Functions And Sequences

Lecture 6 - The Haar Filter Bank

Lecture 7 - Haar Filter Bank Analysis And Synthesis

Lecture 8 - Relating  $\psi$ ,  $\phi$  and the Filters

Lecture 9 - Iterating the filter bank from  $\psi$ ,  $\phi$

Lecture 10 - Z-Domain Analysis Of Multirate Filter Bank

Lecture 11 - Two Channel Filter Bank

Lecture 12 - Perfect Reconstruction - Conjugate Quadrature

Lecture 13 - Conjugate Quadrature Filters - Daubechies Family of MRA

Lecture 14 - Daubechies' Filter Banks - Conjugate Quadrature Filters

Lecture 15 - Time And Frequency Joint Perspective

Lecture 16 - Ideal Time Frequency Behaviour

Lecture 17 - The Uncertainty Principle

Lecture 18 - Time Bandwidth Product Uncertainty

Lecture 19 - Evaluating and Bounding  $\sqrt{t} \cdot \sqrt{\omega}$

Lecture 20 - The Time Frequency Plane & its Tilings

Lecture 21 - Short time Fourier Transform & Wavelet Transform in General

Lecture 22 - Reconstruction & Admissibility

Lecture 23 - Admissibility in Detail Discretization of Scale

Lecture 24 - Logarithmic Scale Discretization, Dyadic Discretization

Lecture 25 - The Theorem of (DYADIC) Multiresolution Analysis

Lecture 26 - Proof of the Theorem of (DYADIC) Multiresolution Analysis

Lecture 27 - Introducing Variants of The Multiresolution Analysis Concept

Lecture 28 - JPEG 2000 5/3 FilterBank & Spline MRA

Lecture 29 - Orthogonal Multiresolution Analysis with Splines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Building Piecewise Linear Scaling Function, Wavelet
- Lecture 31 - The Wave Packet Transform
- Lecture 32 - Nobel Identities & The Haar Wave Packet Transform
- Lecture 33 - The Lattice Structure for Orthogonal Filter Banks
- Lecture 34 - Constructing the Lattice & its Variants
- Lecture 35 - The Lifting Structure & Polyphase Matrices
- Lecture 36 - The Polyphase Approach - The Modulation Approach
- Lecture 37 - Modulation Analysis and The 3-Band Filter Bank, Applications
- Lecture 38 - The Applications \*Data Mining, \*Face Recognition
- Lecture 39 - Proof that a non-zero function can not be both time and band-limited
- Lecture 40 - M-Band Filter Banks and Looking Ahead
- Lecture 41 - Tutorial -Session 1
- Lecture 42 - Student's Presentation
- Lecture 43 - Tutorial on Uncertainty Product
- Lecture 44 - Tutorial on Two band Filter Bank
- Lecture 45 - Tutorial -Frequency Domain Analysis of Two band Filter Bank
- Lecture 46 - Zoom in and Zoom out using Wavelet Transform
- Lecture 47 - More Thoughts on Wavelets
- Lecture 48 - Towards selecting Wavelets through vanishing moments
- Lecture 49 - In Search of Scaling Coefficients
- Lecture 50 - Wavelet Applications

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Advanced Optical Communication

Subject Co-ordinator - Prof. R.K. Shevgaonkar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Basics of Light  
Lecture 3 - Ray Model - I  
Lecture 4 - Ray Model - II  
Lecture 5 - Wave Model - I  
Lecture 6 - Wave Model - II  
Lecture 7 - Wave Model - III  
Lecture 8 - Signal Distortion - I  
Lecture 9 - Signal Distortion - II  
Lecture 10 - Signal Distortion - III  
Lecture 11 - Practical issues in Implementation of Fiber link  
Lecture 12 - Optical Sources  
Lecture 13 - Light Emitting Diodes - I  
Lecture 14 - Light Emitting Diodes - II  
Lecture 15 - Laser - I  
Lecture 16 - Laser - II  
Lecture 17 - Laser - III  
Lecture 18 - Laser - IV  
Lecture 19 - Laser - V + Photon Detector  
Lecture 20 - Photo Diodes and Detector Noise  
Lecture 21 - Photo Detector  
Lecture 22 - Optical Receivers - I  
Lecture 23 - Optical Receivers - II  
Lecture 24 - Receiver Sensitivity Degradation  
Lecture 25 - Fiber Optic Link Design  
Lecture 26 - Wavelength Division Multiplexed Systems  
Lecture 27 - EDFA  
Lecture 28 - Integrated Optics - I  
Lecture 29 - Integrated Optics - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorials - I
- Lecture 31 - Tutorials - II
- Lecture 32 - Introduction to Non-Linear Fiber Optics
- Lecture 33 - Non-linear Schrodinger Equation
- Lecture 34 - Group Velocity Dispersion (GVD)
- Lecture 35 - Self Phase Modulation (SPM)
- Lecture 36 - Solitonic Communication
- Lecture 37 - Raman Amplifier
- Lecture 38 - Cross Phase Modulation and four wave mixing
- Lecture 39 - Laboratory Experiments - I
- Lecture 40 - Laboratory Experiments - II
- Lecture 41 - Laboratory Experiments - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Advanced VLSI Design

Subject Co-ordinator - Prof. A.N. Chandorkar, Prof. D.K. Sharma, Prof. Sachin Patkar, Prof. Virendra Singh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Historical Perspective and Future Trends in CMOS VLSI Circuit and System Design - Part I
- Lecture 2 - Historical Perspective and Future Trends in CMOS VLSI Circuit and System Design - Part II
- Lecture 3 - Logical Effort - A way of Designing Fast CMOS Circuits - Part I
- Lecture 4 - Logical Effort - A way of Designing Fast CMOS Circuits - Part II
- Lecture 5 - Logical Effort - A way of Designing Fast CMOS Circuits - Part III
- Lecture 6 - Power Estimation and Control in CMOS VLSI circuits - Part I
- Lecture 7 - Power Estimation and Control in CMOS VLSI circuits - Part II
- Lecture 8 - Low Power Design Techniques - Part I
- Lecture 9 - Low Power Design Techniques - Part II
- Lecture 10 - Arithmetic Implementation Strategies for VLSI - Part I
- Lecture 11 - Arithmetic Implementation Strategies for VLSI - Part II
- Lecture 12 - Arithmetic Implementation Strategies for VLSI - Part III
- Lecture 13 - Arithmetic Implementation Strategies for VLSI - Part IV
- Lecture 14 - Interconnect aware design
- Lecture 15 - Interconnect aware design
- Lecture 16 - Interconnect aware design
- Lecture 17 - Introduction to Hardware Description Languages
- Lecture 18 - Managing concurrency and time in Hardware Description Languages
- Lecture 19 - Introduction to VHDL
- Lecture 20 - Basic Components in VHDL
- Lecture 21 - Structural Description in VHDL
- Lecture 22 - Behavioral Description in VHDL
- Lecture 23 - Introduction to Verilog
- Lecture 24 - FSM + datapath (GCD example)
- Lecture 25 - FSM + datapath (Continued...)
- Lecture 26 - Single Cycle MMIPS
- Lecture 27 - Multicycle MMIPS
- Lecture 28 - Multicycle MMIPS  $\hat{A}$  FSM
- Lecture 29 - Brief Overview of Basic VLSI Design Automation Concepts

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Netlist and System Partitioning
- Lecture 31 - Timing Analysis in the context of Physical Design Automation
- Lecture 32 - Placement algorithm
- Lecture 33 - Introduction to VLSI Testing
- Lecture 34 - VLSI Test Basics - I
- Lecture 35 - VLSI Test Basics - II
- Lecture 36 - VLSI Testing
- Lecture 37 - VLSI Testing
- Lecture 38 - VLSI Testing
- Lecture 39 - VLSI Design Verification
- Lecture 40 - VLSI Design Verification
- Lecture 41 - VLSI Design Verification
- Lecture 42 - VLSI Design Verification

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Broadband Networks: Concepts and Technology

Subject Co-ordinator - Prof. Abhay Karandikar

Co-ordinating Institute - IIT - Bombay

- Lecture 1 - Introduction to Broadband Networks
- Lecture 2 - Qos in Packet Switching and ATM
- Lecture 3 - ATM Networks
- Lecture 4 - Effective Bandwidth - I
- Lecture 5 - Effective Bandwidth - II
- Lecture 6 - Traffic Descriptor in ATM
- Lecture 7 - Calculus for QOS - I
- Lecture 8 - Calculus For Qos - II
- Lecture 9 - Packet Scheduling Algorithm Introduction
- Lecture 10 - Fluid Fair Queueing and Weighted Fair Queueing
- Lecture 11 - Virtual Time In Scheduling
- Lecture 12 - Fairness of WFO and SCFO Scheduling Algorithms
- Lecture 13 - Rate Proportional Servers
- Lecture 14 - Latency Rate Servers - I
- Lecture 15 - Latency Rate Servers - II And Delay Bounds
- Lecture 16 - QOS In Best Effort Internet
- Lecture 17 - TCP Congestion Control
- Lecture 18 - Analysis of TCP
- Lecture 19 - TCP Throughput
- Lecture 20 - Buffer Management
- Lecture 21 - IP Addressing Scheme
- Lecture 22 - IP Addressing Lookup And Packet Classification
- Lecture 23 - IP Over ATM
- Lecture 24 - Multiple Label Switching (MPLS)
- Lecture 25 - MPLS and Traffic Engineering
- Lecture 26 - Optical Network and MPLS
- Lecture 27 - Integrated Service Internet (IntServ) and RSVP
- Lecture 28 - Differentiated Services Internet
- Lecture 29 - Voice over IP
- Lecture 30 - RTP
- Lecture 31 - Metro Ethernet Access Networks
- Lecture 32 - Metro Ethernet Access Networks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Communication

Subject Co-ordinator - Prof. Bikash Kumar Dey

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Digital Communication  
Lecture 2 - Sampling  
Lecture 3 - Quantization, PCM and Delta Modulation  
Lecture 4 - Probability and Random Processes (Part-1)  
Lecture 5 - Probability and Random Processes (Part-2)  
Lecture 6 - Channels and their Models (Part-1)  
Lecture 7 - Channels and their Models (Part-2)  
Lecture 8 - Information Theory (Part-1)  
Lecture 9 - Information Theory (Part-2)  
Lecture 10 - Bandpass Signal Representation (Part-1)  
Lecture 11 - Bandpass Signal Representation (Part-2)  
Lecture 12 - Digital Modulation Techniques (Part-1)  
Lecture 13 - Digital Modulation Techniques (Part-2)  
Lecture 14 - Digital Modulation Techniques (Part-3)  
Lecture 15 - Digital Modulation Techniques (Part-4)  
Lecture 16 - Digital Modulation Techniques (Part-5)  
Lecture 17 - Digital Modulation Techniques (Part-6)  
Lecture 18 - Digital Modulation Techniques (Part-7)  
Lecture 19 - Digital Modulation Techniques (Part-8)  
Lecture 20 - Digital Modulation Techniques (Part-9)  
Lecture 21 - Digital Modulation Techniques (Part-10)  
Lecture 22 - Probability of Error Calculation  
Lecture 23 - Calculation of Probability of Error  
Lecture 24 - Calculation of Probability of Error  
Lecture 25 - Equalizers  
Lecture 26 - Source Coding (Part-1)  
Lecture 27 - Source Coding (Part-2)  
Lecture 28 - Source Coding (Part-3)  
Lecture 29 - Source Coding (Part-4)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Channel Coding
- Lecture 31 - Fundamentals of OFDM
- Lecture 32 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Information Theory and Coding

Subject Co-ordinator - Prof. S.N. Merchant

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Information Theory and Coding

Lecture 2 - Definition of Information Measure and Entropy

Lecture 3 - Extension of An Information Source and Markov Source

Lecture 4 - Adjoint of An Information Source, Joint and Conditional Information Measure

Lecture 5 - Properties of Joint and Conditional Information Measures and A Markov Source

Lecture 6 - Asymptotic Properties of Entropy and Problem Solving in Entropy

Lecture 7 - Block Code and its Properties

Lecture 8 - Instantaneous Code and Its Properties

Lecture 9 - Kraft-McMillan Equality and Compact Codes

Lecture 10 - Shannon's First Theorem

Lecture 11 - Coding Strategies and Introduction to Huffman Coding

Lecture 12 - Huffman Coding and Proof of Its Optimality

Lecture 13 - Competitive Optimality of The Shannon Code

Lecture 14 - Non-Binary Huffman Code and Other Codes

Lecture 15 - Adaptive Huffman Coding - Part-I

Lecture 16 - Adaptive Huffman Coding - Part-II

Lecture 17 - Shannon-Fano-Elias Coding and Introduction to Arithmetic Coding

Lecture 18 - Arithmetic Coding - Part-I

Lecture 19 - Arithmetic Coding - Part-II

Lecture 20 - Introduction to Information Channels

Lecture 21 - Equivocation and Mutual Information

Lecture 22 - Properties of Different Information Channels

Lecture 23 - Reduction of Information Channels

Lecture 24 - Properties of Mutual Information and Introduction to Channel Capacity

Lecture 25 - Calculation of Channel Capacity for Different Information Channels

Lecture 26 - Shannon's Second Theorem

Lecture 27 - Discussion On Error Free Communication Over Noisy Channel

Lecture 28 - Error Free Communication Over A Binary Symmetric Channel and Introduction to Continuous Sources and Channels

Lecture 29 - Differential Entropy and Evaluation of Mutual Information for Continuous Sources and Channels

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Channel Capacity of A BandLimited Continuous Channel
- Lecture 31 - Introduction to Rate-Distortion Theory
- Lecture 32 - Definition and Properties of Rate-Distortion Functions
- Lecture 33 - Calculation of Rate-Distortion Functions
- Lecture 34 - Computational Approach for Calculation of Rate-Distortion Functions
- Lecture 35 - Introduction to Quantization
- Lecture 36 - Lloyd-Max Quantizer
- Lecture 37 - Companded Quantization
- Lecture 38 - Variable Length Coding and Problem Solving in Quantizer Design
- Lecture 39 - Vector Quantization
- Lecture 40 - Transform Coding - Part-I
- Lecture 41 - Transform Coding - Part-II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Transmission Lines and EM Waves

Subject Co-ordinator - Prof. R.K. Shevgaonkar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to EM waves and various techniques of communication

Lecture 2 - Equations of Voltage and Current on TX line

Lecture 3 - Propagation constant, Characteristic impedance and reflection coefficient

Lecture 4 - Impedance Transformation

Lecture 5 - Loss-less and Low loss Transmission line and VSWR

Lecture 6 - Power transfer on TX line

Lecture 7 - Smith Chart

Lecture 8 - Admittance Smith Chart

Lecture 9 - Experimental setup for transmission line measurements

Lecture 10 - Applications of transmission lines

Lecture 11 - Applications of transmission lines-II

Lecture 12 - Impedance Matching

Lecture 13 - Lossy Transmission Line

Lecture 14 - Problems on Transmission line

Lecture 15 - Types of transmission line

Lecture 16 - Basics of Vectors

Lecture 17 - Vector calculus

Lecture 18 - Basic laws of Electromagnetics

Lecture 19 - Maxwell's Equations

Lecture 20 - Boundary conditions at Media Interface

Lecture 21 - Uniform plane wave

Lecture 22 - Propagation of wave

Lecture 23 - Wave polarization

Lecture 24 - Pioncere's Sphere

Lecture 25 - Wave propagation in conducting medium

Lecture 26 - Wave propagation and phase velocity

Lecture 27 - Power flow and Poynting vector

Lecture 28 - Surface current and power loss in a conductor

Lecture 29 - Plane wave in arbitrary direction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Plane wave at dielectric interface
- Lecture 31 - Reflection and refraction at media interface
- Lecture 32 - Total internal reflection
- Lecture 33 - Polarization at media interface
- Lecture 34 - Reflection from a conducting boundary
- Lecture 35 - Parallel plane waveguide
- Lecture 36 - Wave propagation in parallel plane waveguide
- Lecture 37 - Analysis of waveguide general approach
- Lecture 38 - Rectangular waveguide
- Lecture 39 - Modal propagation in rectangular waveguide
- Lecture 40 - Surface currents on the waveguide walls
- Lecture 41 - Field visualization and Attenuation in waveguide
- Lecture 42 - Attenuation in waveguide continued
- Lecture 43 - Radiation (Antenna)
- Lecture 44 - Solution for potential function
- Lecture 45 - Radiation from the Hertz dipole
- Lecture 46 - Power radiated by hertz dipole
- Lecture 47 - Thin linear antenna
- Lecture 48 - Radiation Parameters of antenna
- Lecture 49 - Receiving antenna
- Lecture 50 - Monopole and Dipole antenna
- Lecture 51 - Fourier transform relation between current and radiation pattern
- Lecture 52 - Antenna arrays
- Lecture 53 - Uniform Linear array
- Lecture 54 - Uniform Linear array continued
- Lecture 55 - Synthesis of array
- Lecture 56 - Binomial array and general array synthesis
- Lecture 57 - Problems on uniform plane wave
- Lecture 58 - Problems on uniform plane wave in a medium
- Lecture 59 - Problems on waveguides
- Lecture 60 - Problems on Antennas and radiation



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - CMOS Analog VLSI Design

Subject Co-ordinator - Prof. A.N. Chandorkar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to CMOS Analog VLSI Design
- Lecture 2 - Introduction to CMOS Analog VLSI Design (Continued...)
- Lecture 3 - MOS Fundamentals
- Lecture 4 - MOS Fundamentals (Continued...)
- Lecture 5 - Basic of MOS Amplifier (Part-1)
- Lecture 6 - Basic of MOS Amplifier (Part-2)
- Lecture 7 - Basic of MOS Amplifier (Part-3)
- Lecture 8 - Cascode Amplifier
- Lecture 9 - Types of MOSFET Amplifier
- Lecture 10 - Types of MOSFET Amplifier
- Lecture 11 - Differential Amplifier
- Lecture 12 - Differential Amplifier
- Lecture 13 - Current Sources
- Lecture 14 - Current Sources
- Lecture 15 - Current Sources
- Lecture 16 - Frequency Response of Amplifier
- Lecture 17 - Basic of CMOS OPAMP
- Lecture 18 - OPAMP Design Issues
- Lecture 19 - OPAMP Design
- Lecture 20 - OPAMP Design
- Lecture 21 - Operational Transconductance Amplifier
- Lecture 22 - OTA Operation Transconductance Amplifier and Application
- Lecture 23 - Fully Differential Amplifier and Noise
- Lecture 24 - Noise
- Lecture 25 - Noise (Continued...)
- Lecture 26 - Layout of Analog Circuit
- Lecture 27 - Oscillators
- Lecture 28 - Oscillators (Continued...)
- Lecture 29 - Oscillators (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Analog Circuits

Subject Co-ordinator - Prof. A.N. Chandorkar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Analog Circuits - An Overview
- Lecture 2 - Two Parts of Review of Analog Filter Approximation
- Lecture 3 - BJT Small Signal Model
- Lecture 4 - BJT Small Signal Model [Continuation from Lecture 3]
- Lecture 5 - MOS Circuit Model
- Lecture 6 - Biasing of Circuits
- Lecture 7 - Amplifiers
- Lecture 8 - MOS Amplifiers
- Lecture 9 - Cascode Amplifier
- Lecture 10 - Frequency Response of Amplifier
- Lecture 11 - Frequency Response of Amplifier
- Lecture 12 - Frequency Response of Amplifier
- Lecture 13 - Frequency Response of Amplifier
- Lecture 14 - Differential Amplifier
- Lecture 15 - Differential Amplifier
- Lecture 16 - Differential Amplifier
- Lecture 17 - Feedback Theory
- Lecture 18 - Feedback Theory
- Lecture 19 - OPAMP Circuits
- Lecture 20 - OPAMP Circuits
- Lecture 21 - Active RC Filters
- Lecture 22 - Active Filters
- Lecture 23 - Oscillators
- Lecture 24 - Oscillators
- Lecture 25 - DAC/ADC

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC: Microwave Integrated Circuits

Subject Co-ordinator - Prof. Jayanta Mukherjee

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Reflection Coefficient, VSWR, Smith Chart
- Lecture 3 - Reflection Coefficient, VSWR
- Lecture 4 - Smith Chart
- Lecture 5 - Application of the Smith Chart
- Lecture 6 - Microwave Components
- Lecture 7 - Broadband Impedance Matching
- Lecture 8 - Multi-section transformer
- Lecture 9 - Maximally flat (binomial) transformer, Chebyshev transformer
- Lecture 10 - Non-uniform transmission line (Tapers)
- Lecture 11 - Scattering Parameters
- Lecture 12 - Properties of Scattering Parameters
- Lecture 13 - Properties of Scattering Parameters (Continued...)
- Lecture 14 - Signal flow graph, ABCD parameters
- Lecture 15 - 1 and 2 Port passive Components
- Lecture 16 - 3 Port Microwave Components
- Lecture 17 - Couplers
- Lecture 18 - Coupled Line Couplers
- Lecture 19 - Resonators and narrow band filters
- Lecture 20 - Narrow-band filters
- Lecture 21 - Filter design
- Lecture 22 - Filter synthesis, Kuroda's Identity
- Lecture 23 - Impedance Matching Circuits for Amplifiers
- Lecture 24 - Microstrip Matching (Continued...), Masons Rule, Power Gain Equations
- Lecture 25 - Amplifier Gain Stability
- Lecture 26 - Amplifier Gain Stability (Continued...)
- Lecture 27 - Gain Circles
- Lecture 28 - Gain Circles (Continued...)
- Lecture 29 - Noise

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Noise Figure Circles (Continued...)
- Lecture 31 - DC Bias
- Lecture 32 - Amplifier Classes, Frequency Compensation
- Lecture 33 - Linearity
- Lecture 34 - Oscillator Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Foundations of Wavelets and Multirate Di

Subject Co-ordinator - Prof. V.M. Gadre

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Origin of wavelets
- Lecture 3 - Haar wavelet
- Lecture 4 - Dyadic wavelet
- Lecture 5 - Dilates and translates of Haar wavelet
- Lecture 6 - L2 norm of a function
- Lecture 7 - Piecewise constant representation of a function
- Lecture 8 - Ladder of subspaces
- Lecture 9 - Scaling function of Haar wavelet
- Lecture 10 - Demonstration
- Lecture 11 - Vector representation of sequences
- Lecture 12 - Properties of norm
- Lecture 13 - Parsevals theorem
- Lecture 14 - Equivalence of functions and sequences
- Lecture 15 - Angle between Functions and their Decomposition
- Lecture 16 - Additional Information on Direct-Sum
- Lecture 17 - Introduction to filter banks
- Lecture 18 - Haar Analysis filter bank in Z-domain
- Lecture 19 - Haar Synthesis filter bank in Z-domain
- Lecture 20 - Moving from Z-domain to frequency domain
- Lecture 21 - Frequency Response of Haar Analysis Low pass Filter bank
- Lecture 22 - Frequency Response of Haar Analysis High pass Filter bank
- Lecture 23 - Ideal Two-band Filter bank
- Lecture 24 - Disqualification of Ideal Filter bank
- Lecture 25 - Realizable Two-band Filter bank
- Lecture 26 - Demonstration
- Lecture 27 - Relating Fourier transform of scaling function to filter bank
- Lecture 28 - Fourier transform of scaling function
- Lecture 29 - Construction of scaling and wavelet functions from filter bank

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Demonstration

Lecture 31 - Conclusive Remarks and Future Prospects

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - RF Integrated Circuits

Subject Co-ordinator - Dr. Shouribrata Chatterjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - RF system basic architectures
- Lecture 2 - Transmission media reflection
- Lecture 3 - Maximum power transfer
- Lecture 4 - Parallel RLC tank
- Lecture 5 - Matching
- Lecture 6 - Other matching networks
- Lecture 7 - Resistors capacitors
- Lecture 8 - Inductors
- Lecture 9 - Inductors and wires
- Lecture 10 - Wires
- Lecture 11 - Transmission lines
- Lecture 12 - Device review
- Lecture 13 - MOS capacitances
- Lecture 14 - Bandwidth estimation constants
- Lecture 15 - Bandwidth estimation constants (Continued.)
- Lecture 16 - Bandwidth estimation using short circuit
- Lecture 17 - Bandwidth groupdelay and peaking
- Lecture 18 - Shunt series amplifier
- Lecture 19 - Shunt series amplifier (Continued.)
- Lecture 20 - Various noise sources
- Lecture 21 - Noise in a mosfet
- Lecture 22 - Motivation first cut design
- Lecture 23 - Motivation first cut design (Continued.)
- Lecture 24 - Noise other possible topologies
- Lecture 25 - Multiplier Fundamentals
- Lecture 26 - Mixer non idealties
- Lecture 27 - Mixer non idealties (Continued.)
- Lecture 28 - A tank based oscillators
- Lecture 29 - Phase noise in oscillators

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Other oscillators topologies
- Lecture 31 - Phase locked loop basics
- Lecture 32 - Charge pump
- Lecture 33 - Pll dynamics integer
- Lecture 34 - Spurious frequencies fractional and synthesis
- Lecture 35 - Fractional spurs
- Lecture 36 - Delta and sigma modulation
- Lecture 37 - Class abc power amplifiers
- Lecture 38 - Class bcd power amplifiers
- Lecture 39 - Class cd pwm amplifiers
- Lecture 40 - Course summary and conclusion



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Communication Engineering

Subject Co-ordinator - Prof. Surendra Prasad

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Communication Engineering  
Lecture 2 - Communication channel  
Lecture 3 - Brief Review of Signal and Systems  
Lecture 4 - The Hilbert Transform  
Lecture 5 - Analytic Representation of band pass Signals  
Lecture 6 - Fundamentals of Analog Signal Transmission  
Lecture 7 - Analog Modulation of Carriers  
Lecture 8 - Amplitude Modulation  
Lecture 9 - Amplitude Modulation  
Lecture 10 - Single Sideband Modulation  
Lecture 11 - Suppressed Sideband Modulation  
Lecture 12 - VSB Modulation - Superhet Receiver  
Lecture 13 - Superhet Receiver etc  
Lecture 14 - Practical Mixers-Effects of Tonal  
Lecture 15 - Angle Modulation  
Lecture 16 - Angle Modulation  
Lecture 17 - Generation of FM Signals  
Lecture 18 - FM Generation and Detection  
Lecture 19 - Demodulation of Angle Modulated Signals  
Lecture 20 - Demodulation of Angle Modulated Signals  
Lecture 21 - Demodulation of Angle Modulated Signals  
Lecture 22 - Feedback Demodulators - phase locked loop  
Lecture 23 - The Phase Locked Loop  
Lecture 24 - Frequency Compressive Feedback Demodulator  
Lecture 25 - FM Receivers  
Lecture 26 - TV Transmission  
Lecture 27 - Review of Probability Theory and Random Process  
Lecture 28 - Review of Probability Theory and Random Variables  
Lecture 29 - Random Processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Random Processes
- Lecture 31 - Random Processes
- Lecture 32 - Gaussian Random Processes
- Lecture 33 - Behaviour of Communication System
- Lecture 34 - Performance of AM Systems in Noise
- Lecture 35 - Noise in AM and Angle Modulation Systems
- Lecture 36 - Noise in Phase and Frequency Modulation systems
- Lecture 37 - Noise in Angle Modulation
- Lecture 38 - Pre emphasis - De emphasis
- Lecture 39 - Pulse Modulation Schemes - PWM and PPM
- Lecture 40 - Data Modulation
- Lecture 41 - Pulse Code Modulation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Signal Processing

Subject Co-ordinator - Prof. S.C. Dutta Roy

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Digital Signal Processing Introduction
- Lecture 2 - Digital Signal Processing Introduction (Continued.)
- Lecture 3 - Digital Systems
- Lecture 4 - Characterization Description, Testing of Digital Systems
- Lecture 5 - LTI Systems Step & Impulse Responses, Convolution
- Lecture 6 - Inverse Systems, Stability, FIR & IIR
- Lecture 7 - FIR & IIR; Recursive & Non Recursive
- Lecture 8 - Discrete Time Fourier Transform
- Lecture 9 - Discrete Fourier Transform (DFT)
- Lecture 10 - DFT (Continued.)
- Lecture 11 - DFT (Continued.) Introduction to Z Transform
- Lecture 12 - Z Transform
- Lecture 13 - Z Transform (Continued.)
- Lecture 14 - Discrete Time Systems in the Frequency Domain
- Lecture 15 - Simple Digital Filters
- Lecture 16 - All Pass Filters, Com.Filters
- Lecture 17 - Linear Phase filters, Complementary Transfer Fn
- Lecture 18 - Compensatory Transfer Functions, (Continued.)
- Lecture 19 - Test for Stability using All Pass Functions
- Lecture 20 - Digital Processing of Continuous Time Signals
- Lecture 21 - Problem Solving Session
- Lecture 22 - Problem Solving Session
- Lecture 23 - Analog Filter Design
- Lecture 24 - Analog Chebyshev LPF Design
- Lecture 25 - Analog Filter Design (Continued.)
- Lecture 26 - Analog frequency Transformation
- Lecture 27 - Problem Solving Session on Discrete Time System
- Lecture 28 - Digital Filter Structures
- Lecture 29 - IIR Realizations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - All Pass Realizations
- Lecture 31 - Lattice Synthesis (Continued.)
- Lecture 32 - FIR Lattice Synthesis
- Lecture 33 - FIR Lattice (Continued.) and Digital Filter Design
- Lecture 34 - IIR Filter Design
- Lecture 35 - IIR Design by Bilinear Transformation
- Lecture 36 - IIR Design Examples
- Lecture 37 - Digital to Digital Frequency Transformation
- Lecture 38 - FIR Design
- Lecture 39 - FIR Digital Filter Design by Windowing
- Lecture 40 - FIR Design by Windowing & Frequency Sampling
- Lecture 41 - Solving Problems on DSP Structures
- Lecture 42 - FIR Design by Frequency Sampling
- Lecture 43 - FIR Design by Frequency Sampling (Continued.)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Wireless Communication

Subject Co-ordinator - Prof. Ranjan Bose

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation and Introduction
- Lecture 2 - Types of Wireless communication
- Lecture 3 - The modern wireless Communication Systems
- Lecture 4 - The cellular concept - System Design issues
- Lecture 5 - Cell capacity and reuse
- Lecture 6 - Interference and System capacity
- Lecture 7 - Improving coverage and system capacity
- Lecture 8 - Mobile Radio Propagation
- Lecture 9 - Mobile Radio Propagation (Continued.)
- Lecture 10 - Mobile Radio Propagation (Continued.)
- Lecture 11 - Mobile Radio Propagation (Continued.)
- Lecture 12 - Mobile Radio Propagation (Continued.)
- Lecture 13 - Mobile Radio Propagation (Continued.)
- Lecture 14 - Mobile Radio Propagation II
- Lecture 15 - Mobile Radio Propagation II (Continued.)
- Lecture 16 - Mobile Radio Propagation II (Continued.)
- Lecture 17 - Mobile Radio Propagation II (Continued.)
- Lecture 18 - Mobile Radio Propagation II (Continued.)
- Lecture 19 - Mobile Radio Propagation II (Continued.)
- Lecture 20 - Mobile Radio Propagation II (Continued.)
- Lecture 21 - Modulation Techniques for Mobile Communication
- Lecture 22 - Modulation Techniques (Continued.)
- Lecture 23 - Modulation Techniques (Continued.)
- Lecture 24 - Modulation Techniques (Continued.)
- Lecture 25 - Modulation Techniques (Continued.)
- Lecture 26 - Modulation Techniques (Continued.)
- Lecture 27 - Modulation Techniques (Continued.)
- Lecture 28 - Equalization and Diversity Techniques
- Lecture 29 - Equalization and Diversity Techniques (Continued.)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equalization and Diversity Techniques (Continued.)
- Lecture 31 - Equalization and Diversity Techniques (Continued.)
- Lecture 32 - Coding Techniques for Mobile Communications
- Lecture 33 - Coding Techniques for Mobile Communications (Continued.)
- Lecture 34 - Coding Techniques for Mobile Communications (Continued.)
- Lecture 35 - Coding Techniques for Mobile Communications (Continued.)
- Lecture 36 - Wireless Networks
- Lecture 37 - GSM and CDMA
- Lecture 38 - GSM and CDMA (Continued.)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Basic Electronics

Subject Co-ordinator - Prof. Chitralkha Mahanta

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Semiconductor materials  
Lecture 2 - PN Junction Diodes  
Lecture 3 - Diode Equivalent Circuits  
Lecture 4 - Diode Rectifier Circuits  
Lecture 5 - Zener Diode and Applications  
Lecture 6 - Clipping and Clamping Circuits  
Lecture 7 - Transistor Operation - Part-1  
Lecture 8 - Transistor Operation - Part-2  
Lecture 9 - Biasing the BJT - Part-1  
Lecture 10 - Biasing the BJT - Part-2  
Lecture 11 - BJT Small Signal Analysis  
Lecture 12 - BJT Amplifier - Part-1  
Lecture 13 - BJT Amplifier - Part-2  
Lecture 14 - Frequency Response of BJT Analysis - Part-1  
Lecture 15 - Bipolar Junction Transistors  
Lecture 16 - Transistor as a Switch  
Lecture 17 - MOSFET - Part-1  
Lecture 18 - MOSFET - Part-2  
Lecture 19 - MOSFET under dc operation  
Lecture 20 - Mosfet as an Amplifier  
Lecture 21 - Small signal model of MOSFET - Part-1  
Lecture 22 - Small signal model of MOSFET - Part-2  
Lecture 23 - High Frequency model of mosfet  
Lecture 24 - Junction Field Effect Transistor  
Lecture 25 - Operational Amplifier Introduction  
Lecture 26 - Ideal Op-Amp  
Lecture 27 - Op-Amp applications Part-1  
Lecture 28 - Op-Amp Applications Part-2  
Lecture 29 - Op-Amp Applications Part-3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The practical Op-Amp
- Lecture 31 - Positive feedback and oscillation
- Lecture 32 - Comparator
- Lecture 33 - Large Signal Amplifiers
- Lecture 34 - Transformer Couple Power Amplifier
- Lecture 35 - Class AB Operations of Power Amplifier
- Lecture 36 - Power BJTs
- Lecture 37 - Regulated Power Supply
- Lecture 38 - Four Layered Diode
- Lecture 39 - Silicon Control Rectifier
- Lecture 40 - SCR Applications



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:VLSI Design Verification and Test

Subject Co-ordinator - Dr. Santosh Biswas, Jatindra Kumar Deka, Prof. Arnab Sarkar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Part 1  
Lecture 2 - Introduction - Part 2  
Lecture 3 - Overview of VLSI Design Flow  
Lecture 4 - High Level Synthesis Overview - Part 1  
Lecture 5 - High Level Synthesis Overview - Part 2  
Lecture 6 - Scheduling in HLS - Part 1  
Lecture 7 - Scheduling in HLS - Part 2  
Lecture 8 - Scheduling in HLS - Part 3  
Lecture 9 - Scheduling in HLS - Part 4  
Lecture 10 - Scheduling in HLS - Part 5  
Lecture 11 - Scheduling in HLS - Part 6  
Lecture 12 - Scheduling in HLS - Part 7  
Lecture 13 - Resource Sharing and Binding in HLS - Part 1  
Lecture 14 - Resource Sharing and Binding in HLS - Part 2  
Lecture 15 - Resource Sharing and Binding in HLS - Part 3  
Lecture 16 - Resource Sharing and Binding in HLS - Part 4  
Lecture 17 - Resource Sharing and Binding in HLS - Part 5  
Lecture 18 - Resource Sharing and Binding in HLS - Part 6  
Lecture 19 - Resource Sharing and Binding in HLS - Part 7  
Lecture 20 - Logic Synthesis - Part 1  
Lecture 21 - Logic Synthesis - Part 2  
Lecture 22 - Logic Synthesis - Part 3  
Lecture 23 - Physical Design - Part 1  
Lecture 24 - Physical Design - Part 2  
Lecture 25 - Physical Design - Part 3  
Lecture 26 - Introduction to formal methods for design verification  
Lecture 27 - Temporal Logic  
Lecture 28 - Syntax and Semantics of CLT  
Lecture 29 - Syntax and semantics of CTL (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equivalences between CTL Formulas
- Lecture 31 - Introduction to Model Checking
- Lecture 32 - Model checking Algorithms
- Lecture 33 - Model checking Algorithms (Continued...)
- Lecture 34 - Model Checking with Fairness
- Lecture 35 - Binary Decision Diagram
- Lecture 36 - Ordered Binary Decision Diagram (OBDD)
- Lecture 37 - Operation On OBDD
- Lecture 38 - OBDD for State Transition Systems E
- Lecture 39 - Symbolic Model Checking
- Lecture 40 - Introduction to Digital VLSI Testing
- Lecture 41 - Functional and Structural Testing
- Lecture 42 - Fault Equivalence
- Lecture 43 - Fault Simulation - I
- Lecture 44 - Fault Simulation - II
- Lecture 45 - Fault Simulation - III
- Lecture 46 - Testability Measures (SCOAP)
- Lecture 47 - Introduction to Automatic Test Pattern Generation (ATPG) and ATPG Algebras
- Lecture 48 - D-Algorithm - I
- Lecture 49 - D-Algorithm - II
- Lecture 50 - ATPG for Synchronous Sequential Circuits
- Lecture 51 - Scan Chain based Sequential Circuit Testing - I
- Lecture 52 - Scan Chain based Sequential Circuit Testing - II
- Lecture 53 - BIST - I
- Lecture 54 - BIST - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Design of Power Electronic Converters

Subject Co-ordinator - Prof. Shabari Nath

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Analysis of Buck Converter
- Lecture 3 - Choosing L and C
- Lecture 4 - Design Example of Buck Converter
- Lecture 5 - Analysis of H Bridge
- Lecture 6 - Bipolar PWM
- Lecture 7 - Unipolar PWM
- Lecture 8 - Bipolar vs Unipolar PWM
- Lecture 9 - Different types of power diode
- Lecture 10 - Diode characteristics
- Lecture 11 - Diode Datasheets
- Lecture 12 - Diode Datasheet Examples
- Lecture 13 - MOSFET
- Lecture 14 - Switching characteristics of MOSFET
- Lecture 15 - MOSFET Datasheets - I
- Lecture 16 - MOSFET Datasheets - II
- Lecture 17 - MOSFET Datasheet example
- Lecture 18 - IGBT
- Lecture 19 - IGBT Datasheets - I
- Lecture 20 - IGBT Datasheets - II
- Lecture 21 - IGBT Datasheet Example
- Lecture 22 - Introduction to Gate Drivers
- Lecture 23 - Gate Driver Requirements
- Lecture 24 - Optocouplers based Gate Drivers - I
- Lecture 25 - Optocouplers based Gate Drivers - II
- Lecture 26 - Desat Protection
- Lecture 27 - Bootstrapping
- Lecture 28 - Pulse Transformer based Gate Drivers
- Lecture 29 - Gate Drivers - Few Other Requirements

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Snubbers
- Lecture 31 - RC Snubber Analysis - I
- Lecture 32 - RC Snubber Analysis - II : Underdamped Case
- Lecture 33 - RC Snubber Analysis - III : Overdamped and Critically Damped Case
- Lecture 34 - RC Snubber Design - I
- Lecture 35 - RC Snubber Design - II
- Lecture 36 - RCD Snubbers - I
- Lecture 37 - RCD Snubbers - II
- Lecture 38 - Power Loss - I
- Lecture 39 - Power Loss - II
- Lecture 40 - Thermal Modelling - I
- Lecture 41 - Thermal Modelling - II
- Lecture 42 - Thermal Modelling - III
- Lecture 43 - Choosing Heat Sinks
- Lecture 44 - Fundamentals
- Lecture 45 - Magnetic Losses
- Lecture 46 - Conductors
- Lecture 47 - Magnetic Materials
- Lecture 48 - Magnetic Core
- Lecture 49 - Inductor Design - I
- Lecture 50 - Inductor Design - II
- Lecture 51 - Transformer Design
- Lecture 52 - Inductor Design Example
- Lecture 53 - Example of Transformer Design
- Lecture 54 - Introduction to EMI
- Lecture 55 - EMI Measurements
- Lecture 56 - EMI in Power Electronics
- Lecture 57 - CM and DM noise
- Lecture 58 - Design Solutions of EMI
- Lecture 59 - EMI Filter - I
- Lecture 60 - EMI Filter - II
- Lecture 61 - Sections of Power Converters
- Lecture 62 - Capacitors
- Lecture 63 - Familiarity with Components - I
- Lecture 64 - Familiarity with Components - II
- Lecture 65 - PCB - I
- Lecture 66 - PCB - II
- Lecture 67 - PCB - III
- Lecture 68 - Grounds

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Lab Demo of Hardware Design  
Lecture 70 - Tutorial: PCB Designing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Operation and Planning of Power Distribu

Subject Co-ordinator - Prof. Sanjib Ganguly

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Power systems: Overview and historical developments
- Lecture 2 - Introduction to power delivery systems
- Lecture 3 - Introduction to electrical loads
- Lecture 4 - Load diversity
- Lecture 5 - Different load indices
- Lecture 6 - Loss factor
- Lecture 7 - Load management
- Lecture 8 - Brief overview of power distribution substation
- Lecture 9 - Substation bus schemes and primary distribution network topology
- Lecture 10 - Voltage drop and power loss computations for typical radial distribution feeders
- Lecture 11 - Generalized expression for voltage drop for radial distribution feeder
- Lecture 12 - Derivation of K-constant for voltage drop computation
- Lecture 13 - Different reliability indices used in distribution networks
- Lecture 14 - Different reliability indices with numerical examples
- Lecture 15 - Mathematical concept of reliability
- Lecture 16 - Reliability evaluation of multiple units connected to series and/or parallel
- Lecture 17 - Numerical problems on reliability evaluation
- Lecture 18 - Power quality problems in distribution systems
- Lecture 19 - Forward backward load flow approach for power distribution systems
- Lecture 20 - Forward backward load flow approach for power distribution systems
- Lecture 21 - Reactive power compensation: Basic idea
- Lecture 22 - Reactive power compensation: Numerical examples
- Lecture 23 - Capacitor placement at distribution feeder: Analytical approach
- Lecture 24 - Power distribution system planning: Economic aspects
- Lecture 25 - Power distribution system planning: Different models and solution strategies
- Lecture 26 - Mono-objective power distribution system planning approach
- Lecture 27 - Multi-objective power distribution system planning approach
- Lecture 28 - Multi-objective planning incorporating sectionalizing switches and tie-lines
- Lecture 29 - Reconfiguration of power distribution networks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Distribution networks with the integration of Distributed Generation
- Lecture 31 - Concept of microgrids
- Lecture 32 - Wind and solar energy conversion systems
- Lecture 33 - Energy storage systems
- Lecture 34 - Distribution system automation and smart grid - Part I
- Lecture 35 - Distribution system automation and smart grid - Part II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Nanophotonics, Plasmonics, and Metamaterials

Subject Co-ordinator - Dr. Debabrata Sikdar, Dr. Debabrata Sikdar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Nanophotonics and Plasmonics
- Lecture 2 - Introduction to Metamaterials and Metasurfaces
- Lecture 3 - Overview and current status
- Lecture 4 - Electromagnetic theory of light
- Lecture 5 - Electromagnetic properties of material
- Lecture 6 - Electromagnetic waves in dielectric media
- Lecture 7 - Polarization of light
- Lecture 8 - Reflection and refraction: Fresnel equations
- Lecture 9 - Absorption, dispersion and scattering of light
- Lecture 10 - Matrix theory of dielectric layered media
- Lecture 11 - 1D Photonic crystals
- Lecture 12 - Dispersion relation and photonic band structure
- Lecture 13 - Real and reciprocal lattices
- Lecture 14 - 2D and 3D Photonic crystals
- Lecture 15 - Emerging Applications of Photonic Crystals
- Lecture 16 - Optical properties of metals
- Lecture 17 - Surface Plasmon Polaritons (SPP): Fundamentals
- Lecture 18 - Applications of SPPs
- Lecture 19 - Localized surface plasmon resonance (LSPR)
- Lecture 20 - Plasmonic nanoparticles: Antenna and Waveguides
- Lecture 21 - Applications of LSPR
- Lecture 22 - Fundamentals of metamaterials
- Lecture 23 - Effective medium theories
- Lecture 24 - Single and Double-Negative Metamaterials
- Lecture 25 - Metamaterial Perfect absorbers
- Lecture 26 - Super lens, Hyperbolic Metamaterials and Hyper lens
- Lecture 27 - Tunable photonic metamaterial based devices
- Lecture 28 - Metasurfaces and Frequency selective surfaces
- Lecture 29 - Guided mode resonances (GMR)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Applications of metasurfaces and GMR devices
- Lecture 31 - Transformation Optics (TO) and Invisibility Cloaks
- Lecture 32 - Carpet cloaking and TO metamaterials
- Lecture 33 - Introduction to alternative materials
- Lecture 34 - Nanofabrication: Physical and Chemical methods
- Lecture 35 - Lithography and Pattern transfer
- Lecture 36 - Nanophotonic characterization methods

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Signals and Systems

Subject Co-ordinator - Prof. K.S. Venkatesh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
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Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42  
Lecture 43  
Lecture 44  
Lecture 45

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Advanced 3G and 4G Wireless Mobile Communication

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to 3G/4G Standards
- Lecture 2 - Wireless Channel and Fading
- Lecture 3 - Rayleigh Fading and BER of Wired Communication
- Lecture 4 - BER for Wireless Communication
- Lecture 5 - Introduction to Diversity
- Lecture 6 - Multi-antenna Maximal Ratio Combiner
- Lecture 7 - BER with Diversity
- Lecture 8 - Spatial Diversity and Diversity Order
- Lecture 9 - Wireless Channel and Delay Spread
- Lecture 10 - Coherence Bandwidth of the Wireless Channel
- Lecture 11 - ISI and Doppler in Wireless Communications
- Lecture 12 - Doppler Spectrum and Jakes Model
- Lecture 13 - Introduction to CDMA, Spread Spectrum and LFSR
- Lecture 14 - Generation and Properties of PN Sequences
- Lecture 15 - Correlation of PN Sequences and Jammer Margin
- Lecture 16 - CDMA Advantages and RAKE Receiver
- Lecture 17 - Multi-User CDMA Downlink Part I
- Lecture 18 - Multi-User CDMA Downlink Part II
- Lecture 19 - Multi-User CDMA Uplink and Asynchronous CDMA
- Lecture 20 - CDMA Near-Far Problem and Introduction to MIMO
- Lecture 21 - MIMO System Model and Zero-Forcing Receiver
- Lecture 22 - MIMO MMSE Receiver and Introduction to SVD
- Lecture 23 - SVD Based Optimal MIMO Transmission and Capacity
- Lecture 24 - SVD Based Optimal MIMO Transmission and Capacity
- Lecture 25 - OSTBCs and Introduction to V-BLAST Receiver
- Lecture 26 - V-BLAST (Continued) and MIMO Beamforming
- Lecture 27 - Introduction to OFDM and Multi-Carrier Modulation
- Lecture 28 - IFFT Sampling for OFDM
- Lecture 29 - OFDM Schematic and Cyclic Prefix

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- Lecture 30 - OFDM Based Parallelization and OFDM Example
- Lecture 31 - OFDM Example (Continued) and Introduction to MIMO-OFDM
- Lecture 32 - MIMO-OFDM (Continued)
- Lecture 33 - Impact of Carrier Frequency Offset (CFO) in OFDM
- Lecture 34 - PAPR in OFDM Systems and Introduction to SC-FDMA
- Lecture 35 - SC-FDMA (Continued) and Introduction of Wireless Propagation Models
- Lecture 36 - Ground Reflection and Okumura Models
- Lecture 37 - Hata Model and Log Normal Shadowing
- Lecture 38 - Link Budget Analysis
- Lecture 39 - Introduction to Teletraffic Theory
- Lecture 40 - Cellular Traffic Modeling and Blocking Probability

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Switching

Subject Co-ordinator - Prof. Yatindra N Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Digital Switching  
Lecture 2 - Digital Switching  
Lecture 3 - Digital Switching  
Lecture 4 - Digital Switching  
Lecture 5 - Digital Switching  
Lecture 6 - Digital Switching  
Lecture 7 - Digital Switching  
Lecture 8 - Digital Switching  
Lecture 9 - Digital Switching  
Lecture 10 - Digital Switching  
Lecture 11 - Digital Switching  
Lecture 12 - Digital Switching  
Lecture 13 - Digital Switching  
Lecture 14 - Digital Switching  
Lecture 15 - Digital Switching  
Lecture 16 - Digital Switching  
Lecture 17 - Digital Switching  
Lecture 18 - Digital Switching  
Lecture 19 - Digital Switching  
Lecture 20 - Digital Switching  
Lecture 21 - Digital Switching  
Lecture 22 - Digital Switching  
Lecture 23 - Digital Switching  
Lecture 24 - Digital Switching  
Lecture 25 - Digital Switching  
Lecture 26 - Digital Switching  
Lecture 27 - Digital Switching  
Lecture 28 - Digital Switching  
Lecture 29 - Digital Switching

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Digital Switching  
Lecture 31 - Digital Switching  
Lecture 32 - Digital Switching  
Lecture 33 - Digital Switching  
Lecture 34 - Digital Switching  
Lecture 35 - Digital Switching  
Lecture 36 - Digital Switching  
Lecture 37 - Digital Switching

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Principles of Modern CDMA-MIMO-OFDM Wire

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Evolution of Wireless Communication Technologies
- Lecture 2 - Modeling Wireless Channel
- Lecture 3 - Wireless Fading Channel Model
- Lecture 4 - Fading Channel Distribution
- Lecture 5 - Rayleigh Fading Channel
- Lecture 6 - Bit Error Rate (BER) Performance
- Lecture 7 - Bit Error Rate (BER) of AWGN Channels
- Lecture 8 - Bit Error Rate of Rayleigh Fading Wireless Channel
- Lecture 9 - Exact BER Expression for Rayleigh Fading Wireless Channel
- Lecture 10 - Deep Fade Analysis of Wireless Communication
- Lecture 11 - Principle of Diversity
- Lecture 12 - Multiple Antenna Diversity
- Lecture 13 - Maximal-Ratio Combining
- Lecture 14 - BER of Multiple Antenna Wireless Systems
- Lecture 15 - Approximate BER for Multiple Antenna Wireless System
- Lecture 16 - Examples for BER of Wireless Communication
- Lecture 17 - Deep Fade in Multi Antenna Systems
- Lecture 18 - Intuition for Deep Fade in Multi-Antenna System
- Lecture 19 - Definition of Diversity Order
- Lecture 20 - Max Delay Spread
- Lecture 21 - RMS Delay Spread
- Lecture 22 - Delay Spread and Inter Symbol Interference
- Lecture 23 - Coherence Bandwidth of Wireless Channel
- Lecture 24 - Mobility and Doppler Effect in Wireless Channels
- Lecture 25 - Impact of Doppler Effect on Wireless Channel
- Lecture 26 - Introduction to Code Division Multiple Access (CDMA)
- Lecture 27 - Chip Time and Bandwidth Expansion in CDMA
- Lecture 28 - Code Generation for CDMA
- Lecture 29 - CDMA Codes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - BER of CDMA Systems
- Lecture 31 - Analysis of Multi-user CDMA
- Lecture 32 - Multipath Diversity in CDMA Systems
- Lecture 33 - Near-Far Problem in CDMA
- Lecture 34 - Multiple Input Multiple Output (MIMO) Systems
- Lecture 35 - Examples of MIMO Systems
- Lecture 36 - MIMO Receivers
- Lecture 37 - BER Performance of ZF Receiver
- Lecture 38 - Transmit Beamforming in MISO Systems
- Lecture 39 - Alamouti Code and Space-Time Block Codes
- Lecture 40 - BER of Alamouti Coded System
- Lecture 41 - Singular Value Decomposition (SVD)
- Lecture 42 - SVD in MIMO
- Lecture 43 - Capacity of MIMO Wireless Systems
- Lecture 44 - SVD based MIMO Transmission
- Lecture 45 - Orthogonal Frequency Division Multiplexing (OFDM)
- Lecture 46 - Transmission in Multicarrier Systems
- Lecture 47 - FFT/IFFT Processing in OFDM
- Lecture 48 - Cyclic Prefix in OFDM Systems
- Lecture 49 - Schematic Representation of OFDM Transmitter and Receiver
- Lecture 50 - BER Performance of OFDM Systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Probability and Random Variables, Processes

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basics - Sample Space and Events

Lecture 2 - Axioms of Probability

Lecture 3 - Conditional Probability - Mary-PAM Example

Lecture 4 - Independent Events - Mary-PAM Example

Lecture 5 - Independent Events - Block Transmission Example

Lecture 6 - Independent Events - Multiantenna Fading Example

Lecture 7 - Bayes Theorem and A posteriori Probabilities

Lecture 8 - Maximum A posteriori Probability (MAP) Receiver

Lecture 9 - Random Variables, Probability Density Function (PDF)

Lecture 10 - Application

Lecture 11 - Mean, Variance of Random Variables

Lecture 12 - Application

Lecture 13 - Transformation of Random Variables and Rayleigh Fading Wireless Channel

Lecture 14 - Gaussian Random Variable and Linear Transformation

Lecture 15 - Special Case

Lecture 16 - Application

Lecture 17 - Random Processes and Wide Sense Stationarity (WSS)

Lecture 18 - WSS Example Narrowband Wireless Signal with Random Phase

Lecture 19 - Power Spectral Density (PSD) for WSS Random Process

Lecture 20 - PSD Application in Wireless Bandwidth Required for Signal Transmission

Lecture 21 - Transmission of WSS Random Process Through LTI System

Lecture 22 - Special Random Processes Gaussian Process and White Noise AWGN Communication Channel

Lecture 23 - Gaussian Process Through LTI System Example

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Estimation for Wireless Communications,

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basics - Sensor Network and Noisy Observation Model
- Lecture 2 - Likelihood Function and Maximum Likelihood (ML) Estimate
- Lecture 3 - Properties of Maximum Likelihood (ML) Estimate  $\hat{\theta}$  Mean and Unbiasedness
- Lecture 4 - Properties of Maximum Likelihood (ML) Estimate  $\hat{\theta}$  Variance and Spread Around Mean
- Lecture 5 - Reliability of the Maximum Likelihood (ML) Estimate  $\hat{\theta}$  Number of Samples Required
- Lecture 6 - Estimation of Complex Parameters  $\hat{\theta}$  Symmetric Zero Mean Complex Gaussian Noise
- Lecture 7 - Wireless Fading Channel Estimation  $\hat{\theta}$  Pilot Symbols and Likelihood Function
- Lecture 8 - Wireless Fading Channel Estimation  $\hat{\theta}$  Pilot Training based Maximum Likelihood ML Estimate
- Lecture 9 - Wireless Fading Channel Estimation  $\hat{\theta}$  Mean and Variance of Pilot Training Based Maximum Likelihood ML Estimate
- Lecture 10 - Example  $\hat{\theta}$  Wireless Fading Channel Estimation for Downlink Mobile Communication
- Lecture 11 - Cramer Rao Bound (CRB) for Parameter Estimation
- Lecture 12 - Cramer Rao Bound CRB Example  $\hat{\theta}$  Wireless Sensor Network
- Lecture 13 - Vector Parameter Estimation  $\hat{\theta}$  System Model for Multi Antenna Downlink Channel Estimation
- Lecture 14 - Likelihood Function and Least Squares Cost Function for Vector Parameter Estimation
- Lecture 15 - Least Squares Cost Function for Vector Parameter Estimation Vector Derivative Gradient
- Lecture 16 - Least Squares Solution Maximum Likelihood ML Estimate Pseudo Inverse
- Lecture 17 - Properties of Least Squares Estimate  $\hat{\theta}$  Mean Covariance and Distribution
- Lecture 18 - Least Squares Multi Antenna Downlink Maximum Likelihood Channel Estimation
- Lecture 19 - Multiple Input Multiple Output MIMO Channel Estimation  $\hat{\theta}$  Least Squares Maximum Likelihood ML Estimate
- Lecture 20 - Example  $\hat{\theta}$  Least Squares Multiple Input Multiple Output MIMO Channel Estimation
- Lecture 21 - Channel Equalization and Inter Symbol Interference ISI Model
- Lecture 22 - Least Squares based Zero Forcing Channel Equalizer
- Lecture 23 - Example of ISI Channel and Least Squares based Zero Forcing
- Lecture 24 - Equalization and Approximation Error for Zero Forcing Channel Equalizer
- Lecture 25 - Example Equalization and Approximation Error for Zero Forcing Channel Equalizer
- Lecture 26 - Introduction to Orthogonal Frequency Division Multiplexing OFDM  $\hat{\theta}$  Cyclic Prefix CP and Circular Convolution
- Lecture 27 - Introduction to Orthogonal Frequency Division Multiplexing OFDM  $\hat{\theta}$  FFT at Receiver and Flat Fading
- Lecture 28 - Channel Estimation Across Each Subcarrier in Orthogonal Frequency Division Multiplexing OFDM
- Lecture 29 - Example Orthogonal Frequency Division Multiplexing OFDM  $\hat{\theta}$  Transmission of Samples with Cyclic Prefix

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Example Orthogonal Frequency Division Multiplexing OFDM  $\hat{A}$  FFT at Receiver and Channel Estimation
- Lecture 31 - Comb Type Pilot CTP Based Orthogonal Frequency Division Multiplexing OFDM Channel Estimation
- Lecture 32 - Comb Type Pilot CTP Based Orthogonal Frequency Division Multiplexing OFDM Channel Estimation
- Lecture 33 - Example Comb Type Pilot CTP Based Orthogonal Frequency Division Multiplexing OFDM Channel
- Lecture 34 - Frequency Domain Equalization FDE for Inter Symbol Interference ISI Removal in Wireless System
- Lecture 35 - Example Frequency Domain Equalization FDE for Inter Symbol Interference ISI Removal in Wireless
- Lecture 36 - Example Frequency Domain Equalization FDE for Inter Symbol Interference ISI Removal in Wireless
- Lecture 37 - Introduction to Sequential Estimation  $\hat{A}$  Application in Wireless Channel Estimation
- Lecture 38 - Sequential Estimation of Wireless Channel Coefficient  $\hat{A}$  Estimate and Variance Update Equation
- Lecture 39 - Example Sequential Estimation of Wireless Channel Coefficient

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Error Control Coding - An Introduction to

Subject Co-ordinator - Dr. Adrish Banerjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Error Coding - I
- Lecture 2 - Introduction to Error Coding - II
- Lecture 3 - Introduction to Error Control Coding - III
- Lecture 4 - Introduction to Convolutional Codes - I
- Lecture 5 - Introduction to Convolutional Codes - II
- Lecture 6 - Convolutional Codes
- Lecture 7 - Convolutional Codes
- Lecture 8 - Decoding of Convolutional Codes - I
- Lecture 9 - Decoding of Convolutional Codes - II
- Lecture 10 - Problem Solving Session - I
- Lecture 11 - Problem Solving Session - II
- Lecture 12 - Performance Bounds for Convolutional Codes
- Lecture 13 - Turbo Codes
- Lecture 14 - Turbo Decoding
- Lecture 15 - Convergence of Turbo Codes
- Lecture 16 - Applications of Convolutional Codes
- Lecture 17 - Problem Solving Sessions - III

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NPTEL Video Course - Electronics and Communication Engineering - NOC:Error Control Coding: An Introduction to

Subject Co-ordinator - Dr. Adrish Banerjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Error Control Coding - I
- Lecture 2 - Introduction to Error Control Coding - II
- Lecture 3 - Introduction to Error Control Coding - III
- Lecture 4 - Introduction to Linear Block Codes, Generator Matrix and Parity Check Matrix
- Lecture 5 - Syndrome, Error Correction and Error Detection
- Lecture 6 - Problem Solving Session - I
- Lecture 7 - Decoding of Linear Block Codes
- Lecture 8 - Distance Properties of Linear Block Codes - I
- Lecture 9 - Distance Properties of Linear Block Codes - II
- Lecture 10 - Problem Solving Session - II
- Lecture 11 - Some Simple Linear Block Codes - I
- Lecture 12 - Some Simple Linear Block Codes - II
- Lecture 13 - Bounds on the Size of a Code
- Lecture 14 - Problem Solving Session - III
- Lecture 15 - Low Density Parity Check Codes
- Lecture 16 - Decoding of Low Density Parity Check Codes - I
- Lecture 17 - Decoding of Low Density Parity Check Codes - II
- Lecture 18 - Applications of Linear Block Codes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Bayesian, MMSE Estimation for Wireless C

Subject Co-ordinator - Prof. Aditya K. Jagannatham

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basics  $\hat{\Lambda}$  Introduction to Bayesian Minimum Mean Squared Error
- Lecture 2 - Optimal Bayesian Minimum Mean Squared Error (MMSE) Estimate
- Lecture 3 - Derivation of Minimum Mean Squared Error MMSE Estimate for Gaussian Parameter  $\hat{\Lambda}$  Part I
- Lecture 4 - Derivation of Minimum Mean Squared Error MMSE Estimate for Gaussian Parameter  $\hat{\Lambda}$  Part II
- Lecture 5 - Derivation of Minimum Mean Squared Error (MMSE) Estimate for Gaussian Parameter  $\hat{\Lambda}$  Non-Zero Mean
- Lecture 6 - Minimum Mean Squared Error MMSE Estimation Application  $\hat{\Lambda}$  Wireless Sensor Network
- Lecture 7 - Simplification and Example of Minimum Mean Squared Error MMSE Estimate for Wireless Sensor Network
- Lecture 8 - Minimum Mean Squared Error MMSE Estimation Application  $\hat{\Lambda}$  Wireless Fading Channel Estimation
- Lecture 9 - Simplification and Example of Minimum Mean Squared Error MMSE Estimate for Wireless Fading Channel
- Lecture 10 - Minimum Mean Squared Error MMSE for Wireless Sensor Network WSN  $\hat{\Lambda}$  Derivation and Example
- Lecture 11 - Reliability of Minimum Mean Squared Error MMSE Estimate  $\hat{\Lambda}$  Part I
- Lecture 12 - Reliability of Minimum Mean Squared Error MMSE Estimate  $\hat{\Lambda}$  Part II
- Lecture 13 - Minimum Mean Squared Error MMSE for Wireless Fading Channel Estimation  $\hat{\Lambda}$  Derivation
- Lecture 14 - Minimum Mean Squared Error (MMSE) for Wireless Fading Channel Estimation  $\hat{\Lambda}$  Example and Properties
- Lecture 15 - Linear Minimum Mean Squared Error LMMSE Estimate Derivation  $\hat{\Lambda}$  Part I
- Lecture 16 - Linear Minimum Mean Squared Error LMMSE Estimate Derivation  $\hat{\Lambda}$  Part II
- Lecture 17 - Vector Parameter Estimation  $\hat{\Lambda}$  System Model for Multi-Antenna Downlink Channel Estimation
- Lecture 18 - Linear Minimum Mean Squared Error LMMSE Estimate for Multi Antenna Downlink Wireless Channel - P
- Lecture 19 - Linear Minimum Mean Squared Error LMMSE Estimate for Multi Antenna Downlink Wireless Channel - P
- Lecture 20 - Example of Linear Minimum Mean Squared Error LMMSE Estimation for Multi Antenna Downlink Wireless Channel
- Lecture 21 - Derivation and Example of Error Covariance of Multi Antenna LMMSE Channel Estimation
- Lecture 22 - System Model for Multiple Input Multiple Output MIMO Downlink Wireless Channel Estimation
- Lecture 23 - Channel/ Noise Statistics for Multiple-Input Multiple-Output (MIMO) Downlink Wireless Channel Es
- Lecture 24 - LMMSE/ MMSE Estimation for Multiple-Input Multiple-Output(MIMO) Downlink Wireless Channel Estima
- Lecture 25 - Example of LMMSE/ MMSE Estimation for Multiple-Input Multiple-Output (MIMO) Downlink Wireless Ch
- Lecture 26 - Introduction and system model for equalization
- Lecture 27 - Linear Minimum Mean Square Error (LMMSE) Channel Equalization
- Lecture 28 - Error for LMMSE Channel Equalizer and Example of LMMSE Channel Equalization
- Lecture 29 - Example of Linear Minimum Mean Square Error (LMMSE) Channel Equalization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction and system model for OFDM
- Lecture 31 - System model for OFDM, IFFT/ FFT Operations
- Lecture 32 - LMMSE Estimation for OFDM
- Lecture 33 - Estimate and Error variance of LMMSE Estimate
- Lecture 34 - Example of OFDM
- Lecture 35 - Example of LMMSE estimate and Error variance for OFDM



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Optical communications

Subject Co-ordinator - Dr. Pradeep Kumar K

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview of Fiber-optic communications  
Lecture 2 - Optical Transmitter - I  
Lecture 3 - Optical Transmitter - I (Continued...)  
Lecture 4 - Optical Transmitter - II  
Lecture 5 - Optical Transmitter - II (Continued...)  
Lecture 6 - Intensity modulation  
Lecture 7 - Review of Signals and Representations - I  
Lecture 8 - Review of Signals and Representations - II  
Lecture 9 - Digital Modulation - I  
Lecture 10 - Review of Signals and Representations - III  
Lecture 11 - Review of Signals and Representations - IV  
Lecture 12 - Digital Modulation - II  
Lecture 13 - Digital Modulation - II (Continued...)  
Lecture 14 - Digital Modulation - III  
Lecture 15 - Optical receivers - I  
Lecture 16 - Optical receivers - II  
Lecture 17 - Optical Modulator  
Lecture 18 - Propagation of Electromagnetic wave  
Lecture 19 - Review of EM Theory  
Lecture 20 - Reflection of Waves  
Lecture 21 - Optical fiber - I  
Lecture 22 - Optical fiber - II  
Lecture 23 - Modes in Optical fiber - I  
Lecture 24 - Modes in Optical fiber - I (Continued...)  
Lecture 25 - Modes in Optical fiber - II  
Lecture 26 - Dispersion in Fibers  
Lecture 27 - Dispersion in Fibers (Continued...)  
Lecture 28 - Wrapping up fiber parameters  
Lecture 29 - System Design - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Passive WDM components - I
- Lecture 31 - Passive WDM components - II
- Lecture 32 - Detection of light
- Lecture 33 - Detection of light (Continued...)
- Lecture 34 - Response time and Noise in Detectors
- Lecture 35 - Noise in photodiodes - I Edit Lesson
- Lecture 36 - Noise in photodiodes - II
- Lecture 37 - Light sources - I
- Lecture 38 - Light sources - II Edit Lesson
- Lecture 39 - Semiconductor laser diodes
- Lecture 40 - Optical communication
- Lecture 41 - Power spectral density
- Lecture 42 - Power spectral density (Continued...)
- Lecture 43 - Advantage of coherent receiver
- Lecture 44 - Dispersion induced limitations
- Lecture 45 - Optical amplifiers - I
- Lecture 46 - Optical amplifiers - II
- Lecture 47 - Noise in optical amplifiers
- Lecture 48 - Noise in optical amplifiers (Continued...)
- Lecture 49 - ASE induced limitations
- Lecture 50 - Determining BER in OOK system
- Lecture 51 - BER determination
- Lecture 52 - Eye diagram and Higher modulation techniques Edit Lesson
- Lecture 53 - Higher modulation techniques (Continued...)
- Lecture 54 - Optical OFDM

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Digital Switching-I

Subject Co-ordinator - Prof. Yatindra N Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Telephony and Networks

Lecture 2 - Strowger Automatic Exchange

Lecture 3 - Crossbar Switching

Lecture 4 - Logic Circuit for Crosspoint Operation

Lecture 5 - Introduction to Multistage Interconnection Networks

Lecture 6 - Blocking probability of crossbar switches

Lecture 7 - Call congestion and time congestio

Lecture 8 - Clos network

Lecture 9 - Lee's approximation

Lecture 10 - Karnaugh's approximation

Lecture 11 - Time switch

Lecture 12 - Time switch and Clos network

Lecture 13 - TST switch, Strictly Non-blocking network, Rearrangeably non-blocking network

Lecture 14 - Paull's Matrix

Lecture 15 - f-way multicasting

Lecture 16 - Strictly sense non blocking multicasting switch

Lecture 17 - Rearrangeably non blocking networks

Lecture 18 - Slepian Duguid theorem, Paull's theorem

Lecture 19 - Paull's matrix for rearrangeably non blocking networks

Lecture 20 - Recursive construction; Crosspoint complexity for rearrangeably and strictly non-blocking network

Lecture 21 - Cantor network

Lecture 22 - Wide-sense non blocking network

Lecture 23 - Example of wide -sense non-blocking switch

Lecture 24 - Packet Switching

Lecture 25 - Buffering strategies

Lecture 26 - Output Queued Switch

Lecture 27 - Input Queued Switch

Lecture 28 - Banyan Network, Delta Network

Lecture 29 - Shufflenet as Delta network

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Performance analysis of crossbar and delta network
- Lecture 31 - Properties of Delta Network
- Lecture 32 - Buffered and Unbuffered Delta network
- Lecture 33 - Analysis of Buffered Delta Network - 1 of 3
- Lecture 34 - Analysis of Buffered Delta Network - 2 of 3
- Lecture 35 - Analysis of Buffered Delta Network - 3 of 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:An Introduction to Information Theory

Subject Co-ordinator - Dr. Adrish Banerjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Measure of Information
- Lecture 3 - Information Inequalities
- Lecture 4 - Problem solving session - I
- Lecture 5 - Block to Variable Length Coding - I : Prefix-free code
- Lecture 6 - Block to Variable Length Coding - II : Bounds on Optimal Code Length
- Lecture 7 - Block to Variable Length Coding - III : Huffman Coding
- Lecture 8 - Variable to block length coding
- Lecture 9 - The asymptotic equipartition property
- Lecture 10 - Block to block coding of DMS
- Lecture 11 - Problem solving session - II
- Lecture 12 - Universal Source Coding - I : Lempel-Ziv Algorithm-LZ77
- Lecture 13 - Universal source coding - II : Lempel-Ziv Welch Algorithm (LZW)
- Lecture 14 - Coding of sources with memory
- Lecture 15 - Channel Capacity
- Lecture 16 - Joint typical sequences
- Lecture 17 - Noisy channel coding theorem
- Lecture 18 - Differential entropy
- Lecture 19 - Gaussian channel
- Lecture 20 - Parallel Gaussian channel
- Lecture 21 - Problem solving session - III
- Lecture 22 - Rate distortion theory
- Lecture 23 - Blahut-Arimoto Algorithm
- Lecture 24 - Problem solving session - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Adaptive Signal Processing

Subject Co-ordinator - Prof. Mrityunjay Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Adaptive Filters
- Lecture 2 - Introduction to Stochastic Processes
- Lecture 3 - Stochastic Processes
- Lecture 4 - Correlation Structure
- Lecture 5 - FIR Wiener Filter (Real)
- Lecture 6 - Steepest Descent Technique
- Lecture 7 - LMS Algorithm
- Lecture 8 - Convergence Analysis
- Lecture 9 - Convergence Analysis (Mean Square)
- Lecture 10 - Convergence Analysis (Mean Square)
- Lecture 11 - Misadjustment and Excess MSE
- Lecture 12 - Misadjustment and Excess MSE
- Lecture 13 - Sign LMS Algorithm
- Lecture 14 - Block LMS Algorithm
- Lecture 15 - Fast Implementation of Block LMS Algorithm
- Lecture 16 - Fast Implementation of Block LMS Algorithm
- Lecture 17 - Vector Space Treatment to Random Variables
- Lecture 18 - Vector Space Treatment to Random Variables
- Lecture 19 - Orthogonalization and Orthogonal Projection
- Lecture 20 - Orthogonal Decomposition of Signal Subspaces
- Lecture 21 - Introduction to Linear Prediction
- Lecture 22 - Lattice Filter
- Lecture 23 - Lattice Recursions
- Lecture 24 - Lattice as Optimal Filter
- Lecture 25 - Linear Prediction and Autoregressive Modeling
- Lecture 26 - Gradient Adaptive Lattice
- Lecture 27 - Gradient Adaptive Lattice
- Lecture 28 - Introduction to Recursive Least Squares
- Lecture 29 - RLS Approach to Adaptive Filters

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - RLS Adaptive Lattice
- Lecture 31 - RLS Lattice Recursions
- Lecture 32 - RLS Lattice Recursions
- Lecture 33 - RLS Lattice Algorithm
- Lecture 34 - RLS Using QR Decomposition
- Lecture 35 - Givens Rotation
- Lecture 36 - Givens Rotation and QR Decomposition
- Lecture 37 - Systolic Implementation
- Lecture 38 - Systolic Implementation
- Lecture 39 - Singular Value Decomposition
- Lecture 40 - Singular Value Decomposition
- Lecture 41 - Singular Value Decomposition

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Computer Organization

Subject Co-ordinator - Prof. P.K. Biswas

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Digital Computer Organization  
Lecture 2 - CPU Design - I  
Lecture 3 - CPU Design - II  
Lecture 4 - CPU Design Timing and Control  
Lecture 5 - Micro programmed Control - I  
Lecture 6 - Micro programmed Control - II  
Lecture 7 - Pipeline Concept - I  
Lecture 8 - Pipeline Concept - II  
Lecture 9 - Pipeline Concept - III  
Lecture 10 - Pipeline CPU - I  
Lecture 11 - Pipeline CPU - II  
Lecture 12 - Pipeline CPU - III  
Lecture 13 - Memory Organization - I  
Lecture 14 - Memory Organization - II  
Lecture 15 - Memory Organization - III  
Lecture 16 - Memory Organization - IV  
Lecture 17 - Memory Organization - V  
Lecture 18 - Cache Memory Architecture  
Lecture 19 - Cache Memory Architecture RAM Architecture  
Lecture 20 - RAM Architecture  
Lecture 21 - DAM Architecture-1  
Lecture 22 - DAM Architecture Buffer Cache  
Lecture 23 - Buffer Cache  
Lecture 24 - Secondary Storage Organization - I  
Lecture 25 - Secondary Storage Organization - II  
Lecture 26 - Secondary Storage Organization - III  
Lecture 27 - I/O Subsystem Organization  
Lecture 28 - Error Detection and Correction

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Image Processing

Subject Co-ordinator - Prof. P.K. Biswas

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Image Digitization - I
- Lecture 3 - Image Digitization - II
- Lecture 4 - Pixels Relationships - I
- Lecture 5 - Pixels Relationships - II
- Lecture 6 - Basic Transformations
- Lecture 7 - Camera Model and Imaging Geometry
- Lecture 8 - Camera Calibration and Stereo Imaging
- Lecture 9 - Interpolation and Resampling
- Lecture 10 - Image Interpolation - II
- Lecture 11 - Image Interpolation - I
- Lecture 12 - Image Transformation - II
- Lecture 13 - Fourier Transformation - I
- Lecture 14 - Fourier Transformation - II
- Lecture 15 - Discrete Cosine Transform
- Lecture 16 - K-L Transform
- Lecture 17 - Image Enhancement
- Lecture 18 - Image Enhancement
- Lecture 19 - Image Enhancement
- Lecture 20 - Image Enhancement
- Lecture 21 - Image Enhancement Frequency
- Lecture 22 - Image Restoration - I
- Lecture 23 - Image Restoration - II
- Lecture 24 - Image Restoration - III
- Lecture 25 - Image Registration
- Lecture 26 - Colour Image Processing - I
- Lecture 27 - Colour Image Processing - II
- Lecture 28 - Colour Image Processing - III
- Lecture 29 - Image Segmentation - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Image Segmentation - II
- Lecture 31 - Image Segmentation - III
- Lecture 32 - Image Segmentation - IV
- Lecture 33 - Mathematical Morphology - I
- Lecture 34 - Mathematical Morphology - II
- Lecture 35 - Mathematical Morphology - III
- Lecture 36 - Mathematical Morphology - IV
- Lecture 37 - Object Representation and Description - I
- Lecture 38 - Object Representation and Description - II
- Lecture 39 - Object Representation and Description - III
- Lecture 40 - Object Recognition

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Systems Design

Subject Co-ordinator - Prof. D. Roychoudhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Digital Systems Design
- Lecture 2 - Introduction
- Lecture 3 - Digital Logic - I
- Lecture 4 - Digital Logic - II
- Lecture 5 - Digital Logic - III
- Lecture 6 - Boolean Algebra
- Lecture 7 - Boolean Algebra
- Lecture 8 - Boolean Function Minimization
- Lecture 9 - Boolean Function Minimization
- Lecture 10 - Boolean Function Minimization
- Lecture 11 - Hazzard Covers by K - Map
- Lecture 12 - Combinational Circuit Design
- Lecture 13 - Design of ADDER Circuits
- Lecture 14 - Design of Subtractor Circuits
- Lecture 15 - Digital of Common Digital Elements
- Lecture 16 - Design of Complex Combinational Circuits
- Lecture 17 - Design of Combinational Circuits
- Lecture 18 - Combinational Logic Problem Design
- Lecture 19 - Combinational Logic Design
- Lecture 20 - Logic Design with PLA
- Lecture 21 - Synchronous Sequential Circuit Design
- Lecture 22 - Design of Sequential Modules
- Lecture 23 - Design of Registers and Counter
- Lecture 24 - Finite State Machine Design
- Lecture 25 - Finite State Machine Design and Optimization
- Lecture 26 - Programmable Logic Devices
- Lecture 27 - Programmable Logic Devices
- Lecture 28 - Programmable Logic Devices
- Lecture 29 - Design of Arithmetic Circuits

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design of Arithmetic Circuits
- Lecture 31 - Design of Memory Circuits
- Lecture 32 - Algorithmic State Machines Chart
- Lecture 33 - Design of Computer Instruction Set and the CPU
- Lecture 34 - Design of Computer Instruction Set and the CPU
- Lecture 35 - Design of Computer Instruction Set and the CPU
- Lecture 36 - Design of Computer Instruction Set and the CPU
- Lecture 37 - Design of Computer Instruction Set and the CPU
- Lecture 38 - Design of Computer Instruction Set and the CPU
- Lecture 39 - Design of a Micro Programmed CPU
- Lecture 40 - Digital System Design Current State of the Art

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Voice and Picture Communication

Subject Co-ordinator - Prof. Somnath Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Speech Production Model
- Lecture 3 - Speech Coding
- Lecture 4 - Quantizers for Speech Signal
- Lecture 5 - mew - Law and Optimum Quantizer
- Lecture 6 - Adaptive Quantizer
- Lecture 7 - Differential Quantization
- Lecture 8 - LDM and ADM
- Lecture 9 - Differential PCM and Adaptive Prediction
- Lecture 10 - Linear Prediction of Speech
- Lecture 11 - Computational Aspects of LPC parameters
- Lecture 12 - Cholesky Decomposition
- Lecture 13 - Lattice Formulation of LPC Coefficient
- Lecture 14 - Linear Predictive Synthesizer
- Lecture 15 - LPC Vocoder
- Lecture 16 - Introduction to Image and Video Coding
- Lecture 17 - Lossy Image Compression
- Lecture 18 - DCT Quantization and Limitations
- Lecture 19 - Theory of Wavelets
- Lecture 20 - Discrete Wavelet Transforms
- Lecture 21 - DWT on the Images and its Encoding
- Lecture 22 - Embedded Zero Tree Wavelet Encoding
- Lecture 23 - Video Coding
- Lecture 24 - Motion Estimate Techniques
- Lecture 25 - Fast Motion Estimation Techniques
- Lecture 26 - Video Coding Standards
- Lecture 27 - Advanced Coding Aspects
- Lecture 28 - Audio Coding
- Lecture 29 - Audio Coding AC - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - AC -3 Decoder
- Lecture 31 - MPEG - 1 Audio Coding
- Lecture 32 - Introduction to VoIP
- Lecture 33 - VoIP Signaling
- Lecture 34 - H.323 Call Controls and Enhancements
- Lecture 35 - Interworking with PSTN Limitations and Solution
- Lecture 36 - Multiplexing Schemes
- Lecture 37 - H.323
- Lecture 38 - ISDN Video Conferencing
- Lecture 39 - Video Conferencing
- Lecture 40 - 4G Multimedia Conferencing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - MEMS and Microsystems

Subject Co-ordinator - Prof. Santiram Kal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to MEMS & Microsystems
- Lecture 2 - Introduction to Microsensors
- Lecture 3 - Evaluation of MEMS, Microsensors, Market Survey
- Lecture 4 - Application of MEMS
- Lecture 5 - MEMS Materials
- Lecture 6 - MEMS Materials Properties
- Lecture 7 - MEMS Materials Properties (Continued...)
- Lecture 8 - Microelectronic Technology for MEMS - II
- Lecture 9 - Microelectronic Technology for MEMS - III
- Lecture 10 - Micromachining Technology for MEMS
- Lecture 11 - Micromachining Process
- Lecture 12 - Etch Stop Techniques and Microstructure
- Lecture 13 - Surface and Quartz Micromachining
- Lecture 14 - Fabrication of Micromachined Microstructure
- Lecture 15 - Microstereolithography
- Lecture 16 - MEMS Microsensors Thermal
- Lecture 17 - Micromachined Microsensors Mechanical
- Lecture 18 - MEMS Pressure and Flow Sensor
- Lecture 19 - Micromachined Flow Sensors
- Lecture 20 - MEMS Inertial Sensors
- Lecture 21 - Micromachined Microaccelerometers for MEMS
- Lecture 22 - MEMS Accelerometers for Avionics
- Lecture 23 - Temperature Drift and Damping Analysis
- Lecture 24 - Piezoresistive Accelerometer Technology
- Lecture 25 - MEMS Capacitive Accelerometer
- Lecture 26 - MEMS Capacitive Accelerometer Process
- Lecture 27 - MEMS Gyro Sensor
- Lecture 28 - MEMS for Space Application
- Lecture 29 - Polymer MEMS & Carbon Nano Tubes CNT

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Wafer Bonding & Packaging of MEMS
- Lecture 31 - Interface Electronics for MEMS
- Lecture 32 - MEMS for Biomedical Applications (Bio-MEMS)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Neural Networks and Applications

Subject Co-ordinator - Prof. Somnath Sengupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Artificial Neural Networks
- Lecture 2 - Artificial Neuron Model and Linear Regression
- Lecture 3 - Gradient Descent Algorithm
- Lecture 4 - Nonlinear Activation Units and Learning Mechanisms
- Lecture 5 - Learning Mechanisms-Hebbian, Competitive, Boltzmann
- Lecture 6 - Associative memory
- Lecture 7 - Associative Memory Model
- Lecture 8 - Condition for Perfect Recall in Associative Memory
- Lecture 9 - Statistical Aspects of Learning
- Lecture 10 - V.C. Dimensions
- Lecture 11 - Importance of V.C. Dimensions Structural Risk Minimization
- Lecture 12 - Single-Layer Perceptions
- Lecture 13 - Unconstrained Optimization
- Lecture 14 - Linear Least Squares Filters
- Lecture 15 - Least Mean Squares Algorithm
- Lecture 16 - Perceptron Convergence Theorem
- Lecture 17 - Bayes Classifier & Perceptron
- Lecture 18 - Bayes Classifier for Gaussian Distribution
- Lecture 19 - Back Propagation Algorithm
- Lecture 20 - Practical Consideration in Back Propagation Algorithm
- Lecture 21 - Solution of Non-Linearly Separable Problems Using MLP
- Lecture 22 - Heuristics For Back-Propagation
- Lecture 23 - Multi-Class Classification Using Multi-layered Perceptrons
- Lecture 24 - Radial Basis Function Networks
- Lecture 25 - Radial Basis Function Networks
- Lecture 26 - Posed Surface Reconstruction
- Lecture 27 - Solution of Regularization Equation
- Lecture 28 - Use of Greens Function in Regularization Networks
- Lecture 29 - Regularization Networks and Generalized RBF

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Comparison Between MLP and RBF
- Lecture 31 - Learning Mechanisms in RBF
- Lecture 32 - Introduction to Principal Components and Analysis
- Lecture 33 - Dimensionality reduction Using PCA
- Lecture 34 - Hebbian-Based Principal Component Analysis
- Lecture 35 - Introduction to Self Organizing Maps
- Lecture 36 - Cooperative and Adaptive Processes in SOM
- Lecture 37 - Vector-Quantization Using SOM

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Probability and Random Processes

Subject Co-ordinator - Prof. Mrityunjay Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Theory of Probability
- Lecture 2 - Axioms of Probability
- Lecture 3 - Axioms of Probability (Continued.)
- Lecture 4 - Introduction to Random Variables
- Lecture 5 - Probability Distributions and Density Functions
- Lecture 6 - Conditional Distribution and Density Functions
- Lecture 7 - Function of a Random Variable
- Lecture 8 - Function of a Random Variable (Continued.)
- Lecture 9 - Mean and Variance of a Random Variable
- Lecture 10 - Moments
- Lecture 11 - Characteristic Function
- Lecture 12 - Two Random Variables
- Lecture 13 - Function of Two Random Variables
- Lecture 14 - Function of Two Random Variables (Continued.)
- Lecture 15 - Correlation Covariance and Related Inver
- Lecture 16 - Vector Space of Random Variables
- Lecture 17 - Joint Moments
- Lecture 18 - Joint Characteristic Functions
- Lecture 19 - Joint Conditional Densities
- Lecture 20 - Joint Conditional Densities (Continued.)
- Lecture 21 - Sequences of Random Variables
- Lecture 22 - Sequences of Random Variables (Continued.)
- Lecture 23 - Correlation Matrices and their Properties
- Lecture 24 - Correlation Matrices and their Properties
- Lecture 25 - Conditional Densities of Random Vectors
- Lecture 26 - Characteristic Functions and Normality
- Lecture 27 - Tchebycheff Inequality and Estimation of an Unknown Parameter
- Lecture 28 - Central Limit Theorem
- Lecture 29 - Introduction to Stochastic Process

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Stationary Processes
- Lecture 31 - Cyclostationary Processes
- Lecture 32 - System with Random Process at Input
- Lecture 33 - Ergodic Processes
- Lecture 34 - Introduction to Spectral Analysis
- Lecture 35 - Spectral Analysis (Continued.)
- Lecture 36 - Spectrum Estimation - Non Parametric Methods
- Lecture 37 - Spectrum Estimation - Parametric Methods
- Lecture 38 - Autoregressive Modeling and Linear Prediction
- Lecture 39 - Linear Mean Square Estimation - Wiener (FIR)
- Lecture 40 - Adaptive Filtering - LMS Algorithm

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Pattern Recognition and Application

Subject Co-ordinator - Prof. P.K. Biswas

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Feature Extraction - I
- Lecture 3 - Feature Extraction - II
- Lecture 4 - Feature Extraction - III
- Lecture 5 - Bayes Decision Theory
- Lecture 6 - Bayes Decision Theory (Continued.)
- Lecture 7 - Normal Density and Discriminant Function
- Lecture 8 - Normal Density and Discriminant Function (Continued.)
- Lecture 9 - Bayes Decision Theory - Binary Features
- Lecture 10 - Maximum Likelihood Estimation
- Lecture 11 - Probability Density Estimation
- Lecture 12 - Probability Density Estimation (Continued.)
- Lecture 13 - Probability Density Estimation (Continued.)
- Lecture 14 - Probability Density Estimation (Continued.)
- Lecture 15 - Probability Density Estimation (Continued.)
- Lecture 16 - Dimensionality Problem
- Lecture 17 - Multiple Discriminant Analysis
- Lecture 18 - Multiple Discriminant Analysis (Tutorial)
- Lecture 19 - Multiple Discriminant Analysis (Tutorial)
- Lecture 20 - Perceptron Criterion
- Lecture 21 - Perceptron Criterion (Continued.)
- Lecture 22 - MSE Criterion
- Lecture 23 - Linear Discriminator (Tutorial)
- Lecture 24 - Neural Networks for Pattern Recognition
- Lecture 25 - Neural Networks for Pattern Recognition (Continued.)
- Lecture 26 - Neural Networks for Pattern Recognition (Continued.)
- Lecture 27 - RBF Neural Network
- Lecture 28 - RBF Neural Network (Continued.)
- Lecture 29 - Support Vector Machine

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hyperbox Classifier
- Lecture 31 - Hyperbox Classifier (Continued.)
- Lecture 32 - Fuzzy Min Max Neural Network for Pattern Recognition
- Lecture 33 - Reflex Fuzzy Min Max Neural Network
- Lecture 34 - Unsupervised Learning - Clustering
- Lecture 35 - Clustering (Continued.)
- Lecture 36 - Clustering using minimal spanning tree
- Lecture 37 - Temporal Pattern recognition
- Lecture 38 - Hidden Markov Model
- Lecture 39 - Hidden Markov Model (Continued.)
- Lecture 40 - Hidden Markov Model (Continued.)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Basic Tools of Microwave Engineering

Subject Co-ordinator - Dr. Amitabha Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Challenges of Microwave Design

Lecture 2 - Introduction to the 1st tool

Lecture 3 - Measurement of Unknown Impedance

Lecture 4 - Application of Smith Chart for finding unknown impedance in laboratory

Lecture 5 - Problem Solving using Smith Chart

Lecture 6 - Need of Impedance Matching at Microwave Frequency

Lecture 7 - Lumped Element Based Impedance Matching Network Design by Smith Chart

Lecture 8 - Distributed Impedance Matching Design by Smith Chart

Lecture 9 - Broadband Impedance Matching Network Design

Lecture 10 - Tutorial 2

Lecture 11 - Voltage and Current at Microwave Frequency

Lecture 12 - Scattering Parameter

Lecture 13 - Properties of Scattering Parameter

Lecture 14 - Network Analyser

Lecture 15 - Tutorial 3

Lecture 16 - Radiation between S-Parameters and Transmission Parameters

Lecture 17 - Scattering Parameters of Coupler and Magic Tee

Lecture 18 - Signal Flow Graph

Lecture 19 - Understanding Network Analyser Calibration with the help of Signal Flow Graph

Lecture 20 - Tutorial 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Basic Building Blocks of Microwave Engineering

Subject Co-ordinator - Dr. Amitabha Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concept of Mode
- Lecture 2 - Mathematical Model of Modes
- Lecture 3 - Mathematical Model of TEM Mode
- Lecture 4 - Mathematical Model of TE and TM Mode and Impedance Concept
- Lecture 5 - Losses Associated with Microwave Transmission
- Lecture 6 - Coaxial Line
- Lecture 7 - Rectangular Waveguide
- Lecture 8 - Circular Waveguide
- Lecture 9 - Planar Transmission Line
- Lecture 10 - Coaxial Connectors
- Lecture 11 - 3 Port Microwave Power Divider/Combiner - Part I
- Lecture 12 - 3 Port Microwave Power Divider/Combiner - Part II
- Lecture 13 - 4 Port Microwave Power Divider/Combiner
- Lecture 14 - Microwave Resonator
- Lecture 15 - Microwave Attenuators
- Lecture 16 - Microwave Detector and Switching Diodes
- Lecture 17 - Microwave Tubes
- Lecture 18 - Microwave Tubes
- Lecture 19 - Microwave Solid State Diode Oscillator and Amplifier
- Lecture 20 - Microwave Transistors

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Satellite Communication Systems

Subject Co-ordinator - Prof. Kalyankumar Bandyopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Orbit - 1  
Lecture 3 - Orbit - 2  
Lecture 4 - Orbit - 3  
Lecture 5 - Orbit - 4  
Lecture 6 - Space Segment - 1  
Lecture 7 - Space Segment - 2  
Lecture 8 - Space Segment - 3  
Lecture 9 - Space Segment - 4  
Lecture 10 - Space Segment - 5  
Lecture 11 - Link Budget - 1  
Lecture 12 - Link Budget - 2  
Lecture 13 - Link Budget - 3  
Lecture 14 - Link Budget - 4  
Lecture 15 - Link Budget - 5  
Lecture 16 - Link Budget - 6  
Lecture 17 - Link Budget - 7  
Lecture 18 - Link Budget - 8  
Lecture 19 - Propagation - 1  
Lecture 20 - Propagation - 2  
Lecture 21 - Propagation - 3  
Lecture 22 - Ground Segment - 1  
Lecture 23 - Ground Segment - 2  
Lecture 24 - Ground Segment - 3  
Lecture 25 - Ground Segment - 4  
Lecture 26 - Multiple Access - 1  
Lecture 27 - Multiple Access - 2  
Lecture 28 - Multiple Access - 3  
Lecture 29 - Multiple Access - 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multiple Access - 5
- Lecture 31 - Nonlinearity - I
- Lecture 32 - Nonlinearity - II
- Lecture 33 - Nonlinearity - III
- Lecture 34 - Synchronisation - I
- Lecture 35 - Synchronisation - II
- Lecture 36 - Effect on Higher Layer - I
- Lecture 37 - Effect on Higher Layer - II
- Lecture 38 - Effect on Higher Layer - III
- Lecture 39 - Satellite Navigation - I
- Lecture 40 - Satellite Navigation - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Fundamentals of MIMO Wireless Communication

Subject Co-ordinator - Prof. Suvra Sekhar Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Evolution of Wireless Communication Systems 1G - 5G
- Lecture 2 - Elements of Wireless Communication System
- Lecture 3 - Overview of MIMO Communication Systems
- Lecture 4 - Layered View of Transmitter and Receiver
- Lecture 5 - Wireless Channel Models - I
- Lecture 6 - Large Scale Propagation Models Path Loss
- Lecture 7 - Large Scale Propagation Models Path Loss and Shadowing
- Lecture 8 - Small Scale Propagation Multipath Model
- Lecture 9 - Small Scale Propagation Frequency Flat Fading
- Lecture 10 - Small Scale Propagation Envelope Distribution
- Lecture 11 - Small Scale Propagation Received Signal Correlation
- Lecture 12 - Small Scale Propagation Received Signal Correlation (Continued...)
- Lecture 13 - Coherence Time
- Lecture 14 - Doppler Spectrum
- Lecture 15 - Frequency Selective Fading
- Lecture 16 - Frequency Selective Fading - II
- Lecture 17 - FSF-Coherence Bandwidth, Delay Doppler Characteristics
- Lecture 18 - Spatial Channel Characteristics - I
- Lecture 19 - Expression of MIMO Channel
- Lecture 20 - MIMO Channel Characteristics
- Lecture 21 - Statistical Properties of H
- Lecture 22 - Important Results from Linear Algebra
- Lecture 23 - Spatial Diversity
- Lecture 24 - Selection Combining
- Lecture 25 - Maximal Ratio Combining
- Lecture 26 - Problem of Error in MRC
- Lecture 27 - Diversity Gain and Transmit MRC
- Lecture 28 - Transmit Diversity without Channel known at Tx
- Lecture 29 - MIMO Transmit Diversity - 1

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- Lecture 30 - MIMO Diversity - 2
- Lecture 31 - Fundamentals of Information Theory - I
- Lecture 32 - Fundamentals of Information Theory - II
- Lecture 33 - Fundamentals of Information Theory - III
- Lecture 34 - Fundamentals of Information Theory - IV
- Lecture 35 - Capacity of Deterministic MIMO Channels
- Lecture 36 - Capacity of Channel Unknown at Transmitter
- Lecture 37 - Capacity of Channel Known of Transmitter
- Lecture 38 - More on MIMO Channel Capacity
- Lecture 39 - Capacity of Random Channel
- Lecture 40 - MIMO in Practice

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Audio System Engineering

Subject Co-ordinator - Prof. S. Dasmandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Fundamentals of Linear Vibrations Edit Lesson
- Lecture 3 - Damped Oscillation and Forced Oscillation
- Lecture 4 - Equivalent Electrical Circuits for Oscillation
- Lecture 5 - Tutorial I
- Lecture 6 - Acoustic Wave Equation
- Lecture 7 - Acoustic Wave Equation (Continued...)
- Lecture 8 - Acoustic Wave Equation (Continued...)
- Lecture 9 - Spherical Waves Propagation
- Lecture 10 - Perception at Sound
- Lecture 11 - Sound Transmission
- Lecture 12 - Sound Transmission (Continued...)
- Lecture 13 - The Acoustic Environment
- Lecture 14 - Room Acoustics - I
- Lecture 15 - Room Acoustics - II
- Lecture 16 - Large Room Acoustics and Small Room Acoustics
- Lecture 17 - Large Room Acoustics and Small Room Acoustics (Continued...)
- Lecture 18 - Auditorium Acoustics
- Lecture 19 - Transduction - I
- Lecture 20 - Transduction - II
- Lecture 21 - Transduction - III
- Lecture 22 - Microphone - I
- Lecture 23 - Microphone Sensitivity
- Lecture 24 - Loudspeaker

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Discrete Time Signal Processing

Subject Co-ordinator - Prof. Mrityunjay Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Discrete Time Signals and Systems
- Lecture 3 - Linear, Shift Invariant Systems
- Lecture 4 - Properties of Discrete Convolution Causal and Stable Systems
- Lecture 5 - Graphical Evaluation of Discrete Convolutions
- Lecture 6 - Discrete Time Fourier Transform
- Lecture 7 - Properties of DTFT
- Lecture 8 - Dirac Comb and Sampling Analog Signals
- Lecture 9 - Relation between DTFT and Analog Fourier Transform
- Lecture 10 - Nyquist Interpolation Formula
- Lecture 11 - Rational Systems
- Lecture 12 - Properties of Rational Systems
- Lecture 13 - Introduction to Z-transform
- Lecture 14 - Properties of Z-transform
- Lecture 15 - Properties of z-transform
- Lecture 16 - Inverse z-transform
- Lecture 17 - Introduction to DFT
- Lecture 18 - Properties of DFT
- Lecture 19 - Introduction to Interpretation of Circular Convolution
- Lecture 20 - Graphically Interpretation of Circular Convolution
- Lecture 21 - Zero Padding and Linear convolution Via DFT
- Lecture 22 - Decimation and DFT of Decimated Sequences
- Lecture 23 - Expansion and Interpolation of Sequences
- Lecture 24 - Factor-of-M Polyphase Decomposition of Sequences
- Lecture 25 - Noble Identifies
- Lecture 26 - Efficient Decimator and Interpolator Structure
- Lecture 27 - Linear Phase Filters
- Lecture 28 - Properties of Linear Phase Filters
- Lecture 29 - Structures for IIR Filters

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Structures for FIR Filters
- Lecture 31 - Analog LTI Systems, Fourier and Laplace Transforms
- Lecture 32 - Pole, Zero and Stability of of Analog Filters
- Lecture 33 - Analog Filter Design Example Butterworth Lowpass Filter
- Lecture 34 - IIR Filter Design by Impuls Invariance Method
- Lecture 35 - Design Filter Design from Analog Proptotype Filters by s-z Transformations
- Lecture 36 - Bilinear Transformation
- Lecture 37 - FIR Filter Design by Window
- Lecture 38 - FFT
- Lecture 39 - Complexity Analysis of FFT
- Lecture 40 - Bit Reversal and FFT

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Digital Image Processing

Subject Co-ordinator - Prof. P.K. Biswas

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Digital Image Processing
- Lecture 2 - Application of Digital Image Processing
- Lecture 3 - Image Digitalization, Sampling Quantization and Display
- Lecture 4 - Signal Reconstruction from Samples
- Lecture 5 - Signal Reconstruction from Image
- Lecture 6 - Quantizer Design
- Lecture 7 - Relationship between Pixels
- Lecture 8 - Relationship of Adjacency and Connected Components Labeling
- Lecture 9 - Application of Distance Measures
- Lecture 10 - Basic Transform
- Lecture 11 - Image Formation - I
- Lecture 12 - Image Formation - II
- Lecture 13 - Image Geometry - I
- Lecture 14 - Image Geometry - II
- Lecture 15 - Stereo Imaging Model - II
- Lecture 16 - Interpolation and Resampling
- Lecture 17 - Interpolation Techniques
- Lecture 18 - Interpolation with examples - I
- Lecture 19 - Interpolation with Examples - II
- Lecture 20 - Image Transformation - I Edit Lesson
- Lecture 21 - Image Transformation - 2
- Lecture 22 - Separable Transformation
- Lecture 23 - Basis Images
- Lecture 24 - Fourier Transformation
- Lecture 25 - Properties of FT
- Lecture 26 - FT Result Display - 2
- Lecture 27 - Rotation Invariance Property
- Lecture 28 - DCT and Walsh Transform
- Lecture 29 - Handmard Transformation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Histogram Equalization and Specifications - I
- Lecture 31 - KL-transform-2
- Lecture 32 - Image Enhancement
- Lecture 33 - Contrast Stretching Operation
- Lecture 34 - Histogram Equalization and Specification - I
- Lecture 35 - Histogram Equalization and Specification - II
- Lecture 36 - Histogram Implementation - I
- Lecture 37 - Histogram Implementation - II
- Lecture 38 - Image Enhancement
- Lecture 39 - Image Enhancement
- Lecture 40 - Image Enhancement
- Lecture 41 - Frequency Domain Processing Techniques
- Lecture 42 - Image Restoration Techniques - I
- Lecture 43 - Image Restoration Techniques - II
- Lecture 44 - Estimation of Degradation Model and Restoration Techniques - I
- Lecture 45 - Estimation of Degradation Model and Restoration Techniques - II
- Lecture 46 - Other Restoration Techniques - I
- Lecture 47 - Other Restoration Techniques - II
- Lecture 48 - Image Registration - I
- Lecture 49 - Image Registration - II
- Lecture 50 - Colour Image Processing
- Lecture 51 - Colour Model
- Lecture 52 - Conversion of one color model to another - I
- Lecture 53 - Conversion of one color model to another - II
- Lecture 54 - Pseudo color image processing
- Lecture 55 - Full color image processing
- Lecture 56 - Different Approaches for Image Segmentation
- Lecture 57 - Image Segmentation
- Lecture 58 - Region based Segmentation Operation. Thresholding Techniques
- Lecture 59 - Region Splitting and Merging Technique Edit Lesson

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC: Spread Spectrum Communications and Jamming

Subject Co-ordinator - Prof. Debarati Sen

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Spread Spectrum Communication

Lecture 2 - Direct Sequence Spread Spectrum System

Lecture 3 - Performance Analysis of DSSS

Lecture 4 - Concept of Jamming Margin

Lecture 5 - Frequency Hopping Spread Spectrum System

Lecture 6 - Tutorial-1

Lecture 7 - Slow and Fast Frequency Hopping

Lecture 8 - Hybrid Spread Spectrum System and Time Hopped SSS

Lecture 9 - Spread Sequences and Waveforms

Lecture 10 - Generation Mechanism of ML Sequence

Lecture 11 - Properties of Spread Spectrum Sequences

Lecture 12 - Tutorial-2

Lecture 13 - Power Spectral Density of ML Sequence

Lecture 14 - Walsh Hadamard Code and Properties

Lecture 15 - Generation Mechanism and Properties of OVFSF and Barker Codes

Lecture 16 - Generation Mechanism and Properties of Gold and Kasami Codes

Lecture 17 - Performance Analysis of DSSS in Presence of Tone Jamming

Lecture 18 - Performance Analysis During Generation Tone Jamming

Lecture 19 - Performance Analysis in Presence of Gaussian Interference

Lecture 20 - Performance Analysis of a Quaternary System

Lecture 21 - Despreading with Matched Filter

Lecture 22 - Noncoherent Systems

Lecture 23 - Tutorial - III

Lecture 24 - Galois Field Mathematics

Lecture 25 - Galois Field Mathematics (Continued...)

Lecture 26 - Galois Field Mathematics (Continued...)

Lecture 27 - Polynomials over Binary Field

Lecture 28 - Long Nonlinear Sequence Generation

Lecture 29 - Rejection of Narrowband Interference

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Narrow Band Interference Cancellation by Transform Domain Processing
- Lecture 31 - PN Code Acquisition Fundamentals
- Lecture 32 - Performance Analysis of PN Code Acquisition System - Part I
- Lecture 33 - Performance Analysis of PN Code Acquisition System - Part II
- Lecture 34 - Tutorial - IV
- Lecture 35 - Rapid Acquisition Using Matched Filter - Part I
- Lecture 36 - Rapid Acquisition Using Matched Filter - Part II
- Lecture 37 - Active Search Acquisition for FFH/MFSK Signals
- Lecture 38 - Active Search Code Acquisition for FFH/MFSK Analysis
- Lecture 39 - Detection Probability Analysis of Code Acquisition for FFH / MFSK
- Lecture 40 - Tutorial - V
- Lecture 41 - DSSS Tracking
- Lecture 42 - FHSS Synchronization Method - I
- Lecture 43 - FHSS Synchronization Method - II
- Lecture 44 - FHSS Synchronization Method - III
- Lecture 45 - FHSS Tracking
- Lecture 46 - Tutorial - VI
- Lecture 47 - Concept of Fading for Wireless Communications
- Lecture 48 - Diversity for Fading Channels
- Lecture 49 - Rake Receiver
- Lecture 50 - Performance Analysis of Rake Receiver
- Lecture 51 - Spread Spectrum Multiple Access
- Lecture 52 - Tutorial - VII
- Lecture 53 - Introduction to CDMA
- Lecture 54 - Interference Handling Mechanism in CDMA Networks
- Lecture 55 - Interference Handling by Soft Handover
- Lecture 56 - Interference Handling by Smart Antenna
- Lecture 57 - Multiuser Detection and Interference Cancellation
- Lecture 58 - Tutorial - VIII
- Lecture 59 - Multiuser Detection - Part I
- Lecture 60 - Multiuser Detection - Part II
- Lecture 61 - MUD - Probability of Error
- Lecture 62 - IS95 and CDMA - Part I
- Lecture 63 - IS95 and CDMA - Part II
- Lecture 64 - Tutorial - IX
- Lecture 65 - WCDMA and UMTS - Part I
- Lecture 66 - WCDMA and UMTS - Part II
- Lecture 67 - LPI Communications
- Lecture 68 - Radiometer

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Lecture 69 - Interceptor Detectors

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Digital VLSI Testing

Subject Co-ordinator - Prof. Santanu Chattopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Introduction (Continued...)  
Lecture 4 - Introduction (Continued...)  
Lecture 5 - DFT  
Lecture 6 - DFT (Continued...)  
Lecture 7 - DFT (Continued...)  
Lecture 8 - DFT (Continued...)  
Lecture 9 - DFT (Continued...)  
Lecture 10 - DFT (Continued...)  
Lecture 11 - Logic and Fault Simulation  
Lecture 12 - Logic and Fault Simulation (Continued...)  
Lecture 13 - Logic and Fault Simulation (Continued...)  
Lecture 14 - Logic and Fault Simulation (Continued...)  
Lecture 15 - Logic and Fault Simulation (Continued...)  
Lecture 16 - Logic and Fault Simulation (Continued...)  
Lecture 17 - Test Generation  
Lecture 18 - Test Generation (Continued...)  
Lecture 19 - Test Generation (Continued...)  
Lecture 20 - Test Generation (Continued...)  
Lecture 21 - Test Generation (Continued...)  
Lecture 22 - Test Generation (Continued...)  
Lecture 23 - Test Generation (Continued...)  
Lecture 24 - Logic BIST  
Lecture 25 - Logic BIST (Continued...)  
Lecture 26 - Logic BIST (Continued...)  
Lecture 27 - Logic BIST (Continued...)  
Lecture 28 - Test Compression  
Lecture 29 - Test Compression (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Test Compression (Continued...)
- Lecture 31 - Test Compression (Continued...)
- Lecture 32 - Low Power Testing
- Lecture 33 - Low Power Testing (Continued...)
- Lecture 34 - Low Power Testing (Continued...)
- Lecture 35 - Low Power Testing (Continued...)
- Lecture 36 - Low Power Testing (Continued...)
- Lecture 37 - Thermal Aware Testing
- Lecture 38 - Thermal Aware Testing (Continued...)
- Lecture 39 - Thermal Aware Testing (Continued...)
- Lecture 40 - Boundary Scan
- Lecture 41 - Boundary Scan (Continued...)
- Lecture 42 - Boundary Scan (Continued...)
- Lecture 43 - Boundary Scan (Continued...)
- Lecture 44 - Boundary Scan (Continued...)
- Lecture 45 - System/Network - On - Chip Test
- Lecture 46 - System/Network - On - Chip Test (Continued...)
- Lecture 47 - System/Network - On - Chip Test (Continued...)
- Lecture 48 - System/Network - On - Chip Test (Continued...)
- Lecture 49 - System/Network - On - Chip Test (Continued...)
- Lecture 50 - System/Network - On - Chip Test (Continued...)
- Lecture 51 - System/Network - On - Chip Test (Continued...)
- Lecture 52 - System/Network - On - Chip Test (Continued...)
- Lecture 53 - System/Network - On - Chip Test (Continued...)
- Lecture 54 - System/Network - On - Chip Test (Continued...)
- Lecture 55 - System/Network - On - Chip Test (Continued...)
- Lecture 56 - System/Network - On - Chip Test (Continued...)
- Lecture 57 - Memory Testing
- Lecture 58 - Memory Testing (Continued...)
- Lecture 59 - Memory Testing (Continued...)
- Lecture 60 - Memory Testing (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Design Principles of RF and Microwave Fi

Subject Co-ordinator - Prof. Amitabha Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Image Impedance based RF filter design
- Lecture 2 - Concept of Image impedance and Propagation Constant
- Lecture 3 - Symmetrical lossless network description for filter design
- Lecture 4 - Constant k prototype filter design
- Lecture 5 - m-derived prototype filter design
- Lecture 6 - Introduction to Insertion loss based Microwave Filter Design
- Lecture 7 - Prototype low pass filter design
- Lecture 8 - Filter transformation
- Lecture 9 - Microwave Filter implementation
- Lecture 10 - Tutorial an Insertion Loss based Microwave Filter design
- Lecture 11 - Gain Definitions of Microwave Amplifiers
- Lecture 12 - Stability Analysis of Microwave Amplifiers
- Lecture 13 - Conditional stability enforcement for Microwave Amplifier
- Lecture 14 - Amplifier design of maximising transducer gain
- Lecture 15 - Amplifier design for specified gain
- Lecture 16 - Amplifier design for specified noise performance
- Lecture 17 - Broadband Amplifier Design
- Lecture 18 - Quantitative Characterisation of Nonlinearity for Large Signal Amplifier
- Lecture 19 - Quantitative Characterisation of Nonlinearity for Large Signal Amplifier (Continued...)
- Lecture 20 - Measurement of Nonlinearity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Millimeter Wave Technology

Subject Co-ordinator - Prof. Mrinal Kanti Mandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Millimeter-Wave Technology  
Lecture 2 - Introduction to Millimeter-Wave Technology (Continued...)  
Lecture 3 - Introduction to Millimeter-Wave Technology (Continued...)  
Lecture 4 - Introduction to Millimeter-Wave Technology (Continued...)  
Lecture 5 - Introduction to Millimeter-Wave Technology (Continued...)  
Lecture 6 - Guiding Structures  
Lecture 7 - Guiding Structures (Continued...)  
Lecture 8 - Guiding Structures (Continued...)  
Lecture 9 - Guiding Structures (Continued...)  
Lecture 10 - Guiding Structures (Continued...)  
Lecture 11 - Guiding Structures (Continued...)  
Lecture 12 - Guiding Structures (Continued...)  
Lecture 13 - Guiding Structures (Continued...)  
Lecture 14 - Guiding Structures (Continued...)  
Lecture 15 - Guiding Structures (Continued...)  
Lecture 16 - Antennas at MM-Wave Frequencies  
Lecture 17 - Antennas at MM-Wave Frequencies (Continued...)  
Lecture 18 - Antennas at MM-Wave Frequencies (Continued...)  
Lecture 19 - Antennas at MM-Wave Frequencies (Continued...)  
Lecture 20 - Antennas at MM-Wave Frequencies (Continued...)  
Lecture 21 - Passive Components  
Lecture 22 - Passive Components (Continued...)  
Lecture 23 - Passive Components (Continued...)  
Lecture 24 - Passive Components (Continued...)  
Lecture 25 - Passive Components (Continued...)  
Lecture 26 - Active Devices  
Lecture 27 - Active Devices (Continued...)  
Lecture 28 - Active Devices (Continued...)  
Lecture 29 - Active Devices (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Active Devices (Continued...)
- Lecture 31 - Noise and Link Budget
- Lecture 32 - Noise and Link Budget (Continued...)
- Lecture 33 - Noise and Link Budget (Continued...)
- Lecture 34 - Noise and Link Budget (Continued...)
- Lecture 35 - Noise and Link Budget (Continued...)
- Lecture 36 - Millimeter-Wave Systems
- Lecture 37 - Millimeter-Wave Systems (Continued...)
- Lecture 38 - Millimeter-Wave Systems (Continued...)
- Lecture 39 - Millimeter-Wave Systems (Continued...)
- Lecture 40 - Millimeter-Wave Systems (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Power System Analysis

Subject Co-ordinator - Prof. Debapriya Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Structure of Power Systems and Few other Aspects - I
- Lecture 2 - Structure of Power Systems and Few other Aspects - II
- Lecture 3 - Structure of Power Systems and Few other Aspects - III
- Lecture 4 - Resistance and Inductance
- Lecture 5 - Resistance and Inductance (Continued...)
- Lecture 6 - Resistance and Inductance (Continued...)
- Lecture 7 - Resistance and Inductance (Continued...)
- Lecture 8 - Resistance and Inductance (Continued...)
- Lecture 9 - Resistance and Inductance (Continued...)
- Lecture 10 - Resistance and Inductance (Continued...)
- Lecture 11 - Capacitance of Transmisson Lines
- Lecture 12 - Capacitance of Transmisson Lines (Continued...)
- Lecture 13 - Capacitance of Transmisson Lines (Continued...)
- Lecture 14 - Capacitance of Transmisson Lines (Continued...)
- Lecture 15 - Power System Components and per-unit system
- Lecture 16 - Power System Components and per-unit system (Continued...)
- Lecture 17 - Power System Components and per-unit system (Continued...)
- Lecture 18 - Power System Components and per-unit system (Continued...)
- Lecture 19 - Power System Components and per-unit system (Continued...)
- Lecture 20 - Power System Components and per-unit system (Continued...)
- Lecture 21 - Characteristic and performance of transmission lines
- Lecture 22 - Characteristic and performance of transmission lines (Continued...)
- Lecture 23 - Characteristic and performance of transmission lines (Continued...)
- Lecture 24 - Characteristic and performance of transmission lines (Continued...)
- Lecture 25 - Characteristic and performance of transmission lines (Continued...)
- Lecture 26 - Load flow studies
- Lecture 27 - Load flow studies (Continued...)
- Lecture 28 - Load flow studies (Continued...)
- Lecture 29 - Load flow studies (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Load flow studies (Continued...)
- Lecture 31
- Lecture 32
- Lecture 33
- Lecture 34
- Lecture 35
- Lecture 36 - Load flow studies (Continued...)
- Lecture 37 - Optimal system operation
- Lecture 38 - Optimal system operation (Continued...)
- Lecture 39 - Optimal system operation (Continued...)
- Lecture 40 - Optimal system operation (Continued...)
- Lecture 41 - Optimal system operation (Continued...)
- Lecture 42 - Optimal system operation (Continued...)
- Lecture 43 - Optimal system operation (Continued...)
- Lecture 44 - Optimal system operation (Continued...)
- Lecture 45 - Three phase fault studies
- Lecture 46 - Three phase fault studies (Continued...)
- Lecture 47 - Three phase fault studies (Continued...)
- Lecture 48 - Three phase fault studies (Continued...)
- Lecture 49 - Symmetrical components
- Lecture 50 - Symmetrical components (Continued...)
- Lecture 51 - Symmetrical components (Continued...)
- Lecture 52 - Symmetrical components (Continued...)
- Lecture 53 - Symmetrical components (Continued...)
- Lecture 54 - Symmetrical components (Continued...)
- Lecture 55 - Power system stability>
- Lecture 56 - Power system stability (Continued...)
- Lecture 57 - Power system stability (Continued...)
- Lecture 58 - Power system stability (Continued...)
- Lecture 59 - Power system stability (Continued...)
- Lecture 60 - Power system stability (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Analog Communication

Subject Co-ordinator - Prof. Goutam Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Fourier Series  
Lecture 2 - Fourier Series (Continued...)  
Lecture 3 - Fourier Series (Continued...)  
Lecture 4 - Fourier Series (Continued...)  
Lecture 5 - Fourier Series (Continued...)  
Lecture 6 - Fourier Series (Continued...)  
Lecture 7 - Fourier Series (Continued...)  
Lecture 8 - Fourier Transform  
Lecture 9 - Fourier Transform (Continued...)  
Lecture 10 - Fourier Transform (Continued...)  
Lecture 11 - Fourier Transform (Continued...)  
Lecture 12 - Energy Spectral Density  
Lecture 13 - Power Spectral Density  
Lecture 14 - PSD of Random Signal  
Lecture 15 - Amplitude Modulation  
Lecture 16 - Amplitude Modulation (Continued...)  
Lecture 17 - Amplitude Modulation (Continued...)  
Lecture 18 - Amplitude Modulation (Continued...)  
Lecture 19 - SSB - SC  
Lecture 20 - SSB - SC (Continued...)  
Lecture 21 - VSB-SC  
Lecture 22 - VSB-SC (Continued...)  
Lecture 23 - Effect of Carrier Synchronization  
Lecture 24 - Comparison of Different Modulation Technique  
Lecture 25 - PLL  
Lecture 26 - PLL (Continued...)  
Lecture 27 - PLL (Continued...)  
Lecture 28 - PLL (Continued...) and LTI  
Lecture 29 - Dispersion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Channel Nonlinearities and Multipath Effects
- Lecture 31 - Probability Theory
- Lecture 32 - Probability Theory (Continued...)
- Lecture 33 - Probability Theory (Continued...)
- Lecture 34 - Probability Theory (Continued...)
- Lecture 35 - Probability Theory (Continued...)
- Lecture 36 - Probability Theory (Continued...)
- Lecture 37 - Probability Theory (Continued...)
- Lecture 38 - Random Process
- Lecture 39 - Random Process (Continued...)
- Lecture 40 - Random Process (Continued...)
- Lecture 41 - Random Process (Continued...)
- Lecture 42 - Random Process (Continued...)
- Lecture 43 - Random Process (Continued...)
- Lecture 44 - Noise Analysis - DSB-SC
- Lecture 45 - Noise Analysis - AM
- Lecture 46 - Noise Analysis - SSB-SC
- Lecture 47 - Frequency Modulation
- Lecture 48 - Frequency Modulation (Continued...)
- Lecture 49 - Frequency Modulation (Continued...)
- Lecture 50 - Frequency Modulation (Continued...)
- Lecture 51 - Frequency Modulation (Continued...)
- Lecture 52 - Frequency Modulation (Continued...)
- Lecture 53 - FM Noise Analysis
- Lecture 54 - FM Noise Analysis (Continued...)
- Lecture 55 - FM Noise Analysis (Continued...)>
- Lecture 56 - Sampling Theorem
- Lecture 57 - Sampling Theorem (Continued...)
- Lecture 58 - FDM Vs TDM
- Lecture 59 - Flat Top Vs Natural Sampling
- Lecture 60 - Pulse Coded Modulation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Modern Digital Communication Techniques

Subject Co-ordinator - Prof. Suvra Sekhar Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction of Digital Communication System  
Lecture 2 - Introduction of Digital Communication System (Continued...)  
Lecture 3 - Introduction of Digital Communication System (Continued...)  
Lecture 4 - Introduction of Digital Communication System (Continued...)  
Lecture 5 - Introduction of Digital Communication System (Continued...)  
Lecture 6 - Source Coding  
Lecture 7 - Source Coding (Continued...)  
Lecture 8 - Source Coding (Continued...)  
Lecture 9 - Source Coding (Continued...)  
Lecture 10 - Source Coding (Continued...)  
Lecture 11 - Source Coding (Continued...)  
Lecture 12 - Source Coding (Continued...)  
Lecture 13 - Source Coding (Continued...)  
Lecture 14 - Source Coding (Continued...)  
Lecture 15 - Analog to Digital Conversion  
Lecture 16 - Analog to Digital Conversion (Continued...)  
Lecture 17 - Characterization of Signals and Systems  
Lecture 18 - Characterization of Signals and Systems (Continued...)  
Lecture 19 - Characterization of Signals and Systems (Continued...)  
Lecture 20 - Characterization of Signals and Systems (Continued...)  
Lecture 21 - Characterization of Signals and Systems (Continued...)  
Lecture 22 - Characterization of Signals and Systems (Continued...)  
Lecture 23 - Characterization of Signals and Systems (Continued...)  
Lecture 24 - Memoryless Modulation  
Lecture 25 - Memoryless Modulation (Continued...)  
Lecture 26 - Memoryless Modulation (Continued...)  
Lecture 27 - Memoryless Modulation (Continued...)  
Lecture 28 - Memoryless Modulation (Continued...)  
Lecture 29 - Memoryless Modulation (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Memoryless Modulation (Continued...)
- Lecture 31 - Memoryless Modulation (Continued...)
- Lecture 32 - Memoryless Modulation (Continued...)
- Lecture 33 - With Memory Modulation
- Lecture 34 - With Memory Modulation (Continued...)
- Lecture 35 - With Memory Modulation (Continued...)
- Lecture 36 - With Memory Modulation (Continued...)
- Lecture 37 - With Memory Modulation (Continued...)
- Lecture 38 - With Memory Modulation (Continued...)
- Lecture 39 - With Memory Modulation (Continued...)
- Lecture 40 - Optimum Receivers for AWGN
- Lecture 41 - Optimum Receivers for AWGN (Continued...)
- Lecture 42 - Optimum Receivers for AWGN (Continued...)
- Lecture 43 - Optimum Receivers for AWGN (Continued...)
- Lecture 44 - Optimum Receivers for AWGN (Continued...)
- Lecture 45 - Optimum Receivers for AWGN (Continued...)
- Lecture 46 - Performance of Digital Modulation Techniques
- Lecture 47 - Performance of Digital Modulation Techniques (Continued...)
- Lecture 48 - Performance of Digital Modulation Techniques (Continued...)
- Lecture 49 - Performance of Digital Modulation Techniques (Continued...)
- Lecture 50 - Performance of Digital Modulation Techniques (Continued...)
- Lecture 51 - Performance of Digital Modulation Techniques (Continued...)
- Lecture 52 - Performance of Digital Modulation Techniques (Continued...)
- Lecture 53 - Channel Estimation and Equalization
- Lecture 54 - Channel Estimation and Equalization (Continued...)
- Lecture 55 - Channel Estimation and Equalization (Continued...)>
- Lecture 56 - Channel Estimation and Equalization (Continued...)
- Lecture 57 - Synchronization Techniques
- Lecture 58 - Synchronization Techniques (Continued...)
- Lecture 59 - Synchronization Techniques (Continued...)
- Lecture 60 - Synchronization Techniques (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Digital Speech Processing

Subject Co-ordinator - Prof. Shyamal Kumar Das Mandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16 - Human Auditory System

Lecture 17

Lecture 18

Lecture 19 - Time Domain Methods in Speech Processing

Lecture 20

Lecture 21 - Introduction to Liner Prediction

Lecture 22 - Autocorrelation Method of LPC analysis

Lecture 23 - Autocorrelation Method of LPC analysis (Continued...)

Lecture 24 - Lattice Formulations of Linear Prediction

Lecture 25 - Lattice Formulations of Linear Prediction (Continued...)

Lecture 26

Lecture 27

Lecture 28

Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30
- Lecture 31 - Segmental and Supra-segmental features of speech signal
- Lecture 32 - Cepstral Transform Coefficients (CC) Parameters extraction
- Lecture 33 - Mel Frequency Cepstral Coefficients
- Lecture 34 - MFCC features vector
- Lecture 35 - Fundamental Frequency (F0) Detection of speech signal
- Lecture 36 - Frequency Domain Fundamental Frequency Detection Algorithms
- Lecture 37 - Text to Speech Synthesis
- Lecture 38 - Text to Speech Synthesis (Continued...)
- Lecture 39 - Automatic Speech Recognition
- Lecture 40 - Statistical Modeling of Automatic Speech Recognition
- Lecture 41 - Speech based Technology Development for e-learning
- Lecture 42 - Prosody Modeling
- Lecture 43 - Fundamental frequency contour modeling
- Lecture 44 - Fundamental frequency contour modeling (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Analog Circuits and Systems through SPI

Subject Co-ordinator - Prof. Mrigank Sharad

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Analog Design Part I  
Lecture 2 - Basic Analog Design Part I (Continued...)  
Lecture 3 - Basic Analog Design Part II  
Lecture 4 - Basic Analog Design Part II (Continued...)  
Lecture 5 - Basic Analog Design Part III  
Lecture 6 - Basic Analog Design Part III (Continued...)  
Lecture 7 - Basic Analog Design Part III (Continued...)  
Lecture 8 - Basic Analog Design Part III (Continued...)  
Lecture 9 - Basic Analog Design Part III (Continued...)  
Lecture 10 - Basic Analog Design Part III (Continued...)  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
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Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 48  
Lecture 49  
Lecture 50  
Lecture 51  
Lecture 52  
Lecture 53  
Lecture 54  
Lecture 55  
Lecture 56  
Lecture 57  
Lecture 58

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Communication Networks

Subject Co-ordinator - Prof. Goutam Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Communication Networks  
Lecture 2 - Introduction to Communication Networks (Continued...)  
Lecture 3 - Introduction to Communication Networks (Continued...)  
Lecture 4 - Circuit Switch Networks  
Lecture 5 - Space switch Architecture  
Lecture 6 - Space switch Architecture (Continued...)  
Lecture 7 - Space Switch Architecture (Continued...)  
Lecture 8 - Space Switch Architecture (Continued...)  
Lecture 9 - Space Switch Architecture (Continued...)  
Lecture 10 - Time Switch  
Lecture 11 - Space Time Switch  
Lecture 12 - Space Time Switch (Continued...)  
Lecture 13 - Synchronisation  
Lecture 14 - Synchronisation (Continued...)  
Lecture 15 - Introduction to Queuing Theory  
Lecture 16 - Arrival and Service Process  
Lecture 17 - Poisson Process  
Lecture 18 - poisson process (Continued...)  
Lecture 19 - Memorylessness  
Lecture 20 - Little's Theorem  
Lecture 21 - Little's Theorem (Continued...)  
Lecture 22 - D T M C  
Lecture 23 - D T M C (Continued...)  
Lecture 24 - D T M C To C T M C  
Lecture 25 - C T M C  
Lecture 26 - M/M/1 Queue  
Lecture 27 - M/M/m And M/M/m/m System  
Lecture 28 - Introduction to Data Networks  
Lecture 29 - Introduction to Data Networks (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Data Networks (Continued...)
- Lecture 31 - Layered Architecture
- Lecture 32 - Layered Architecture (Continued...)
- Lecture 33 - Broadband Access - Dail Up/ADSL
- Lecture 34 - Broadband Access - DSL, Aloha
- Lecture 35 - Aloha/Slotted Aloha
- Lecture 36 - Slotted Aloha
- Lecture 37 - Slotted Aloha (Continued...)
- Lecture 38 - Slotted Aloha- Stability Analysis
- Lecture 39 - Slotted Aloha- Stability Analysis (Continued...)
- Lecture 40 - Stabilized Slotted Aloha-bayesian Estimation
- Lecture 41 - Binary Back- off Algorithm
- Lecture 42 - Effect of Physical Media
- Lecture 43 - PON and Ethernet MAC
- Lecture 44 - PON and Ethernet MAC (Continued...)
- Lecture 45 - CSMA/CD
- Lecture 46 - CSMA/CA
- Lecture 47 - CSMA/CA (Continued...)
- Lecture 48 - CSMA/CA (Continued...)
- Lecture 49 - CSMA/CA (Continued...)
- Lecture 50 - Learning Bridges
- Lecture 51 - Learning Bridges (Continued...)
- Lecture 52 - Distributed Spanning Tree
- Lecture 53 - Distributed Spanning Tree (Continued...)
- Lecture 54 - Internet Protocol
- Lecture 55 - Internet Protocol (Continued...)
- Lecture 56 - Subnet and ARP
- Lecture 57 - ARP and DHCP
- Lecture 58 - DHCP and Routing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Signal Processing Techniques and its App

Subject Co-ordinator - Prof. Shyamal Kumar Das Mandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Signal and its Types  
Lecture 3 - Characteristics of a Signal  
Lecture 4 - Digitization of Signal  
Lecture 5 - Digitization of Signal (Continued...)  
Lecture 6 - Concept of Frequency in Continuous-time and Discrete-time Signal  
Lecture 7 - Tutorial 1  
Lecture 8 - Discrete Time Signal  
Lecture 9 - Discrete Time System  
Lecture 10 - D.T.S (L.T.I System)  
Lecture 11 - Linear Time-Invariant Systems (Continued...)  
Lecture 12 - Correlation  
Lecture 13 - Tutorial 02  
Lecture 14 - Z-Transform  
Lecture 15 - Z-Transform Properties  
Lecture 16 - Pole and Zero in Z-Transform  
Lecture 17 - Inverse Z-Transform  
Lecture 18 - Frequency-Domain Representation of Discrete Signals and L.T.I Systems  
Lecture 19 - Discrete Fourier Transform (DFT)  
Lecture 20 - Discrete Fourier Transform Linear Transform View  
Lecture 21 - Discrete Fourier Transform Linear Transform View (Continued...)  
Lecture 22 - Properties of Discrete Fourier Transform  
Lecture 23 - Properties of Discrete Fourier Transform (Continued...)  
Lecture 24 - Properties of Discrete Fourier Transform (Continued...)  
Lecture 25 - Properties of Discrete Fourier Transform (Continued...)  
Lecture 26 - Linear Filtering  
Lecture 27 - Tutorial 5  
Lecture 28 - Two Dimensional Discrete Fourier Transform  
Lecture 29 - Discrete Cosine Transform

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Frequency analysis of long signal using DFT
- Lecture 31 - Short-Time Fourier Transform (STFT)
- Lecture 32 - STFT Synthesis
- Lecture 33 - Fast Fourier Transform (FFT) Algorithms
- Lecture 34 - Fast Fourier Transform (FFT) Algorithms (Continued...)
- Lecture 35 - Radix-2 FFT Algorithms
- Lecture 36 - Radix-2 FFT Algorithms (Continued...)
- Lecture 37 - Spectrum and spectrogram
- Lecture 38 - Digital Filter
- Lecture 39 - FIR Filter
- Lecture 40 - Linear Symmetric and Anti-symmetric filter
- Lecture 41 - FIR Filter Design
- Lecture 42 - Frequency Sampling Method
- Lecture 43 - Design Optimum equiripple Linear-Phase FIR Filters (optimization methods)
- Lecture 44 - Infinite Impulse Response (IIR) Filters
- Lecture 45 - Traditional Analog Filter Design
- Lecture 46 - Chebyshev filter Design Method
- Lecture 47 - Analogue filter to digital filter transformation
- Lecture 48 - Linear Prediction and Optimum Linear Filters
- Lecture 49 - Autocorrelation Method for Linear Prediction
- Lecture 50 - Covariance Method for Linear Prediction
- Lecture 51 - Lattice Formulations of Linear Prediction
- Lecture 52 - Lattice Formulations of Linear Prediction (Continued...)
- Lecture 53 - Introduction to Multirate Signal Processing
- Lecture 54 - Analysis of Decimation and Interpolation
- Lecture 55 - Fractional Rate Conversion
- Lecture 56 - Implementations of Decimator and Interpolator
- Lecture 57 - Sample Rate Conversion by Stages
- Lecture 58 - Power Spectrum Estimation
- Lecture 59 - Power Spectrum Estimation (Continued...)
- Lecture 60 - Tutorial 6: Tutorial for Final Examination

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Analog IC Design

Subject Co-ordinator - Dr. Nagendra Krishnapura

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course introduction; Negative feedback control
- Lecture 2 - Negative feedback amplifier
- Lecture 3 - Step response, sinusoidal steady state response
- Lecture 4 - Loop gain and unity loop gain frequency; Opamp
- Lecture 5 - Opamp realization using controlled sources; Delay in the loop
- Lecture 6 - Negative feedback amplifier with ideal delay-small delays
- Lecture 7 - Negative feedback amplifier with ideal delay-large delays
- Lecture 8 - Negative feedback amplifier with parasitic poles and zeros
- Lecture 9 - Negative feedback amplifier with parasitic poles and zeros; Nyquist criterion
- Lecture 10 - Nyquist criterion; Phase margin
- Lecture 11 - Phase margin
- Lecture 12 - Single stage opamp realization
- Lecture 13 - Two stage miller compensated opamp
- Lecture 14 - Two stage miller compensated opamp
- Lecture 15 - Two and three stage miller compensated opamps; Feedforward compensated opamp
- Lecture 16 - Feedforward compensated opamp
- Lecture 17 - Feedforward compensated opamp
- Lecture 18 - Feedforward compensated opamp; typical opamp data sheet
- Lecture 19 - Opamp offset and CMRR; Transimpedance amplifier using an opamp
- Lecture 20 - Components available in a CMOS process
- Lecture 21 - MOS transistors-basics
- Lecture 22 - MOS transistors-parasitics, mismatch
- Lecture 23 - MOS transistors-mismatch, speed
- Lecture 24 - Noise in resistors
- Lecture 25 - Noise in MOS transistors; Input and output referred noise
- Lecture 26 - Noise scaling; Basic amplifier stages-Common source, common gate
- Lecture 27 - Basic amplifier stages-Common drain; Frequency response of amplifiers
- Lecture 28 - Common source amplifier frequency response; Differential amplifier
- Lecture 29 - Differential and common mode half circuits; Differential pair with active load

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Differential pair with current mirror load
- Lecture 31 - Single stage opamp characteristics
- Lecture 32 - Opamp with single and dual supplies; Single stage opamp tradeoffs
- Lecture 33 - Telescopic cascode opamp
- Lecture 34 - Telescopic cascode opamp; Folded cascode opamp
- Lecture 35 - Folded cascode opamp
- Lecture 36 - Two stage opamp
- Lecture 37 - Two stage opamp; Three stage and triple cascode opamps
- Lecture 38 - Common mode rejection ratio; Example
- Lecture 39 - Fully differential circuits
- Lecture 40 - Fully differential single stage opamp
- Lecture 41 - Common mode feedback
- Lecture 42 - Fully differential single stage opamp
- Lecture 43 - Fully differential two stage opamp; Fully differential versus pseudo-differential
- Lecture 44 - Circuit simulators and analyses
- Lecture 45 - Phase locked loop as frequency multiplier
- Lecture 46 - Phase domain model
- Lecture 47 - Type I PLL transfer function and reference feedthrough
- Lecture 48 - Type II PLL
- Lecture 49 - Type II PLL transfer functions; Implementation
- Lecture 50 - Type II PLL-extra poles; Random noise in a PLL
- Lecture 51 - Oscillator phase noise
- Lecture 52 - PLL phase noise; LC and ring Oscillators
- Lecture 53 - Generating PTAT and constant MOS gm bias currents
- Lecture 54 - Reducing supply sensitivity; Bandgap voltage reference
- Lecture 55 - Fractional bandgap reference; Low dropout regulator
- Lecture 56 - Low dropout regulators; Continuous-time active filters
- Lecture 57 - Continuous-time active filters
- Lecture 58 - Continuous-time active filters
- Lecture 59 - Discrete-time active filters
- Lecture 60 - Transistor sizing in practice; Course summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Coding Theory

Subject Co-ordinator - Dr. Andrew Thangaraj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Linear Block Codes
- Lecture 2 - Properties of Linear Block Codes
- Lecture 3 - Dual of Linear Block Codes
- Lecture 4 - Minimum Distance of Codes
- Lecture 5 - Operations on Codes
- Lecture 6 - Bounds on Code Parameters
- Lecture 7 - Optimal Decoders
- Lecture 8 - Syndrome Decoder, Basics of Finite Fields
- Lecture 9 - Constructions of Finite Fields
- Lecture 10 - Computations in Finite Fields
- Lecture 11 - Codes over Finite Fields, Minimal Polynomials
- Lecture 12 - BCH Codes
- Lecture 13 - BCH and RS Codes I
- Lecture 14 - BCH and RS Codes II
- Lecture 15 - Decoding BCH Codes
- Lecture 16 - Decoding RS Codes
- Lecture 17 - Coded Modulation and Soft Decision Decoding
- Lecture 18 - Optimal Decoders for BPSK and AWGN
- Lecture 19 - Bitwise Map Decoder for BPSK over AWGN
- Lecture 20 - Bitwise Map Decoder from the Dual Code
- Lecture 21 - Simulating Coded Modulation
- Lecture 22 - Union Bound, Introduction to LDPC Codes
- Lecture 23 - LDPC Codes
- Lecture 24 - Message Passing, Density Evolution Analysis
- Lecture 25 - Thresholds of LDPC Codes
- Lecture 26 - Irregular LDPC Codes
- Lecture 27 - Optimized Irregular LDPC Codes, Soft Message Passing Decoders
- Lecture 28 - Density Evolution for Soft Message Passing Decoding of LDPC Codes
- Lecture 29 - LDPC Codes in Practice

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Convolutional Codes
- Lecture 31 - Viterbi Decoding of Convolutional Codes
- Lecture 32 - Union Bound, Recursive Convolutional Encoders
- Lecture 33 - Convolutional Codes in Practice
- Lecture 34 - BCJR Decoder
- Lecture 35 - BCJR & Max-Log-MAP Decoder, Introduction to Turbo Codes
- Lecture 36 - Turbo Decoder
- Lecture 37 - Turbo Codes in Practice
- Lecture 38 - Modern Codes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Semiconductor Device Modeling

Subject Co-ordinator - Prof. S. Karmalkar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
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Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42  
Lecture 43  
Lecture 44  
Lecture 45  
Lecture 46

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - VLSI Data Conversion Circuits

Subject Co-ordinator - Dr. Shanthi Pavan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Data Conversion  
Lecture 2 - Sampling-1  
Lecture 3 - Sampling-2  
Lecture 4 - Nonidealities in Samples  
Lecture 5 - Noise due to Sampling  
Lecture 6 - Distortion in a Sampling Switch  
Lecture 7 - Gate Boosted Switches-1  
Lecture 8 - Gate Boosted Switches-2  
Lecture 9 - Charge Injection  
Lecture 10 - S/H Characterization-1  
Lecture 11 - S/H Characterization-2  
Lecture 12 - FFTs and Leakage  
Lecture 13 - Spectral Windows-1  
Lecture 14 - Spectral Windows-2  
Lecture 15 - ADC/DAC Definition  
Lecture 16 - Quantization Noise-1  
Lecture 17 - Quantization Noise-2  
Lecture 18 - Over Sampling and Noise Shaping  
Lecture 19 - Delta-Sigma Modulation-1  
Lecture 20 - Delta-Sigma Modulation-2  
Lecture 21 - Linearized Analysis  
Lecture 22 - Stability of Delta Sigma Modulators  
Lecture 23 - High Order DSMs  
Lecture 24 - NTF Design and Tradeoffs  
Lecture 25 - Single bit Modulators  
Lecture 26 - Loop Filter Architectures  
Lecture 27 - Continuous-time Delta Sigma Modulation  
Lecture 28 - Implicit Antialiasing  
Lecture 29 - Modulators with NRZ and Impulsive DACs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - High Order CTDSMs
- Lecture 31 - CTDM Design
- Lecture 32 - Excess Loop Delay (ELD)
- Lecture 33 - ELD Compensation
- Lecture 34 - Effect of Clock Jitter on CTDSMs-1
- Lecture 35 - Effect of Clock Jitter on CTDSMs-2
- Lecture 36 - Dynamic Range Scaling
- Lecture 37 - Simulation of CTDSMs
- Lecture 38 - Integrator Design-1
- Lecture 39 - Integrator Design-2
- Lecture 40 - Flash ADC Design
- Lecture 41 - Latches and Metastability
- Lecture 42 - Offset in a Latch-1
- Lecture 43 - Offset in a Latch-2 Auto Zeroing
- Lecture 44 - Auto Zeroing-2
- Lecture 45 - Auto Zeroing-3
- Lecture 46 - Auto Zeroing in flash ADCs
- Lecture 47 - Flash ADCs Case Study
- Lecture 48 - Flash ADC Case Study
- Lecture 49 - Flash ADC in a Delta Sigma Loop
- Lecture 50 - DAC Basics
- Lecture 51 - Binary and Thermometer DACs
- Lecture 52 - Segmented DACs
- Lecture 53 - Optimal DAC Segmentation
- Lecture 54 - DAC Nonlinearities
- Lecture 55 - Current Steering DACs-1
- Lecture 56 - Current Steering DACs-2
- Lecture 57 - DAC Mismatches in DSMS
- Lecture 58 - Calibration and Randomization
- Lecture 59 - Dynamic Element Matching-1
- Lecture 60 - Dynamic Element Matching-2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital Circuits and Systems

Subject Co-ordinator - Prof. S. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction To Digital Circuits
- Lecture 2 - Introduction To Digital Circuits
- Lecture 3 - Combinational Logic Basics
- Lecture 4 - Combinational Circuits
- Lecture 5 - Logic Simplification
- Lecture 6 - Karnaugh Maps And Implicants
- Lecture 7 - Logic Minimization Using Karnaugh Maps
- Lecture 8 - Karnaugh Map Minimization Using Maxterms
- Lecture 9 - Code Converters
- Lecture 10 - Parity Generators And Display Decoder
- Lecture 11 - Arithmetic Circuits
- Lecture 12 - Carry Look Ahead Adders
- Lecture 13 - Subtractors
- Lecture 14 - 2's Complement Subtractor and BCD Adder
- Lecture 15 - Array Multiplier
- Lecture 16 - Introduction to Sequential Circuits
- Lecture 17 - S-R, J-K and D Flip Flops
- Lecture 18 - J-K and T Flip Flops
- Lecture 19 - Triggering Mechanisms of Flip Flops and Counters
- Lecture 20 - Up/Down Counters
- Lecture 21 - Shift Registers
- Lecture 22 - Application of shift Registers
- Lecture 23 - State Machines
- Lecture 24 - Design of Synchronous Sequential Circuits
- Lecture 25 - Design using J-K Flip Flop
- Lecture 26 - Mealy and Moore Circuits
- Lecture 27 - Pattern Detector
- Lecture 28 - MSI and LSI Based Design
- Lecture 29 - Multiplexer Based Design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Encoders and Decoders
- Lecture 31 - Programmable Logic Devices
- Lecture 32 - Design using Programmable Logic Devices
- Lecture 33 - Design using Programmable Logic Devices (Continued)
- Lecture 34 - MSI and LSI based Implementation of Sequential Circuits
- Lecture 35 - MSI and LSI based Implementation of Sequential Circuits (Continued)
- Lecture 36 - Design of circuits using MSI sequential blocks
- Lecture 37 - System Design Example
- Lecture 38 - System Design Example (Continued)
- Lecture 39 - System Design using the concept of controllers
- Lecture 40 - System Design using the concept of controllers (Continued)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Electronics for Analog Signal Processing - I

Subject Co-ordinator - Prof. K. Radhakrishna Rao

Co-ordinating Institute - IIT - Madras | Texas Instruments - India

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Diode  
Lecture 3 - Diode characteristics  
Lecture 4 - Rectifier  
Lecture 5 - Voltage Multiplier  
Lecture 6 - Full Wave Rectifier and Peak Detector  
Lecture 7 - Diode as a GATE  
Lecture 8 - Analog GATE  
Lecture 9 - Small Signal Analysis of Diode Circuit  
Lecture 10 - Zener Regulator and Voltage Regulator  
Lecture 11 - Varactor Diode  
Lecture 12 - Amplifiers  
Lecture 13 - Cascading of Amplifiers  
Lecture 14 - Cascading of Amplifiers  
Lecture 15 - h and g Parameters  
Lecture 16 - Two Port Analysis  
Lecture 17 - Amplifier Applications  
Lecture 18 - Frequency Limitations Of An Amplifier  
Lecture 19 - Distortion In Amplifiers  
Lecture 20 - Bipolar Junction Transistor  
Lecture 21 - Transistor (BJT) Inverter  
Lecture 22 - Transistor Biasing  
Lecture 23 - Stable Way of Biasing  
Lecture 24 - Common Emitter Amplifiers  
Lecture 25 - Transistor Biasing Using Single Supply  
Lecture 26 - Metal Oxide Semiconductor  
Lecture 27 - Construction of a MOSFET  
Lecture 28 - Varieties of MOSFETS and JFETS  
Lecture 29 - Characteristics of MOSFET

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cascading Amplifiers
- Lecture 31 - Cascading (Direct Coupling)
- Lecture 32 - The Differential Amplifiers
- Lecture 33 - BJT Differential Amplifiers
- Lecture 34 - MOSFET Differential Amplifiers
- Lecture 35 - Cascading Differential Amplifiers
- Lecture 36 - Current Source and Current Sink
- Lecture 37 - NMOS Inverters and CMOS Inverters
- Lecture 38 - Active Components used in Electronics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Electronics for Analog Signal Processing - I

Subject Co-ordinator - Prof. K. Radhakrishna Rao

Co-ordinating Institute - IIT - Madras | Texas Instruments - India

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Feedback Theory  
Lecture 2 - Negative Feedback  
Lecture 3 - Negative Feedback  
Lecture 4 - Y-Feedback  
Lecture 5 - h and g Negative Feedback  
Lecture 6 - g Feedback with Mosfet  
Lecture 7 - Operational Amplifier in Negative Feedback  
Lecture 8 - Operational Amplifier in Negative Feedback  
Lecture 9 - Positive Feedback (Regenerative)  
Lecture 10 - Experimental Demonstration  
Lecture 11 - Instrumentation Amplifiers  
Lecture 12 - Active Filters  
Lecture 13 - Simulation of Harmonic Oscillators  
Lecture 14 - Oscillators  
Lecture 15 - Oscillators  
Lecture 16 - Frequency Compensation in Negative Feedback  
Lecture 17 - Frequency Compensation  
Lecture 18 - Wideband (video) Amplifiers  
Lecture 19 - Wideband Amplifiers  
Lecture 20 - ICs For Video And Tuned Amplifier Applications  
Lecture 21 - Power Amplifier  
Lecture 22 - Power Amplifier  
Lecture 23 - Class B and C Power Amplifiers  
Lecture 24 - Class-B Power Amplifier Load and Drive  
Lecture 25 - Control Circuits  
Lecture 26 - Voltage Regulators  
Lecture 27 - Voltage Regulators  
Lecture 28 - Voltage Regulators  
Lecture 29 - Convertors

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analog Multipliers (Modems & Mixers)
- Lecture 31 - Log-Antilog Multipliers
- Lecture 32 - Multipliers
- Lecture 33 - Multipliers
- Lecture 34 - AGC/AVC
- Lecture 35 - AGC/AVC
- Lecture 36 - Experimental Demonstration
- Lecture 37 - PLL (Phase Locked Loop)
- Lecture 38 - PLL (Phase Locked Loop)
- Lecture 39 - Lock Range Capture Range and FSK and FM

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - High Speed Devices and Circuits

Subject Co-ordinator - Prof. K.N. Bhat

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Basic concepts
- Lecture 2 - Requirements for high speed circuits, devices and materials
- Lecture 3 - Classification and properties of semiconductor devices
- Lecture 4 - Ternary compound semiconductors and their applications
- Lecture 5 - Ternary compound semiconductors and their applications (Continued.)
- Lecture 6 - Crystal structures in GaAs
- Lecture 7 - Dopants and impurities in GaAs and InP
- Lecture 8 - Brief Overview of GaAs Technology for High Speed Devices
- Lecture 9 - Epitaxial Techniques for GaAs and high speed devices
- Lecture 10 - MBE and LPE for GaAs Epitaxy
- Lecture 11 - GaAs and InP devices for Microelectronics
- Lecture 12 - Metal Semiconductor contacts for MESFET
- Lecture 13 - Metal Semiconductor contacts for MESFET (Continued.)
- Lecture 14 - Metal Semiconductor contacts for MESFET (Continued.)
- Lecture 15 - Ohmic contacts on semiconductors
- Lecture 16 - Fermi level pinning, I V characteristics of Schottky Barrier Diodes
- Lecture 17 - Schottky Barrier Diodes I V characteristics of Non idealities -1
- Lecture 18 - Schottky Barrier Diodes I V characteristics of Non idealities -1
- Lecture 19 - Causes of Non idealities in the Schottky Barrier Diodes (I V characteristics)
- Lecture 20 - MESFET operations and I V characteristics
- Lecture 21 - MESFET I V characteristics Shockley's Model
- Lecture 22 - MESFET Shockley's Model and velocity saturation effect
- Lecture 23 - MESFET velocity saturation effect on drain current saturation
- Lecture 24 - MESFET
- Lecture 25 - MESFET
- Lecture 26 - MESFET
- Lecture 27 - MESFET
- Lecture 28 - MESFET
- Lecture 29 - Self Aligned MESFET SAINT Threshold Voltage and Sub Threshold current

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hetero junctions
- Lecture 31 - Hetero junctions and high electron Mobility Transistor (HEMT)
- Lecture 32 - Hetero junctions and high electron Mobility Transistor (HEMT) (Continued.)
- Lecture 33 - High Electron Mobility Transistor
- Lecture 34 - HEMT off voltage, I-V characteristics and trans conductance
- Lecture 35 - I-V characteristics and trans conductance and optimization
- Lecture 36 - Indium phosphide based HEMT
- Lecture 37 - Pseudomorphic HEMT and Hetrojunction Bipolar Transistors
- Lecture 38 - Hetero junction Bipolar Transistors (HBT)
- Lecture 39 - Hetero junction Bipolar Transistors (HBT) (Continued.)
- Lecture 40 - Hetero junction Bipolar Transistors (HBT) (Continued.)
- Lecture 41 - Hetero junction Bipolar Transistors (HBT) (Continued.)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Solid State Devices

Subject Co-ordinator - Prof. S. Karmalkar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction on Solid State Devices
- Lecture 2 - Evolution and Uniqueness of Semiconductor
- Lecture 3 - Equilibrium Carrier Concentration
- Lecture 4 - Equilibrium Carrier Concentration
- Lecture 5 - Equilibrium Carrier Concentration
- Lecture 6 - Equilibrium Carrier Concentration
- Lecture 7 - Equilibrium Carrier Concentration
- Lecture 8 - Equilibrium Carrier Concentration
- Lecture 9 - Equilibrium Carrier Concentration
- Lecture 10 - Equilibrium Carrier Concentration
- Lecture 11 - Equilibrium Carrier Concentration
- Lecture 12 - Carrier Transport
- Lecture 13 - Carrier Transport (Continued.)
- Lecture 14 - Carrier Transport (Continued.)
- Lecture 15 - Excess Carriers
- Lecture 16 - Excess Carriers (Continued.)
- Lecture 17 - Procedure for Device Analysis
- Lecture 18 - Procedure for Device Analysis (Continued.)
- Lecture 19 - PN Junction
- Lecture 20 - PN Junction (Continued.)
- Lecture 21 - PN Junction (Continued.)
- Lecture 22 - PN Junction (Continued.)
- Lecture 23 - PN Junction (Continued.)
- Lecture 24 - PN Junction (Continued.)
- Lecture 25 - PN Junction (Continued.)
- Lecture 26 - Bipolar Junction Transistor
- Lecture 27 - Bipolar Junction Transistor (Continued.)
- Lecture 28 - Bipolar Junction Transistor (Continued.)
- Lecture 29 - Bipolar Junction Transistor (Continued.)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Bipolar Junction Transistor (Continued.)
- Lecture 31 - Bipolar Junction Transistor (Continued.)
- Lecture 32 - Bipolar Junction Transistor (Continued.)
- Lecture 33 - Metal-Oxide-Semiconductor (MOS) Junction
- Lecture 34 - Metal-Oxide-Semiconductor (MOS) Junction (Continued.)
- Lecture 35 - Metal-Oxide-Semiconductor (MOS) Junction (Continued.)
- Lecture 36 - Metal-Oxide-Semiconductor (MOS) Junction (Continued.)
- Lecture 37 - Metal-Oxide-Semiconductor (MOS) Junction (Continued.)
- Lecture 38 - MOS Field Effect Transistor
- Lecture 39 - MOS Field Effect Transistor (Continued.)
- Lecture 40 - MOS Field Effect Transistor (Continued.)
- Lecture 41 - MOS Field Effect Transistor (Continued.)
- Lecture 42 - The Final Lecture - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - VLSI Circuits

Subject Co-ordinator - Prof. S. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to VLSI Design  
Lecture 2 - Combinational Circuit Design  
Lecture 3 - Programmable Logic Devices  
Lecture 4 - Programmable Array Logic  
Lecture 5 - Review of Flip-Flops  
Lecture 6 - Sequential Circuits  
Lecture 7 - Sequential Circuit Design  
Lecture 8 - MSI Implementation of Sequential Circuits  
Lecture 9 - Design of Sequential Circuits using One Hot Controller  
Lecture 10 - Verilog Modeling of Combinational Circuits  
Lecture 11 - Modeling of Verilog Sequential Circuits - Core Statements  
Lecture 12 - Modeling of Verilog Sequential Circuits - Core Statements(Continued.)  
Lecture 13 - RTL Coding Guidelines  
Lecture 14 - Coding Organization - Complete Realization  
Lecture 15 - Coding Organization - Complete Realization (Continued.)  
Lecture 16 - Writing a Test Bench  
Lecture 17 - System Design using ASM Chart  
Lecture 18 - Example of System Design using ASM Chart  
Lecture 19 - Examples of System Design using Sequential Circuits  
Lecture 20 - Examples of System Design using Sequential Circuits (Continued.)  
Lecture 21 - Microprogrammed Design  
Lecture 22 - Microprogrammed Design (Continued.)  
Lecture 23 - Design Flow of VLSI Circuits  
Lecture 24 - Simulation of Combinational Circuits  
Lecture 25 - Simulation of Combinational and Sequential Circuits  
Lecture 26 - Analysis of Waveforms using Modelsim  
Lecture 27 - Analysis of Waveforms using Modelsim (Continued.)  
Lecture 28 - ModelSim Simulation Tool  
Lecture 29 - Synthesis Tool

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- Lecture 30 - Synthesis Tool (Continued.)
- Lecture 31 - Synplify Tool - Schematic Circuit Diagram View
- Lecture 32 - Technology View using Synplify Tool
- Lecture 33 - Synopsys Full and Parallel Cases
- Lecture 34 - Xilinx Place & Route Tool
- Lecture 35 - Xilinx Place & Route Tool (Continued.)
- Lecture 36 - PCI Arbiter Design using ASM Chart
- Lecture 37 - Design of Memories - ROM
- Lecture 38 - Design of Memories- RAM
- Lecture 39 - Design of External RAM
- Lecture 40 - Design of Arithmetic Circuits
- Lecture 41 - Design of Arithmetic Circuits (Continued.)
- Lecture 42 - Design of Arithmetic Circuits (Continued.)
- Lecture 43 - System Design Examples
- Lecture 44 - System Design Examples (Continued.)
- Lecture 45 - System Design Examples (Continued.)
- Lecture 46 - System Design Examples (Continued.)
- Lecture 47 - System Design Examples (Continued.)
- Lecture 48 - System Design Examples using FPGA Board
- Lecture 49 - System Design Examples using FPGA Board (Continued.)
- Lecture 50 - Advanced Features of Xilinx Project Navigator
- Lecture 51 - System Design Examples using FPGA Board (Continued.)
- Lecture 52 - System Design Examples using FPGA Board (Continued.)
- Lecture 53 - System Design Examples using FPGA Board (Continued.)
- Lecture 54 - System Design Examples using FPGA Board (Continued.)
- Lecture 55 - Project Design Suggested for FPGA/ASIC Implementations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - VLSI Technology

Subject Co-ordinator - Dr. Nandita Dasgupta

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction on VLSI Design
- Lecture 2 - Bipolar Junction Transistor Fabrication
- Lecture 3 - MOSFET Fabrication for IC
- Lecture 4 - Crystal Structure of Si
- Lecture 5 - Crystal Structure (Continued.)
- Lecture 6 - Defects in Crystal + Crystal growth
- Lecture 7 - Crystal growth Contd + Epitaxy I
- Lecture 8 - Epitaxy II - Vapour phase Epitaxy
- Lecture 9 - Epitaxy III - Doping during Epitaxy
- Lecture 10 - Molecular beam Epitaxy
- Lecture 11 - Oxidation I - Kinetics of Oxidation
- Lecture 12 - Oxidation II - Oxidation rate constants
- Lecture 13 - Oxidation III - Dopant Redistribution
- Lecture 14 - Oxidation IV - Oxide Charges
- Lecture 15 - Diffusion I - Theory of Diffusion
- Lecture 16 - Diffusion II - Infinite Source
- Lecture 17 - Diffusion III - Actual Doping Profiles
- Lecture 18 - Diffusion IV - Diffusion Systems
- Lecture 19 - Ion - Implantation Process
- Lecture 20 - Ion - Implantation Process
- Lecture 21 - Annealing of Damages
- Lecture 22 - Masking during Implantation
- Lecture 23 - Lithography - I
- Lecture 24 - Lithography - II
- Lecture 25 - Wet Chemical Etching
- Lecture 26 - Dry Etching
- Lecture 27 - Plasma Etching Systems
- Lecture 28 - Etching of Si, SiO<sub>2</sub>, SiN and other materials
- Lecture 29 - Plasma Deposition Process

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Metallization - I
- Lecture 31 - Problems in Aluminium Metal contacts
- Lecture 32 - IC BJT - From junction isolation to LOCOS
- Lecture 33 - Problems in LOCOS + Trench isolation
- Lecture 34 - More about BJT Fabrication and Realization
- Lecture 35 - Circuits + Transistors in ECL Circuits
- Lecture 36 - MOSFET I - Metal gate vs. Self-aligned Poly-gate
- Lecture 37 - MOSFET II Tailoring of Device Parameters
- Lecture 38 - CMOS Technology
- Lecture 39 - Latch - up in CMOS
- Lecture 40 - BICMOS Technology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Basic Electrical Circuits

Subject Co-ordinator - Dr. Nagendra Krishnapura

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the course; Current and Voltage; Kirchhoff's Current and Voltage laws

Lecture 2 - Electrical circuit elements

Lecture 3 - Elements in series and parallel; Superposition in linear circuits

Lecture 4 - Controlled sources; Determining the characteristics of a two terminal element; Realizing a resist

Lecture 5 - Nodal analysis of a network with conductances and current sources; Setting up the equations; Cond

Lecture 6 - Circuit analysis; Number of KCL and KVL equations in a circuit; Nodal analysis of a network with

Lecture 7 - Nodal analysis with voltage sources and controlled sources; Brief introduction to modified nodal

Lecture 8 - Mesh analysis of a circuit with resistors and voltage sources; Comparison with nodal analysis; Me

Lecture 9 - Choice of nodal versus mesh analysis; Circuit theorems

Lecture 10 - Thevenin and Norton (theorem and) equivalent circuits; Power conservation in a circuit

Lecture 11 - Tellegen's theorem; Reciprocity theorem

Lecture 12 - Compensation Theorem; Two ports

Lecture 13 - Two port parameters-y parameters

Lecture 14 - Two port parameters(z, h, and g); Reciprocal two ports

Lecture 15 - Opamp, ideal opamp circuits, non-inverting and inverting amplifiers; Ensuring that the opamp has

Lecture 16 - RC circuit natural response; First order differential equation

Lecture 17 - RC (first-order) circuit, complete response with step inputs; Transient(natural) and steady stat

Lecture 18 - Step response of RC circuit with loops of voltage sources and capacitors; RL circuits; RLC circu

Lecture 19 - Second order(RLC circuit) natural response; Series and prallel RLC circuits; Differential equati

Lecture 20 - General formulation of second order(RLC circuit) natural response; Natural frequency and damping

Lecture 21 - Sinusoidal steady state response of RC and RLC circuits

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Basic Electrical Circuits

Subject Co-ordinator - Dr. Nagendra Krishnapura

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Preliminaries
- Lecture 2 - Current
- Lecture 3 - Voltage
- Lecture 4 - Electrical elements and circuits
- Lecture 5 - Kirchhoff's current law (KCL)
- Lecture 6 - Kirchhoff's Voltage law (KVL)
- Lecture 7 - Voltage Source
- Lecture 8 - Current Source
- Lecture 9 - Resistor
- Lecture 10 - Capacitor
- Lecture 11 - Inductor
- Lecture 12 - Mutual Inductor
- Lecture 13 - Linearity of Elements
- Lecture 14 - Solutions to the assignment on units 1 and 2
- Lecture 15 - Series connection-Voltage sources in series
- Lecture 16 - Series connection of R, L, C, current source
- Lecture 17 - Elements in parallel
- Lecture 18 - Current source in series with an element; Voltage source in parallel with an element
- Lecture 19 - Extreme cases
- Lecture 20 - Summary
- Lecture 21 - Voltage controlled voltage source (VCVS)
- Lecture 22 - Voltage controlled current source (VCCS)
- Lecture 23 - Current controlled voltage source (CCVS)
- Lecture 24 - Current controlled current source (CCCS)
- Lecture 25 - Realizing a resistance using a VCCS or CCCS
- Lecture 26 - Scaling an element's value using controlled sources
- Lecture 27 - Example calculation
- Lecture 28 - Solution to the assignment on units 3 and 4
- Lecture 29 - Power and energy absorbed by electrical elements

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Power and energy in a resistor
- Lecture 31 - Power and energy in a capacitor
- Lecture 32 - Power and energy in an inductor
- Lecture 33 - Power and energy in a voltage source
- Lecture 34 - Power and energy in a current source
- Lecture 35 - Goals of circuit analysis
- Lecture 36 - Number of independent KCL equations
- Lecture 37 - Number of independent KVL equations and branch relationships
- Lecture 38 - Analysis of circuits with a single independent source
- Lecture 39 - Analysis of circuits with multiple independent sources using superposition
- Lecture 40 - Superposition
- Lecture 41 - Solution to the assignment on units 5 and 6
- Lecture 42 - What is nodal analysis
- Lecture 43 - Setting up nodal analysis equations
- Lecture 44 - Structure of the conductance matrix
- Lecture 45 - How elements appear in the nodal analysis formulation
- Lecture 46 - Completely solving the circuit starting from nodal analysis
- Lecture 47 - Nodal analysis example
- Lecture 48 - Matrix inversion basics
- Lecture 49 - Nodal analysis with independent voltage sources
- Lecture 50 - Supernode for nodal analysis with independent voltage sources
- Lecture 51 - Nodal analysis with VCCS
- Lecture 52 - Nodal analysis with VCVS
- Lecture 53 - Nodal analysis with CCCS
- Lecture 54 - Nodal analysis with CCCS
- Lecture 55 - Nodal analysis summary
- Lecture 56 - Solution to the assignment on units 7 and 8
- Lecture 57 - Planar circuits
- Lecture 58 - Mesh currents and their relationship to branch currents
- Lecture 59 - Mesh analysis
- Lecture 60 - Mesh analysis with independent current sources-Supermesh
- Lecture 61 - Mesh analysis with current controlled voltage sources
- Lecture 62 - Mesh analysis with current controlled current sources
- Lecture 63 - Mesh analysis using voltage controlled sources
- Lecture 64 - Nodal analysis versus Mesh analysis
- Lecture 65 - Superposition theorem
- Lecture 66 - Pushing a voltage source through a node
- Lecture 67 - Splitting a current source
- Lecture 68 - Substitution theorem



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- Lecture 69 - Substitution theorem
- Lecture 70 - Substituting a voltage or current source with a resistor
- Lecture 71 - Solutions
- Lecture 72 - Extensions to Superposition and Substitution theorem
- Lecture 73 - Thevenin's theorem
- Lecture 74 - Worked out example
- Lecture 75 - Norton's theorem
- Lecture 76 - Worked out example
- Lecture 77 - Maximum power transfer theorem
- Lecture 78 - Preliminaries.
- Lecture 79 - Two port parameters
- Lecture 80 - y parameters
- Lecture 81 - y parameters
- Lecture 82 - Solutions.
- Lecture 83 - z parameters
- Lecture 84 - z parameters
- Lecture 85 - h parameters
- Lecture 86 - h parameters
- Lecture 87 - g parameters
- Lecture 88 - g parameters
- Lecture 89 - Calculations with a two-port element
- Lecture 90 - Calculations with a two-port element.
- Lecture 91 - Degenerate cases
- Lecture 92 - Relationships between different two-port parameters
- Lecture 93 - Equivalent circuit representation for two ports
- Lecture 94 - Reciprocity
- Lecture 95 - Proof of reciprocity of resistive two-ports
- Lecture 96 - Proof for 4-terminal two-ports
- Lecture 97 - Reciprocity in terms of different two-port parameters
- Lecture 98 - Reciprocity in circuits containing controlled sources
- Lecture 99 - Examples
- Lecture 100 - Solutions..
- Lecture 101 - Feedback amplifier using an opamp
- Lecture 102 - Ideal opamp
- Lecture 103 - Negative feedback around the opamp
- Lecture 104 - Finding opamp signs for negative feedback
- Lecture 105 - Example
- Lecture 106 - Analysis of circuits with opamps
- Lecture 107 - Inverting amplifier

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Summing amplifier
- Lecture 109 - Instrumentation amplifier
- Lecture 110 - Negative resistance and Miller effect
- Lecture 111 - Finding opamp signs for negative feedback-circuits with multiple opamps
- Lecture 112 - Opamp supply voltages and saturation
- Lecture 113 - KCL with an opamp and supply currents
- Lecture 114 - Solutions...
- Lecture 115 - Circuits with storage elements (capacitors and inductors)
- Lecture 116 - First order circuit with zero input-natural response
- Lecture 117 - First order RC circuit with zero input-Example
- Lecture 118 - First order circuit with a constant input
- Lecture 119 - General form of the first order circuit response
- Lecture 120 - First order RC circuit with a constant input-Example
- Lecture 121 - First order circuit with piecewise constant input
- Lecture 122 - First order circuit with piecewise constant input-Example
- Lecture 123 - First order circuit-Response of arbitrary circuit variables
- Lecture 124 - Summary
- Lecture 125 - Does a capacitor block DC?
- Lecture 126 - Finding the order of a circuit
- Lecture 127 - First order RC circuits with discontinuous capacitor voltages
- Lecture 128 - Summary
- Lecture 129 - First order RL circuits
- Lecture 130 - First order RL circuit with discontinuous inductor current-Example
- Lecture 131 - First order RC circuit with an exponential input
- Lecture 132 - First order RC response to its own natural response
- Lecture 133 - First order RC response to a sinusoidal input
- Lecture 134 - First order RC response to a sinusoidal input-via the complex exponential
- Lecture 135 - Summary
- Lecture 136 - Three methods of calculating the sinusoidal steady state response
- Lecture 137 - Calculating the total response including initial conditions
- Lecture 138 - Why are sinusoids used in measurement?
- Lecture 139 - Second order system natural response
- Lecture 140 - Second order system as a cascade of two first order systems
- Lecture 141 - Second order system natural response-critically damped and underdamped
- Lecture 142 - Generalized form of a second order system
- Lecture 143 - Numerical example
- Lecture 144 - Series and parallel RLC circuits
- Lecture 145 - Forced response of a second order system
- Lecture 146 - Steady state response calculation and Phasors

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- Lecture 147 - Phasors (Continued...)
- Lecture 148 - Magnitude and Phase plots
- Lecture 149 - Magnitude and phase plots of a second order system
- Lecture 150 - Maximum power transfer and Conjugate matching

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Advanced Logic Synthesis

Subject Co-ordinator - Mr. Dhiraj Taneja

Co-ordinating Institute - Broadcom - Hyderabad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - MOS Transistor  
Lecture 2 - MOS Transistor - Detailed Study  
Lecture 3 - Combinational Circuits and layout  
Lecture 4 - Delay  
Lecture 5 - Sequential Circuits  
Lecture 6 - Logical Effort  
Lecture 7 - Circuit Families  
Lecture 8 - Lab-01  
Lecture 9 - Lab-02  
Lecture 10 - Lab-03  
Lecture 11 - Lab-04  
Lecture 12 - Introduction to Synthesis  
Lecture 13 - Libraries  
Lecture 14 - RTL Coding for Synthesis  
Lecture 15 - Reading Design in DC  
Lecture 16 - Design Environment  
Lecture 17 - Design Constraints  
Lecture 18 - Compile Flow and strategies  
Lecture 19 - Analysis and Reporting  
Lecture 20 - Lab-05  
Lecture 21 - Advanced Synthesis Techniques  
Lecture 22 - Datapath Extraction Guidelines  
Lecture 23 - Power - Methodology and Analysis  
Lecture 24 - Lab-06  
Lecture 25 - Lab-07  
Lecture 26 - Lab-08  
Lecture 27 - Lab-09  
Lecture 28 - Static Timing Analysis - Concepts and Flow  
Lecture 29 - Interconnects and Delay calculation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Clock and Exceptions
- Lecture 31 - On Chip Variation
- Lecture 32 - Introduction to Crosstalk
- Lecture 33 - Gaussian / Normal Distribution
- Lecture 34 - Equivalence Checking / Formal Verification

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - ARM Based Development

Subject Co-ordinator - Mr. S. Chandramouleeswaran

Co-ordinating Institute - Independent Embedded SW Trainer

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Types of computer Architectures, ISA's and ARM History
- Lecture 2 - Embedded System Software and Hardware, stack implementation in ARM, Endianness, condition codes
- Lecture 3 - Processor core VS CPU core, ARM7TDMI Interface signals, Memory Interface, Bus Cycle types, Register
- Lecture 4 - Instruction Format, ARM Core Data Flow Model, ARM 3 stage Pipeline, ARM family attribute comparis
- Lecture 5 - ARM 5 stage Pipeline, Pipeline Hazards, Data forwarding - a hardware solution
- Lecture 6 - ARM ISA and Processor Variants, Different Types of Instructions, ARM Instruction set, data proces
- Lecture 7 - Shift Operations, shift Operations using RS lower byte, Immediate value encoding
- Lecture 8 - Dataprocessing Instructions
- Lecture 9 - Addressing Mode-1, Addressing Mode-2
- Lecture 10 - Addressing Mode-2, LDR/STR, Addressing mode-3 with examples
- Lecture 11 - Instruction Timing, Addressing Mode-4 with Examples
- Lecture 12 - Swap Instructions, Swap Register related Instructions, Loading Constants
- Lecture 13 - Program Control Flow, Control Flow Instructions, B & BL instructions, BX instruction
- Lecture 14 - Interrupts and Exceptions, Exception Handlers, Reset Handling
- Lecture 15 - Aborts, software Interrupt Instruction, undefined instruction exception
- Lecture 16 - Interrupt Latency, Multiply Instructions, Instruction set examples
- Lecture 17 - Thumb state, Thumb Programmers model, Thumb Implementation, Thumb Applications
- Lecture 18 - Thumb Instructions, Interrupt processing
- Lecture 19 - Interrupt Handelling schemes, Examples of Interrupt Handlers
- Lecture 20 - Coprocessors
- Lecture 21 - Coprocessor Instructions, data Processing Instruction, data transfers, register transfers
- Lecture 22 - Number representations, floating point representation
- Lecture 23 - Flynn's Taxonomy, SIMD and Vector Processors, Vector Floating Point Processor (VFP), VFP and ARM
- Lecture 24 - Memory Technologies, Need for memory Hierarchy, Hierarchical Memory Organization, Virtual Memory
- Lecture 25 - Cache Memory, Mapping Functions
- Lecture 26 - Cache Design, Unified or split cache, multiple level of caches, ARM cache features, coprocessor
- Lecture 27 - Processes, Memory Map, Protected Systems, ARM systems with MPU, memory Protection Unit (MPU)
- Lecture 28 - Physical Vs Virtual Memory, Paging, Segmentation
- Lecture 29 - MMU Advantage, virtual memory translation, Multitasking with MMU, MMU organization, Tightly coup

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - ARM Development Environment, Arm Procedure Call Standard (APCS),
- Lecture 31 - Example C program
- Lecture 32 - Embedded software Development, Image structure, linker inputs and outputs, memory map, applicati
- Lecture 33 - AMBA Overview, Typical AMAB Based Microcontroller, AHB bus features, AHB Bus transfers, APB bus
- Lecture 34 - DMA, Peripherals, Programming Peripherals in ARM
- Lecture 35 - DMA
- Lecture 36 - Protocols (I2c, SPI), UART, GPIO
- Lecture 37 - ARM ISAs, ARMv5, ARMv6, ARM v7, big.little technology, ARMv8

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Embedded Software Testing

Subject Co-ordinator - Mr. Madhukeshwara H.M

Co-ordinating Institute - HCL

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Embedded Systems Basics Session 1
- Lecture 2 - Embedded Systems Basics Session 1 (Continued...)
- Lecture 3 - Prerequistics for Embedded Systems Testing
- Lecture 4 - Test Case Designa and procedures
- Lecture 5 - Test Standards
- Lecture 6 - Depicting Levels of Testing
- Lecture 7 - Depicting Levels of Testing (Continued...)
- Lecture 8 - Software Life Cycle
- Lecture 9 - Embeded V-Model Life Cycle
- Lecture 10 - Embedded V-Model Life Cycle (Continued...)
- Lecture 11 - Master Test Planning
- Lecture 12 - Black Box Testing (Continued...)
- Lecture 13 - Black Box Testing (Continued...)
- Lecture 14 - Dynamic Testing
- Lecture 15 - Black Box Testing
- Lecture 16 - (Lecture Missing)
- Lecture 17 - Black Box Testing (Continued...)
- Lecture 18 - Model Based Design Intro.
- Lecture 19 - Dynamic Testing (Continued...)
- Lecture 20 - White Box Testing
- Lecture 21 - White Box Testing (Continued...)
- Lecture 22 - Grey-box testing
- Lecture 23 - Static Testing
- Lecture 24 - Static Analysis
- Lecture 25 - Static Analysis (Continued...)
- Lecture 26 - Static Analysis (Continued...)
- Lecture 27 - Test Metrics
- Lecture 28 - Software Testing Metrics
- Lecture 29 - Integration Test Strategy

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- Lecture 30 - Integration Tests Environment
- Lecture 31 - Use Case Diagram
- Lecture 32 - Depicting Levels of Testing (Continued...)
- Lecture 33 - Configure Management Elements
- Lecture 34 - SCM Activities
- Lecture 35 - Test Management Tool
- Lecture 36 - SCM Activities (Continued...)
- Lecture 37 - Overview Lecture 1
- Lecture 38 - Unit Testing
- Lecture 39 - Unit Testing (Continued...)
- Lecture 40 - Understading C++
- Lecture 41 - Unit Testing (Continued...)
- Lecture 42 - Level Testing
- Lecture 43 - Identify Test Cases
- Lecture 44 - Test Link Work Flow

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Linux Programming and Scripting

Subject Co-ordinator - Mr. Anand Iyer

Co-ordinating Institute - Calypto Design Systems

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Linux Basics - I  
Lecture 2 - Linux Basics - II  
Lecture 3 - Linux Basics - III  
Lecture 4 - Linux Basics - IV  
Lecture 5 - Linux Networking - I  
Lecture 6 - Linux Networking - II  
Lecture 7 - File Transfer Protocol  
Lecture 8 - Domain Name System  
Lecture 9 - DNS (Continued...)  
Lecture 10 - DFS  
Lecture 11 - AFS and NIS  
Lecture 12 - PERL 1  
Lecture 13 - PERL 2  
Lecture 14 - PERL 3  
Lecture 15 - PERL 4  
Lecture 16 - PERL 5  
Lecture 17 - PERL 6  
Lecture 18 - PERL 7  
Lecture 19 - PERL 8  
Lecture 20 - PERL 9  
Lecture 21 - Using sort  
Lecture 22 - PERL 10  
Lecture 23 - Programming Using Tcl/Tk - I  
Lecture 24 - Programming Using Tcl/Tk - II  
Lecture 25 - Programming Using Tcl/Tk - III  
Lecture 26 - More about Procedures  
Lecture 27 - TCP, Ports and Sockets  
Lecture 28 - I/O and Processes  
Lecture 29 - Bindings

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Programming Using Tcl/Tk - IV
- Lecture 31 - Furniture Arranger
- Lecture 32 - Bindtags
- Lecture 33 - Tcl in Synopsys Tools
- Lecture 34 - Python Programming
- Lecture 35 - Scope
- Lecture 36 - Iteration
- Lecture 37 - More about Regexprs
- Lecture 38 - Advanced Functions
- Lecture 39 - Exception Handling
- Lecture 40 - Examples of file Parsing
- Lecture 41 - Program on If Statement
- Lecture 42 - Program on Lists
- Lecture 43 - Makefiles

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Digital Circuits and Systems

Subject Co-ordinator - Prof. Shankar Balachandran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Basic Boolean Logic  
Lecture 3 - Boolean Theorems  
Lecture 4 - Definitions, SoP and Pos  
Lecture 5 - Algebraic Minimization Examples  
Lecture 6 - Introduction to Verilog  
Lecture 7 - Universality, Rearranging Truth Tables  
Lecture 8 - Karnaugh Maps  
Lecture 9 - K-Map Minimization  
Lecture 10 - K-Map with Don't cares  
Lecture 11 - Multiple Output Functions  
Lecture 12 - Number Systems  
Lecture 13 - Encoders and Decoders  
Lecture 14 - Multiplexers  
Lecture 15 - Multiplexer based Circuit Design  
Lecture 16 - Verilog  
Lecture 17 - Compiling and Running Verilog - A Demonstration  
Lecture 18 - Sequential Elements  
Lecture 19 - Gated Latches  
Lecture 20 - Flipflops  
Lecture 21 - Verilog - Assign Statement and Instantiation  
Lecture 22 - Sequential Circuits  
Lecture 23 - CMOS+Electrical Properties  
Lecture 24 - Delays  
Lecture 25 - Sequential Element Delays  
Lecture 26 - More Sequential Circuits  
Lecture 27 - Introduction to State Machines  
Lecture 28 - Always Statement in Verilog  
Lecture 29 - Sequential Logic Synthesis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - FSM Design Problems
- Lecture 31 - State Minimization
- Lecture 32 - State Assignment
- Lecture 33 - Timing Sequential Circuits
- Lecture 34 - Verilog Styles + Sequential Elements
- Lecture 35 - GCD Algorithm
- Lecture 36 - GCD Machines Datapath
- Lecture 37 - GCD State Machine
- Lecture 38 - GCD Top Level Module
- Lecture 39 - Datapath in Verilog
- Lecture 40 - Datapath Elements in Verilog
- Lecture 41 - FSM in Verilog
- Lecture 42 - Putting it all together
- Lecture 43 - Pipelining
- Lecture 44 - K-stage Pipeline
- Lecture 45 - Interleaving and Parallelism
- Lecture 46 - Blocking and Non-blocking Statements
- Lecture 47 - Modeling Circuits with Pipelining
- Lecture 48 - Signed Number Representation
- Lecture 49 - Signed Number Addition
- Lecture 50 - Adder/Subtractor
- Lecture 51 - Fast Adders
- Lecture 52 - Multiplication
- Lecture 53 - Closing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Networks and Systems

Subject Co-ordinator - Prof. V.G.K. Murti, Mr. C. S. Ramalingam, Dr. Andrew Thangaraj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Functions in circuits - constant and sinusoidal functions

Lecture 2 - Functions in circuits - Exponential function

Lecture 3 - Complex numbers and other topics

Lecture 4 - Systems, Signals, Networks

Lecture 5 - Representation and Classification of Systems

Lecture 6 - Linear systems

Lecture 7 - Time-invariance and causality

Lecture 8 - Signals, Elementary continuous signals

Lecture 9 - Complex frequencies of signals

Lecture 10 - Discontinuous signals - step, ramp

Lecture 11 - Unit impulse or delta function

Lecture 12 - Basic discrete-time signals

Lecture 13 - Examples of Signals

Lecture 14 - Introduction to Systems, Complementary Functions, Initial Conditions

Lecture 15 - Special initial conditions

Lecture 16 - Characterization of a linear system

Lecture 17 - Impulse Response

Lecture 18 - Evaluating the Convolution Integral

Lecture 19 - Worked-out Problems

Lecture 20 - Introduction and Motivation

Lecture 21 - Evaluating Fourier series coefficients

Lecture 22 - Symmetry conditions

Lecture 23 - Symmetry Condition Examples

Lecture 24 - Application to Network Analysis

Lecture 25 - Exponential Fourier Series

Lecture 26 - Frequency Spectrum

Lecture 27 - Examples

Lecture 28 - Signal Power and Related Ideas

Lecture 29 - Convergence of Fourier Series

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Week 1 Solutions
- Lecture 31 - Hints for Assignment 2
- Lecture 32 - Hints for Assignment 3
- Lecture 33 - Additional Properties of Fourier Series
- Lecture 34 - Exercises on Fourier Series
- Lecture 35 - Lab Demo
- Lecture 36 - From Fourier Series to Fourier Transform
- Lecture 37 - Continuous Time Fourier Transform
- Lecture 38 - Fourier Transform Examples
- Lecture 39 - Examples and Some Properties of Fourier Transform
- Lecture 40 - Properties of Fourier Transform (contd.)
- Lecture 41 - More Fourier Transform Properties
- Lecture 42 - Energy Considerations
- Lecture 43 - Energy Considerations II
- Lecture 44 - Helpful Relationships for Inverse Fourier Transform
- Lecture 45 - Fourier transform of signals that are not absolutely integrable
- Lecture 46 - Fourier Transform of Periodic Signals, Unit Step and Signum Function
- Lecture 47 - Truncated Sine wave and Convolution properties
- Lecture 48 - Integration in Time domain
- Lecture 49 - Application of continuous-time Fourier transform to system analysis
- Lecture 50 - Comments about transient analysis
- Lecture 51 - Sampling Theorem and Exercises on Fourier Transforms
- Lecture 52 - Introduction to Laplace Transform
- Lecture 53 - Laplace transforms of important functions
- Lecture 54 - Recap, Poles / Zeros and Laplace Transform Notation
- Lecture 55 - Properties
- Lecture 56 - Application and properties of Laplace transform
- Lecture 57 - More properties of Laplace transform
- Lecture 58 - More properties of Laplace transform
- Lecture 59 - Properties
- Lecture 60 - Properties
- Lecture 61 - Complex convolution and periodic functions
- Lecture 62 - Examples of Laplace transform
- Lecture 63 - Laplace transform examples
- Lecture 64 - Inverse Laplace transform
- Lecture 65 - Partial fractions
- Lecture 66 - Inverse Laplace Transform and Contour Integration
- Lecture 67 - Relating Fourier and Laplace Transform
- Lecture 68 - Exercises

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Applications of Laplace transform to network transients
- Lecture 70 - Laplace transform for resistor and system analysis
- Lecture 71 - Laplace transform method for mutual inductance
- Lecture 72 - Mutual Inductance Continued
- Lecture 73 - Examples and Advantages of L-transform
- Lecture 74 - General LTI systems and more about  $H(s)$
- Lecture 75 - Many facets of the system function (contd)
- Lecture 76 - Frequency response and stability
- Lecture 77 - Full circuit example
- Lecture 78 - Exercises



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Circuit Analysis for Analog Designers

Subject Co-ordinator - Prof. Shanthi Pavan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction and Motivation
- Lecture 2 - Kirchoff's Current and Voltage Laws, and the Incidence Matrix
- Lecture 3 - Power Conservation and Tellegen's Theorem
- Lecture 4 - Intuition behind Tellegen's Theorem
- Lecture 5 - Tellegen's Theorem and reciprocity in linear resistive networks
- Lecture 6 - Why is reciprocity useful in practice?
- Lecture 7 - Inter-reciprocity in linear time-invariant networks
- Lecture 8 - Inter-reciprocity in linear time-invariant networks (Continued...)
- Lecture 9 - Inter-reciprocity in networks with ideal operational amplifiers
- Lecture 10 - Review of Modified Nodal Analysis (MNA) of linear networks
- Lecture 11 - MNA stamps of controlled sources - the VCCS and VCVS
- Lecture 12 - MNA stamps of controlled sources - the CCCS and C CVS
- Lecture 13 - Inter-reciprocity in linear networks - using the MNA stamp approach
- Lecture 14 - The Adjoint Network
- Lecture 15 - MNA stamp of an ideal opamp
- Lecture 16 - Properties of circuits with multiple ideal opamps
- Lecture 17 - Introduction to Analog Active Filters
- Lecture 18 - Magnitude approximation principles
- Lecture 19 - The maximally flat (Butterworth) approximation
- Lecture 20 - The Butterworth Approximation (Continued...)
- Lecture 21 - Connection between magnitude response and pole locations in an all-pole filter
- Lecture 22 - Cascade-of-biquads, realization of stray-insensitive first-order section
- Lecture 23 - Opamp-RC biquadratic sections
- Lecture 24 - Active-RC biquads and Impedance scaling
- Lecture 25 - Opamp-RC biquadratic sections (Continued...)
- Lecture 26 - High-order filters using cascade of biquads, Dynamic range scaling in opamp-RC filters
- Lecture 27 - The finite gain-bandwidth model of nonideal opamps
- Lecture 28 - Effect of finite opamp bandwidth on an active-RC integrator
- Lecture 29 - Effect of finite opamp bandwidth on an active-RC biquad

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Visualization and mitigation of the effect of Q-enhancement
- Lecture 31 - Transconductance-Capacitance integrators
- Lecture 32 - Introduction to noise in electrical networks
- Lecture 33 - Noise processed by a linear time-invariant system
- Lecture 34 -  $kT/C$  noise in a sample-and-hold circuit
- Lecture 35 - Noise in RLC networks
- Lecture 36 - Total integrated noise in RLC Networks
- Lecture 37 - Bode's Noise Theorem - Frequency domain
- Lecture 38 - Input referred noise in electrical networks - Part 1
- Lecture 39 - Input referred noise in electrical networks - Part 2
- Lecture 40 - Input referred noise and the noise factor
- Lecture 41 - Noise Factor Examples
- Lecture 42 - Introduction to distributed networks, the ideal transmission line
- Lecture 43 - Solving the wave equation in an ideal transmission line
- Lecture 44 - Transmission line circuit analysis : The short circuited and open circuited line
- Lecture 45 - Transmission line circuit analysis, the reflection coefficient, open and short-circuited lines
- Lecture 46 - Transmission line driven by a source, power in a transmission line
- Lecture 47 - The Smith chart
- Lecture 48 - The need for scattering parameters
- Lecture 49 - Scattering Parameters: Introduction
- Lecture 50 - Example scattering matrix calculations
- Lecture 51 - Scattering matrices properties
- Lecture 52 - Measuring the S-parameters of a one-port
- Lecture 53 - The one-port vector network analyzer
- Lecture 54 - The two-port vector network analyzer
- Lecture 55 - Weak nonlinearity in electronic circuits, second-order harmonic distortion, HD2 and IM2
- Lecture 56 - Weak nonlinearity in electronic circuits, second-order intermodulation distortion
- Lecture 57 - Gain compression and third-order harmonic distortion
- Lecture 58 - Third-order intermodulation distortion
- Lecture 59 - Weak nonlinearities in circuits: Intuition behind the method of current injection
- Lecture 60 - Weak nonlinearities in circuits: Calculating nonlinear components
- Lecture 61 - Current-injection analysis of distortion in a negative feedback system
- Lecture 62 - Current-injection analysis of distortion in a negative feedback system (Continued...)
- Lecture 63 - Course summary and recap

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Design and Analysis of VLSI Subsystems

Subject Co-ordinator - Prof. Madhav Rao

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Understanding Silicon  
Lecture 2 - Introduction to NMOS  
Lecture 3 - NMOS Transistor Working  
Lecture 4 - PMOS Transistor  
Lecture 5 - MOS Capacitances  
Lecture 6 - Non Ideal MOS model  
Lecture 7 - Short channel current model  
Lecture 8 - Short channel current model analysis  
Lecture 9 - Channel Length modulation index  
Lecture 10 - DC characteristics of Inverter  
Lecture 11 - Transfer characteristics of Inverter  
Lecture 12 - Skewed Inverter  
Lecture 13 - Skewed Inverter and threshold voltage  
Lecture 14 - Equivalent of transistors in series  
Lecture 15 - Transmission Gate  
Lecture 16 - Bad CMOS Buffer - Part 1  
Lecture 17 - Bad CMOS Buffer - Part 2  
Lecture 18 - Noise margin characteristics of inverter  
Lecture 19 - Noise margin parameters  
Lecture 20 - Introduction to Delay in CMOS  
Lecture 21 - Transient analysis of CMOS Inverter  
Lecture 22 - RC approximated delay  
Lecture 23 - Switching Resistance  
Lecture 24 - CMOS Inverter approximated to RC Circuit  
Lecture 25 - Elmore delay  
Lecture 26 - Delay of FO4 inverter  
Lecture 27 - Extracting capacitances of 3-Nand gate for delay estimation  
Lecture 28 - Characterizing Delay of NOR gate  
Lecture 29 - Linear Delay model

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- Lecture 30 - Logical effort and Parasitic delay
- Lecture 31 - Logical effort and Parasitic delay for different gates
- Lecture 32 - Logical effort for short-channel current model
- Lecture 33 - Ring Oscillator design
- Lecture 34 - Optimizing Gate Size
- Lecture 35 - Optimizing Gate Sizes Example
- Lecture 36 - Optimizing the Stages for an inverter path
- Lecture 37 - Optimizing the Stages for a General Circuit
- Lecture 38 - Decoder Design
- Lecture 39 - Introduction to Combinational Circuit and assymmetric gates
- Lecture 40 - Assymmetric Gates analysis
- Lecture 41 - Assymmetric Gates analysis using short-channel current model
- Lecture 42 - Introduction to Skewed gates
- Lecture 43 - Skewed gates and best P/N ratio
- Lecture 44 - vIntroduction to Pseudo NMOS
- Lecture 45 - Psudeo NMOS gates
- Lecture 46 - Other Logic Family
- Lecture 47 - Dynamic Logic and Domino logic
- Lecture 48 - Domino gates
- Lecture 49 - Introduction to Stick Diagram
- Lecture 50 - Stick Diagram for different gates
- Lecture 51 - Applying Eulers path for stick diagram representations
- Lecture 52 - Multiplexer design and layout
- Lecture 53 - Introduction to Interconnects
- Lecture 54 - Interconnects - RC delay, and Energy
- Lecture 55 - Introduction to crosstalks in interconnects
- Lecture 56 - Transient analysis in Crosstalk
- Lecture 57 - Introduction to Repeaters in Interconnect Engineering
- Lecture 58 - Repeater Design
- Lecture 59 - Energy and delay analysis for interconnectwith repeaters
- Lecture 60
- Lecture 61 - Introduction to Power
- Lecture 62 - Switching Power and Energy Estimation
- Lecture 63 - Activity factor and estimating dynamic power for a combinational circuit design
- Lecture 64 - Analyzing Dynamic Power
- Lecture 65 - Energy estimation through driving factor
- Lecture 66 - Energy expression in terms of delay
- Lecture 67 - Voltage Scaling
- Lecture 68 - DVFS

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- Lecture 69 - Introduction to subthreshold leakage current model
- Lecture 70 - Subthreshold leakage current and Gate leakage current
- Lecture 71 - Estimating Static Power
- Lecture 72 - Introduction to CMOS Latch design
- Lecture 73 - CMOS Latch Design
- Lecture 74 - CMOS Latch and flipflop design
- Lecture 75 - Static Timing Analysis
- Lecture 76 - Static Timing Analysis (Continued...)
- Lecture 77 - Static Timing Analysis - Part 2
- Lecture 78 - Static Timing Analysis - Part 2.1
- Lecture 79 - Static Timing Analysis - Part 3
- Lecture 80 - TPDQ and TPCQ
- Lecture 81 - Static Timing Analysis - Part 4
- Lecture 82 - Static Timing Analysis - Part 5
- Lecture 83 - Static Timing Analysis - Part 6
- Lecture 84 - SET and CLEAR enabled Latch and Flipflop Design
- Lecture 85 - 1-bit Adder design
- Lecture 86 - Adder-Part2
- Lecture 87 - PG architecture - Part 1
- Lecture 88 - PG architecture - Part 2
- Lecture 89 - Carry Skip Adder
- Lecture 90 - Carry Look Ahead and Carry Increment Adder
- Lecture 91 - Other Adder Subsystems
- Lecture 92 - Approximate Multipliers - Part 1
- Lecture 93 - Approximate Multipliers - Part 2
- Lecture 94 - Approximate Adder

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Digital Protection of Power System

Subject Co-ordinator - Prof. Bhaveshkumar R. Bhalja

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Digital Relays - I  
Lecture 2 - Introduction to Digital Relays - II  
Lecture 3 - Components of Digital Relays  
Lecture 4 - Fundamentals of Digital Relays  
Lecture 5 - Phasor Estimation Algorithm - I  
Lecture 6 - Phasor Estimation Algorithm - II  
Lecture 7 - Phasor Estimation Algorithm - III  
Lecture 8 - Phasor Estimation Algorithm - IV  
Lecture 9 - Phasor Estimation Algorithm - V  
Lecture 10 - Frequency Estimation Algorithm  
Lecture 11 - Digital Protection of Transformer - I  
Lecture 12 - Digital Protection of Transformer - II  
Lecture 13 - Digital Protection of Transformer - III  
Lecture 14 - Digital Protection of Transformer - IV  
Lecture 15 - Digital Protection of Transformer - V  
Lecture 16 - Digital Protection of Induction Motors - I  
Lecture 17 - Digital Protection of Induction Motors - II  
Lecture 18 - Digital Protection of Induction Motors - III  
Lecture 19 - Digital Protection of Generators - I  
Lecture 20 - Digital Protection OF Generators - II  
Lecture 21 - Coordination of Overcurrent Relays for Distribution Network - I  
Lecture 22 - Coordination of Overcurrent Relays for Distribution Network - II  
Lecture 23 - Coordination of Overcurrent Relays for Distribution Network - III  
Lecture 24 - Coordination of Overcurrent Relays for Distribution Network - IV  
Lecture 25 - Coordination of Overcurrent Relays for Distribution Network - V  
Lecture 26 - Coordination of Overcurrent Relays for Distribution Network - VI  
Lecture 27 - Load Shedding and Frequency Relaying - I  
Lecture 28 - Load Shedding and Frequency Relaying - II  
Lecture 29 - Islanding Detection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Digital Distance Relaying Scheme for transmission Line - I
- Lecture 31 - Digital Distance Relaying Scheme for transmission Line - II
- Lecture 32 - Introduction to Phasor Measurement Unit - I
- Lecture 33 - Introduction to Phasor Measurement Unit - II
- Lecture 34 - Introduction to Phasor Measurement Unit - III
- Lecture 35 - Introduction to IEC 61850 - I
- Lecture 36 - Introduction to IEC 61850 - II
- Lecture 37 - Application of Big-Data Analytics in Power System Protection
- Lecture 38 - Cyber Security Issues in Power System Network
- Lecture 39 - Protection of Hybride AC/DC Microgrid: Issues and Challenges
- Lecture 40 - Application of AI-Based Techniques in Digital Protection

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Physics of Nanoscale Devices

Subject Co-ordinator - Prof. Vishvendra Singh Poonia

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction and Course Overview  
Lecture 3 - Basics of Quantum Mechanics  
Lecture 4 - Electron in a Potential Well  
Lecture 5 - Electrons in Solids  
Lecture 6 - KP Model  
Lecture 7 - KP Model, Effective Mass  
Lecture 8 - Bands, Effective Mass, DOS  
Lecture 9 - Effective Mass, DOS  
Lecture 10 - Density of States  
Lecture 11 - Density of States  
Lecture 12 - Density of States - 3D, 2D  
Lecture 13 - Density of States - 2D, 1D, 0D  
Lecture 14 - DOS, Fermi Function  
Lecture 15 - Fermi-Dirac Distribution  
Lecture 16 - Fermi Function, General Model of Transport  
Lecture 17 - General Model of Transport - I  
Lecture 18 - General Model of Transport - II  
Lecture 19 - General Model of Transport - III  
Lecture 20 - General Model of Transport, Modes  
Lecture 21 - Modes - I  
Lecture 22 - Modes - II  
Lecture 23 - Modes, Diffusive Transport  
Lecture 24 - Diffusive Transport  
Lecture 25 - Diffusive Transport, Conductance  
Lecture 26 - Conductance, Bulk Transport - I  
Lecture 27 - Conductance, Bulk Transport - II  
Lecture 28 - Resistance: Ballistic and Diffusive Cases - I  
Lecture 29 - Resistance: Ballistic and Diffusive Cases - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Resistance: Ballistic and Diffusive Cases - III
- Lecture 31 - Resistance: Diffusive Case
- Lecture 32 - The Idea of Mobility
- Lecture 33 - Voltage Drop in Ballistic Conductor
- Lecture 34 - 1D and 2D Realistic Conductors
- Lecture 35 - Introduction to MOSFET - I
- Lecture 36 - Introduction to MOSFET - II
- Lecture 37 - MOSFET: A Barrier Controlled Device
- Lecture 38 - MOSFET Electrical Characteristics
- Lecture 39 - MOSFET IV Characteristics - I
- Lecture 40 - MOSFET IV Characteristics - II
- Lecture 41 - MOSFET IV Characteristics - III
- Lecture 42 - MOSFET IV Characteristics - Traditional Approach
- Lecture 43 - MOSFET: Transport - I
- Lecture 44 - MOSFET: Transport - II
- Lecture 45 - MOSFET: Landauer Transport
- Lecture 46 - Landauer Transport and Ballistic MOSFET
- Lecture 47 - Ballistic MOSFET
- Lecture 48 - Ballistic Injection Velocity
- Lecture 49 - Velocity Saturation in Ballistic MOSFET and Electrostatics
- Lecture 50 - MOS Electrostatics
- Lecture 51 - MOS Electrostatics
- Lecture 52 - MOSFET: Electrostatics, Threshold Voltage
- Lecture 53 - MOSFET: 2D Electrostatics
- Lecture 54 - MOSFET: 2D Electrostatics and Quantum Confinement
- Lecture 55 - ETSOI MOSFETs, Quantum Confinement, Strain Engineering
- Lecture 56 - Strain Engineering, Thermoelectric Effects
- Lecture 57 - Thermoelectric Effects
- Lecture 58 - Thermoelectric Effects, Quantum Dot Devices
- Lecture 59 - Quantum Dot Devices
- Lecture 60 - Quantum Dot Devices - IV Characteristics, DFT, Course Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Circuits for Analog System Design

Subject Co-ordinator - Prof. M.K. Gunasekaran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Transistor Amplifier
- Lecture 2 - Transistor Op-amp and Transistor Based Voltage Regulator
- Lecture 3 - Some applications of transistor - I
- Lecture 4 - Some applications of transistor - II
- Lecture 5 - Transformer design & Heat sink design
- Lecture 6 - Op-amp Based Linear Voltage Regulator
- Lecture 7 - Short circuit protection for linear power supply
- Lecture 8 - Temperature indicator design using Op-amp
- Lecture 9 - On & off Temperature controller design
- Lecture 10 - Proportional Temperature Controller Design
- Lecture 11 - PID - Temperature Controller Design
- Lecture 12 - Heater Drive for Various Temperature Controllers
- Lecture 13 - Short Circuit Protection of Power MOSFET
- Lecture 14 - Error budgeting for temperature Indicator
- Lecture 15 - PID Temperature Controllers with Error Budgeting
- Lecture 16 - Error Budgeting for Constant Current Sources
- Lecture 17 - Error Budgeting for Thermo Couple Amplifier
- Lecture 18 - Error Budgeting for Op amp Circuits
- Lecture 19 - Gain Error Calculation in Op amp Circuits
- Lecture 20 - Input Resistance Calculations for Op amp
- Lecture 21 - Output Resistance Calculations for Op amp
- Lecture 22 - Error Budgeting for Different Circuits
- Lecture 23 - 4-20 mA current Transmitter design
- Lecture 24 - Error budgeting for 4-20mA Current Transmitters
- Lecture 25 - LVDT Based Current Transmitters
- Lecture 26 - Constant Current Source Design
- Lecture 27 - 4-20 MA Based Temperature Transmitter
- Lecture 28 - 3-Wire Current Transmitter
- Lecture 29 - Various Resistance Measurement Techniques

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- Lecture 30 - Ratio Transformer Technique to Measure Resistance and capacitance
- Lecture 31 - Capacitive Sensor Circuit Design Examples
- Lecture 32 - Capacitive Sensor Circuit With High Impedance Amplifier
- Lecture 33 - AC- applications of the Op-Amp and Lock in Amplifier Design
- Lecture 34 - Design of lock in Amplifier Circuit with example
- Lecture 35 - Dual Slopes ADC & Design Examples
- Lecture 36 - Dual Slope ADC and Successor approximation ADC
- Lecture 37 - MC based ADC
- Lecture 38 - Digital to analog Converter design and working, Flash ADC
- Lecture 39 - Flash ADC and ADC Converter errors
- Lecture 40 - Sigma delta ADC working Principle

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Digital System design with PLDs and FPGAs

Subject Co-ordinator - Prof. Kuruvilla Varghese

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Contents, Objective
- Lecture 2 - Revision of Prerequisite
- Lecture 3 - Design of Synchronous Sequential Circuits
- Lecture 4 - Analysis of Synchronous Sequential Circuits
- Lecture 5 - Top-down Design
- Lecture 6 - Controller Design
- Lecture 7 - Control algorithm and State diagram
- Lecture 8 - Case study 1
- Lecture 9 - FSM issues 1
- Lecture 10 - FSM Issues 2
- Lecture 11 - FSM Issues 3
- Lecture 12 - FSM Issues 4
- Lecture 13 - FSM Issues 5
- Lecture 14 - Synchronization 1
- Lecture 15 - Synchronization 2
- Lecture 16 - Case study 2
- Lecture 17 - Case study on FPGA Board
- Lecture 18 - Entity, Architecture and Operators
- Lecture 19 - Concurrency, Data flow and Behavioural models
- Lecture 20 - Structural Model, Simulation
- Lecture 21 - Simulating Concurrency
- Lecture 22 - Classes and Data types
- Lecture 23 - Concurrent statements and Sequential statements
- Lecture 24 - Sequential statements and Loops
- Lecture 25 - Modelling flip-flops, Registers
- Lecture 26 - Synthesis of Sequential circuits
- Lecture 27 - Libraries and Packages
- Lecture 28 - Operators, Delay modelling
- Lecture 29 - Delay modelling

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - VHDL Examples
- Lecture 31 - VHDL coding of FSM
- Lecture 32 - VHDL Test bench
- Lecture 33 - VHDL Examples, FSM Clock
- Lecture 34 - Evolution of PLDs
- Lecture 35 - Simple PLDs
- Lecture 36 - Simple PLDs
- Lecture 37 - Complex PLDs
- Lecture 38 - FPGA Introduction
- Lecture 39 - FPGA Interconnection, Design Methodology
- Lecture 40 - Xilinx Virtex FPGA's CLB
- Lecture 41 - Xilinx Virtex Resource Mapping, IO Block
- Lecture 42 - Xilinx Virtex Clock Tree
- Lecture 43 - FPGA Configuration
- Lecture 44 - Altera and Actel FPGAs

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Error Correcting Codes

Subject Co-ordinator - Prof. P. Vijay Kumar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Overview & Basics
- Lecture 2 - Example Codes and their Parameters
- Lecture 3 - Mathematical Preliminaries
- Lecture 4 - Subgroups and Equivalence Relations
- Lecture 5 - Cosets, Rings & Fields
- Lecture 6 - Vector Spaces, Linear Independence and Basis
- Lecture 7 - Linear Codes, & Linear independence
- Lecture 8 - Spanning & Basis
- Lecture 9 - The Dual Code
- Lecture 10 - Systematic Generator Matrix
- Lecture 11 - Minimum Distance of a Linear Code
- Lecture 12 - Bounds on the size of a Code
- Lecture 13 - Asymptotic Bounds
- Lecture 14 - Standard Array Decoding
- Lecture 15 - Performance Analysis of the SAD
- Lecture 16 - State and Trellis
- Lecture 17 - The Viterbi Decoder
- Lecture 18 - Catastrophic Error Propagation
- Lecture 19 - Path Enumeration
- Lecture 20 - Viterbi Decoder over the AWGN Channel
- Lecture 21 - Generalized Distributive Law
- Lecture 22 - The MPF Problem
- Lecture 23 - Further Examples of the MPF Problem
- Lecture 24 - Junction Trees
- Lecture 25 - Example of Junction Tree Construction
- Lecture 26 - Message passing on the Junction tree
- Lecture 27 - GDL Approach to Decoding Convolutional Codes
- Lecture 28 - ML Code-Symbol Decoding of the Convolutional Code
- Lecture 29 - LDPC Codes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - LDPC Code Terminology
- Lecture 31 - Gallager Decoding Algorithm A
- Lecture 32 - BP Decoding of LDPC Codes
- Lecture 33 - BP Decoding (Continued)
- Lecture 34 - Density Evolution under BP decoding
- Lecture 35 - Convergence & Concentration Theorem - LDPC Codes
- Lecture 36 - A Construction for Finite Fields
- Lecture 37 - Finite Fields
- Lecture 38 - Deductive Approach to Finite Fields
- Lecture 39 - Subfields of a Finite field
- Lecture 40 - Transform Approach to Cyclic Codes
- Lecture 41 - Estimating the Parameters of a Cyclic Code
- Lecture 42 - Decoding Cyclic Codes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Nanoelectronics: Devices and Materials

Subject Co-ordinator - Dr. Navakanta Bhat, Prof. K.N. Bhat, Dr. S.A. Shivashankar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Nanoelectronics

Lecture 2 - CMOS Scaling Theory

Lecture 3 - Short Channel Effects

Lecture 4 - Subthreshold Conduction

Lecture 5 - Drain Induced Barrier Lowering

Lecture 6 - Channel and Source / Drain Engineering

Lecture 7 - CMOS Process Flow

Lecture 8 - Gate oxide scaling and reliability

Lecture 9 - High-k gate dielectrics

Lecture 10 - Metal gate transistor

Lecture 11 - Industrial CMOS Technology

Lecture 12 - Ideal MOS C-V Characteristics

Lecture 13 - Effect of non idealities on C-V

Lecture 14 - MOS Parameter Extraction from C-V Characteristics

Lecture 15 - MOS Parameter Extraction from I-V Characteristics

Lecture 16 - MOSFET Analysis, sub-threshold swing  $\Delta S$

Lecture 17 - Interface state density effects on  $\Delta S$ . Short Channel Effects (SCE) and Drain Induced Barrier

Lecture 18 - Velocity Saturation, Ballistic transport, and Velocity Overshoot Effects and Injection Velocity

Lecture 19 - SOI Technology and comparisons with Bulk Silicon CMOS technology

Lecture 20 - SOI MOSFET structures, Partially Depleted (PD) and Fully Depleted (FD) SOI MOSFETs

Lecture 21 - FD SOI MOSFET

Lecture 22 - Sub-threshold Slope & SCE suppression in FD SOI MOSFET, Volume Inversion and Ultra thin (UTFD) SOI

Lecture 23 - Need for MS contact Source/Drain Junction in Nano scale MOSFETs

Lecture 24 - Rectifying and Ohmic contacts and challenges in MS junction source drain MOSFET Technology

Lecture 25 - Effect of Interface states and Fermi level pinning on MS contacts on Si and passivation techniques

Lecture 26 - Germanium as an alternate to silicon for high performance MOSFETs and the challenges in Germanium

Lecture 27 - Germanium MOSFET technology and recent results on surface passivated Ge MOSFETs

Lecture 28 - Compound semiconductors and hetero junction FETs for high performance

Lecture 29 - GaAs MESFETs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hetero-junctions and High Electron Mobility Transistors (HEMT)
- Lecture 31 - Introduction to Nanomaterials
- Lecture 32 - Basic Principles of Quantum Mechanics
- Lecture 33 - Basic Principles of Quantum Mechanics (Continued...)
- Lecture 34 - Energy bands in crystalline solids
- Lecture 35 - Quantum structures and devices
- Lecture 36 - Crystal growth and nanocrystals
- Lecture 37 - Nanocrystals and nanostructured thin films
- Lecture 38 - Nanowires and other nanostructures
- Lecture 39 - Carbon Nanostructures and CVD
- Lecture 40 - Atomic layer deposition (ALD)
- Lecture 41 - Characterisation of nanomaterials

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Pattern Recognition

Subject Co-ordinator - Prof. P.S. Sastry

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Statistical Pattern Recognition
- Lecture 2 - Overview of Pattern Classifiers
- Lecture 3 - The Bayes Classifier for minimizing Risk
- Lecture 4 - Estimating Bayes Error; Minimax and Neymann-Pearson classifiers
- Lecture 5 - Implementing Bayes Classifier; Estimation of Class Conditional Densities
- Lecture 6 - Maximum Likelihood estimation of different densities
- Lecture 7 - Bayesian estimation of parameters of density functions, MAP estimates
- Lecture 8 - Bayesian Estimation examples; the exponential family of densities and ML estimates
- Lecture 9 - Sufficient Statistics; Recursive formulation of ML and Bayesian estimates
- Lecture 10 - Mixture Densities, ML estimation and EM algorithm
- Lecture 11 - Convergence of EM algorithm; overview of Nonparametric density estimation
- Lecture 12 - Convergence of EM algorithm, Overview of Nonparametric density estimation
- Lecture 13 - Nonparametric estimation, Parzen Windows, nearest neighbour methods
- Lecture 14 - Linear Discriminant Functions; Perceptron -- Learning Algorithm and convergence proof
- Lecture 15 - Linear Least Squares Regression; LMS algorithm
- Lecture 16 - AdaLine and LMS algorithm; General nonlinear least-squares regression
- Lecture 17 - Logistic Regression; Statistics of least squares method; Regularized Least Squares
- Lecture 18 - Fisher Linear Discriminant
- Lecture 19 - Linear Discriminant functions for multi-class case; multi-class logistic regression
- Lecture 20 - Learning and Generalization; PAC learning framework
- Lecture 21 - Overview of Statistical Learning Theory; Empirical Risk Minimization
- Lecture 22 - Consistency of Empirical Risk Minimization
- Lecture 23 - Consistency of Empirical Risk Minimization; VC-Dimension
- Lecture 24 - Complexity of Learning problems and VC-Dimension
- Lecture 25 - VC-Dimension Examples; VC-Dimension of hyperplanes
- Lecture 26 - Overview of Artificial Neural Networks
- Lecture 27 - Multilayer Feedforward Neural networks with Sigmoidal activation functions;
- Lecture 28 - Backpropagation Algorithm; Representational abilities of feedforward networks
- Lecture 29 - Feedforward networks for Classification and Regression; Backpropagation in Practice

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Radial Basis Function Networks; Gaussian RBF networks
- Lecture 31 - Learning Weights in RBF networks; K-means clustering algorithm
- Lecture 32 - Support Vector Machines -- Introduction, obtaining the optimal hyperplane
- Lecture 33 - SVM formulation with slack variables; nonlinear SVM classifiers
- Lecture 34 - Kernel Functions for nonlinear SVMs; Mercer and positive definite Kernels
- Lecture 35 - Support Vector Regression and  $\epsilon$ -insensitive Loss function, examples of SVM learning
- Lecture 36 - Overview of SMO and other algorithms for SVM;  $\epsilon$ -SVM and  $\epsilon$ -SVR; SVM as a risk minimizer
- Lecture 37 - Positive Definite Kernels; RKHS; Representer Theorem
- Lecture 38 - Feature Selection and Dimensionality Reduction; Principal Component Analysis
- Lecture 39 - No Free Lunch Theorem; Model selection and model estimation; Bias-variance trade-off
- Lecture 40 - Assessing Learnt classifiers; Cross Validation;
- Lecture 41 - Bootstrap, Bagging and Boosting; Classifier Ensembles; AdaBoost
- Lecture 42 - Risk minimization view of AdaBoost

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - Analog Circuits and Systems 1

Subject Co-ordinator - Prof. K. Radhakrishna Rao

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Sensors, Signals and Systems
- Lecture 2 - Role of Analog Signal Processing in Electronic Products - Part I
- Lecture 3 - Role of Analog Signal Processing in Electronic Products - Part II
- Lecture 4 - Analog Signal Processing using One Port Networks
- Lecture 5 - Analog Signal Processing using One Port Networks, Passive Two Ports and Ideal amplifiers
- Lecture 6 - Synthesis of Amplifiers using Nullators and Norators
- Lecture 7 - Passive Electronic Devices for Analog Signal Processing
- Lecture 8 - Active Devices for Analog Signal Processing Systems
- Lecture 9 - Electronic Devices for Analog Circuits - Part I
- Lecture 10 - Electronic Devices for Analog Circuits - Part II
- Lecture 11 - Feedback in Systems
- Lecture 12 - Static Characteristic of Feedback Systems
- Lecture 13 - Dynamic Behaviour of Feedback Systems - Part I
- Lecture 14 - Dynamic Behavior of Feedback Systems - Part II
- Lecture 15 - Design of Feedback Amplifiers - Part I
- Lecture 16 - Design of Feedback Amplifiers - Part II
- Lecture 17 - Design of Feedback Amplifiers and Instrumentation Amplifiers
- Lecture 18 - Instrumentation Amplifiers, Integrators and Differentiators
- Lecture 19 - Non-linear Analog Signal Processing
- Lecture 20 - DC Voltage Regulators
- Lecture 21 - Filters - Approximations to ideal filter functions
- Lecture 22 - Passive Filters - Part I
- Lecture 23 - Passive Filters - Part II
- Lecture 24 - Active Filters - Part I
- Lecture 25 - Active Filters - Part II
- Lecture 26 - Active Filters
- Lecture 27 - State Space Filters
- Lecture 28 - Universal Active Filter - Effect of Active Device GB
- Lecture 29 - State-Space Filters (Tuning of Filters)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Automatic Tuning of Filters (PLL) and Review of Filter Design
- Lecture 31 - Waveform Generation
- Lecture 32 - LC Oscillator - Effect of Non-idealities
- Lecture 33 - Transconductor based Oscillator
- Lecture 34 - Regenerative Comparators and Non-Sinusoidal Oscillators
- Lecture 35 - Non-Sinusoidal Oscillators and VCO (FM & FSK Generators)
- Lecture 36 - Phase and Frequency Followers
- Lecture 37 - Frequency Locked Loop (Popularly known as PLL)
- Lecture 38 - Design of PLL and FLL
- Lecture 39 - Analog System Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Design and Simulation of DC-DC converter

Subject Co-ordinator - Prof. L. Umanand

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - System Overview
- Lecture 2 - Understanding Rectifier with C-filter
- Lecture 3 - Setting up gEDA, ngSpice and Octave
- Lecture 4 - Simulation walk-through
- Lecture 5 - Designing the rectifier capacitor filter circuit
- Lecture 6 - Startup surge limiting
- Lecture 7 - DC-DC converter concepts
- Lecture 8 - Buck, Boost and Buck-Boost Converters
- Lecture 9 - Simulation Example of Buck Converter
- Lecture 10 - Understanding Buck Converter
- Lecture 11 - Understanding Boost and Buck-Boost
- Lecture 12 - Forward Converter Topology
- Lecture 13 - Waveforms and Design
- Lecture 14 - Simulation of Forward Converter
- Lecture 15 - Forward Converter with Lossless Core Reset
- Lecture 16 - Transformer Design
- Lecture 17 - Inductor Design
- Lecture 18 - Flyback Converter Topology
- Lecture 19 - Pushpull Converter
- Lecture 20 - Half and Full Bridge Converters
- Lecture 21 - Close Loop Operation of Converters
- Lecture 22 - Simulation examples
- Lecture 23 - Multi-Output Converters
- Lecture 24 - Concluding Remarks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Enclosure Design of Electronics Equipmen

Subject Co-ordinator - Prof. N. V Chalapathi Rao

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Enclosure design for Electronics Equipment Introduction

Lecture 2 - Aspects and features that are non electrical and are essential to Electronic Product Realisation

Lecture 3 - Enclosure Design in electronic equipment

Lecture 4 - Design as applied to small electronics products and projects

Lecture 5 - Sketching in design for communication

Lecture 6 - Sketching as a tool with example and exercise

Lecture 7 - Sketching Part 2

Lecture 8 - Enclosures to Product design

Lecture 9 - Examples of product enclosures ID\_PD

Lecture 10 - Enclosures with detailing

Lecture 11 - Alternate Designs in an everyday item

Lecture 12 - Sheet metal in small equipment (PSU)

Lecture 13 - Layouts and Materials of small equipment

Lecture 14 - Materials used for construction

Lecture 15 - Materials choice

Lecture 16 - Aluminium for common equipment

Lecture 17 - Use of Aluminium extrusions

Lecture 18 - Application of Sheet metal

Lecture 19 - Sheet Metal bending

Lecture 20 - Development of enclosures for bending

Lecture 21 - Video of Fabrication

Lecture 22 - What can be done in the lab Bending

Lecture 23 - Issues in bending and folding

Lecture 24 - Making a quick model

Lecture 25 - Detailing in plastic

Lecture 26 - Fabricating with flat plastic

Lecture 27 - Video in ID Lab

Lecture 28 - Off the shelf enclosures

Lecture 29 - Ready made enclosures

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Application documentation and Selection
- Lecture 31 - Index of protection, Safety
- Lecture 32 - NEMA and related
- Lecture 33 - Testing for IP class
- Lecture 34 - Sealed Enclosures Video
- Lecture 35 - Public utility boxes
- Lecture 36 - EMI Sealing
- Lecture 37 - Sealed Enclosures 2
- Lecture 38 - Gasketing practice
- Lecture 39 - Gasketing Basics
- Lecture 40 - Off the shelf Aluminum enclosures
- Lecture 41 - Understanding
- Lecture 42 - Heat sink enclosures
- Lecture 43 - Detailing of Built in Heat sink boxes
- Lecture 44 - Connector basics
- Lecture 45 - Connectors - Part 2
- Lecture 46 - Common connectors
- Lecture 47 - Connectors (multi way) and CoAx
- Lecture 48 - MIL C connectors
- Lecture 49 - CAD in Layout Drawing
- Lecture 50 - Types of CAD
- Lecture 51 - CAD for enclosure Design
- Lecture 52 - Egpt layout with CAD
- Lecture 53 - CAD sample Example
- Lecture 54 - CAD Layout
- Lecture 55 - Detailing with CAD
- Lecture 56 - Integrating Products with CAD
- Lecture 57 - Product Detailing
- Lecture 58 - Components CAD Physical Models
- Lecture 59 - Sheet Metal and Plastic common details
- Lecture 60 - Sample of Simple Organic Shapes
- Lecture 61 - Conclusion



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Design of Photovoltaic Systems

Subject Co-ordinator - Prof. L. Umanand

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - A historical perspective
- Lecture 2 - PV cell characteristics and equivalent circuit
- Lecture 3 - Model of PV cell
- Lecture 4 - Short Circuit, Open Circuit and peak power parameters
- Lecture 5 - Datasheet study
- Lecture 6 - Cell efficiency
- Lecture 7 - Effect of temperature
- Lecture 8 - Temperature effect calculation example
- Lecture 9 - Fill factor
- Lecture 10 - PV cell simulation
- Lecture 11 - Identical cells in series
- Lecture 12 - Load line
- Lecture 13 - Non-identical cells in series
- Lecture 14 - Protecting cells in series
- Lecture 15 - Interconnecting modules in series
- Lecture 16 - Simulation of cells in series
- Lecture 17 - Identical cells in parallel
- Lecture 18 - Non-identical cells in parallel
- Lecture 19 - Protecting cells in parallel
- Lecture 20 - Interconnecting modules
- Lecture 21 - Simulation of cells in parallel
- Lecture 22 - Practicals - Measuring i-v characteristics
- Lecture 23 - Practicals - PV source emulation
- Lecture 24 - Introduction
- Lecture 25 - Insolation and irradiance
- Lecture 26 - Insolation variation with time of day
- Lecture 27 - Earth centric viewpoint and declination
- Lecture 28 - Solar geometry
- Lecture 29 - Insolation on a horizontal flat plate

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Energy on a horizontal flat plate
- Lecture 31 - Sunrise and sunset hour angles
- Lecture 32 - Examples
- Lecture 33 - Energy on a tilted flat plate
- Lecture 34 - Energy plots in octave
- Lecture 35 - Atmospheric effects
- Lecture 36 - Airmass
- Lecture 37 - Energy with atmospheric effects
- Lecture 38 - Clearness index
- Lecture 39 - Clearness index and energy scripts in Octave
- Lecture 40 - Sizing PV for applications without batteries
- Lecture 41 - Sizing PV Examples
- Lecture 42 - Batteries - intro
- Lecture 43 - Batteries - Capacity
- Lecture 44 - Batteries - C-rate
- Lecture 45 - Batteries - Efficiency
- Lecture 46 - Batteries - Energy and power densities
- Lecture 47 - Batteries - Comparison
- Lecture 48 - Battery selection
- Lecture 49 - Other energy storage methods
- Lecture 50 - PV system design - Load profile
- Lecture 51 - PV system design - Days of autonomy and recharge
- Lecture 52 - PV system design - Battery size
- Lecture 53 - PV system design - PV array size
- Lecture 54 - Design toolbox in octave
- Lecture 55 - MPPT concept>
- Lecture 56 - Input impedance of DC-DC converters - Boost converter
- Lecture 57 - Input impedance of DC-DC converters - Buck converter
- Lecture 58 - Input impedance of DC-DC converters - Buck-Boost converter
- Lecture 59 - Input impedance of DC-DC converters - PV module in SPICE
- Lecture 60 - Input impedance of DC-DC converters -Simulation - PV and DC-DC interface
- Lecture 61 - Impedance control methods
- Lecture 62 - Impedance control methods- Reference cell - voltage scaling
- Lecture 63 - Impedance control methods- Reference cell - current scaling
- Lecture 64 - Impedance control methods- Reference cell - Sampling method
- Lecture 65 - Impedance control methods- Reference cell - Power slope method 1
- Lecture 66 - Impedance control methods- Reference cell - Power slope method 2
- Lecture 67 - Impedance control methods- Reference cell - Hill climbing method
- Lecture 68 - Practical points - Housekeeping power supply

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Practical points - Gate driver
- Lecture 70 - Practical points - MPPT for non-resistive loads
- Lecture 71 - Simulation - MPPT
- Lecture 72 - Direct PV-battery connection
- Lecture 73 - Charge controller
- Lecture 74 - Battery charger - Understanding current control
- Lecture 75 - Battery charger - slope compensation
- Lecture 76 - Battery charger - simulation of current control
- Lecture 77 - Batteries in series - charge equalisation
- Lecture 78 - Batteries in parallel
- Lecture 79 - Peltier device - principle
- Lecture 80 - Peltier element - datasheet
- Lecture 81 - Peltier cooling
- Lecture 82 - Thermal aspects
- Lecture 83 - Thermal aspects - Conduction
- Lecture 84 - Thermal aspects - Convection
- Lecture 85 - Thermal aspects - A peltier refrigeration example
- Lecture 86 - Thermal aspects - Radiation and mass transport
- Lecture 87 - Demo of Peltier cooling
- Lecture 88 - Water pumping principle
- Lecture 89 - Hydraulic energy and power
- Lecture 90 - Total dynamic head
- Lecture 91 - Numerical solution - Colebrook formula
- Lecture 92 - Octave script for head calculation
- Lecture 93 - PV and Water Pumping Examples
- Lecture 94 - Octave script for hydraulic power
- Lecture 95 - Centrifugal pump
- Lecture 96 - Reciprocating pump
- Lecture 97 - PV power
- Lecture 98 - Pumped hydro application
- Lecture 99 - Grid connection principle
- Lecture 100 - PV to grid topologies Part-I
- Lecture 101 - PV to grid topologies Part-II
- Lecture 102 - PV to grid topologies Part-III
- Lecture 103 - 3ph d-q controlled grid connection intro
- Lecture 104 - 3ph d-q controlled grid connection dq-axis theory
- Lecture 105 - 3ph d-q controlled grid connection AC to DC transformations
- Lecture 106 - 3ph d-q controlled grid connection DC to AC transformations
- Lecture 107 - 3ph d-q controlled grid connection Complete 3ph grid connection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - 1ph d-q controlled grid connection
- Lecture 109 - 3ph PV-Grid interface example
- Lecture 110 - SVPWM - discrete implementation
- Lecture 111 - SVPWM - analog implementation
- Lecture 112 - Application of integrated magnetics
- Lecture 113 - Life cycle Costing Growth models
- Lecture 114 - Life cycle Costing Growth model examples
- Lecture 115 - Life cycle Costing Annual payment and present worth factor
- Lecture 116 - Life cycle Costing LCC with example - 1
- Lecture 117 - Life cycle Costing LCC example - 2
- Lecture 118 - Life cycle Costing LCC example - 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Photonic Integrated Circuits

Subject Co-ordinator - Dr. Srinivas Talabatulla

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Photonic Integrated Circuits
- Lecture 2 - Optical Waveguide Theory - Symmetric Waveguides
- Lecture 3 - Optical Waveguide Theory - Asymmetric Waveguides
- Lecture 4 - Vector Modes
- Lecture 5 - Channel Waveguide
- Lecture 6 - Directional Coupler and Coupled Mode Theory
- Lecture 7 - Passive Devices and Beam Propagation Method
- Lecture 8 - Dynamic Devices
- Lecture 9 - Integrated optical Systems and Applications
- Lecture 10 - Fabrication and Characterisation
- Lecture 11 - MOEMS
- Lecture 12 - Ring Resonators
- Lecture 13 - Photonic Band Gap Devices
- Lecture 14 - Lecture Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Electronics and Communication Engineering - NOC:Neural Science for Engineers

Subject Co-ordinator - Prof. Vikas V

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Outline and Scope
- Lecture 2 - Biological Information Systems
- Lecture 3 - Analogy between Living Systems with Semiconductor Structures
- Lecture 4 - Action Potential - I
- Lecture 5 - Action Potential - II
- Lecture 6 - Synaptic Potential
- Lecture 7 - Threshold and Action Potential Propagation
- Lecture 8 - Anatomy of a Neuron
- Lecture 9 - Neuro Muscular Junction
- Lecture 10 - Spatial and Temporal Summation of neuronal electrical activities
- Lecture 11 - Brain Anatomy Introduction
- Lecture 12 - Architecture of the Nervous System
- Lecture 13 - Architecture of the Nervous System (Continued...)
- Lecture 14 - Analog and Digital Processing in the Neuron - I
- Lecture 15 - Analog and Digital Processing in the Neuron - II
- Lecture 16 - Energy Sources of Neuronal Systems
- Lecture 17 - Skull Demonstration
- Lecture 18 - Brain Anatomy: Skull
- Lecture 19 - Brain Anatomy 3D - I
- Lecture 20 - Brain Anatomy 3D - II
- Lecture 21 - Brain Anatomy 3D - III
- Lecture 22 - Basics of Brain Imaging Techniques
- Lecture 23 - Brain anatomy using MR images - I
- Lecture 24 - Brain anatomy using MR images - II
- Lecture 25 - Spinal Cord Anatomy
- Lecture 26 - Reflexes: Introduction
- Lecture 27 - Monosynaptic Reflexes
- Lecture 28 - Polysynaptic Reflexes
- Lecture 29 - Criteria for electrode material

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to brain stimulation
- Lecture 31 - Brain Stimulation: Device fabrication - Illustration
- Lecture 32 - Brain Stimulation: Electronic Systems (Current Mirrors)
- Lecture 33 - Brain regions and associated functions
- Lecture 34 - Human vision system - II
- Lecture 35 - Network analysis during visual processing
- Lecture 36 - Control of eye movements
- Lecture 37 - COMSOL Multiphysics for Medical Devices
- Lecture 38 - COMSOL Brain Electrical Stimulation Demo
- Lecture 39 - Human vision system - III
- Lecture 40 - Human auditory system - I
- Lecture 41 - Human auditory system - II
- Lecture 42 - Human auditory system - III
- Lecture 43 - The human balance system
- Lecture 44 - Movement: Introduction
- Lecture 45 - Movement: Synchronization
- Lecture 46 - Movement: Role of Spinal Cord
- Lecture 47 - Movement: Role of Cerebellum
- Lecture 48 - Memory and Learning - I
- Lecture 49 - Memory and Learning - II
- Lecture 50 - Microengineering devices for Neural Signal Acquisition
- Lecture 51 - Microfabrication Process for Multi Electrode Array
- Lecture 52 - Introduction and Applications of Event Related Potentials
- Lecture 53 - ERP Extraction Demonstration

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Innovation by Design

Subject Co-ordinator - Dr. B.K. Chakravarthy

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The Seven Concerns
- Lecture 2 - Design Thinking and Collaboration
- Lecture 3 - Challenges to Innovation
- Lecture 4 - Understanding Users
- Lecture 5 - Arriving at Design Insights
- Lecture 6 - Prototyping for User Feedback
- Lecture 7 - 1st C The Cause
- Lecture 8 - Crossing the First Pitfall
- Lecture 9 - Trial and Error
- Lecture 10 - User Feedback for Development
- Lecture 11 - New users, new needs to meet
- Lecture 12 - Knowing the Context
- Lecture 13 - 2nd C The Context
- Lecture 14 - The Basic Need
- Lecture 15 - Ingenious Attempts
- Lecture 16 - Further Insights
- Lecture 17 - The Working Rig
- Lecture 18 - Concepts generation
- Lecture 19 - Experiencing the Product
- Lecture 20 - Refinements
- Lecture 21 - 3rd C - The Comprehension
- Lecture 22 - Understanding Constraints
- Lecture 23 - Positioning the Product
- Lecture 24 - Exploring Possibilities
- Lecture 25 - More Experiments
- Lecture 26 - Understanding the Technology
- Lecture 27 - At the 2nd Valley of Death
- Lecture 28 - Finishing Touches
- Lecture 29 - The Check

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Cause
- Lecture 31 - The Product, the Users and the Context
- Lecture 32 - The Prototyping
- Lecture 33 - User needs
- Lecture 34 - The Crucial Step Missed
- Lecture 35 - 5th C The Conception
- Lecture 36 - Synchronic Studies
- Lecture 37 - One product, many problems
- Lecture 38 - Concept Clusters
- Lecture 39 - From idea to product
- Lecture 40 - Prototyping
- Lecture 41 - Materials and Technologies
- Lecture 42 - Collaborative Efforts
- Lecture 43 - 6th C - The Crafting
- Lecture 44 - Recap
- Lecture 45 - The Manufacturing Challenge
- Lecture 46 - The User Feedback
- Lecture 47 - The Iterative Process
- Lecture 48 - 7th C - The Connection
- Lecture 49 - The Seed for Innovation
- Lecture 50 - Pinnacle for Innovation
- Lecture 51 - The Innovation Timeline
- Lecture 52 - The Innovation Champions
- Lecture 53 - The Innovation Domains
- Lecture 54 - The Innovation Templates
- Lecture 55 - The Serial Innovation

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Understanding Design

Subject Co-ordinator - Dr. B.K. Chakravarthy

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Introduction to Design
- Lecture 2 - The many notions of design
- Lecture 3 - Design as a process and a product
- Lecture 4 - The evolution of design
- Lecture 5 - Design engages with many disciplines
- Lecture 6 - Design is concerned with the user
- Lecture 7 - Good design, bad design
- Lecture 8 - Users and Contexts
- Lecture 9 - Multiple users, differing contexts
- Lecture 10 - Understanding user experience
- Lecture 11 - Design for a meaningful impact
- Lecture 12 - Design and Society
- Lecture 13 - Community and Collaboration
- Lecture 14 - Understanding Contexts
- Lecture 15 - Knowledge and Access
- Lecture 16 - Meeting Needs
- Lecture 17 - Function, Context and Consequences
- Lecture 18 - Design and Sustainability
- Lecture 19 - The cost of looking the other way
- Lecture 20 - Sustainability practices in daily life
- Lecture 21 - The perspective of engineering
- Lecture 22 - Understanding embodied energy
- Lecture 23 - The user's role in sustainability
- Lecture 24 - Framing the world's future
- Lecture 25 - Design and industry
- Lecture 26 - Understanding varied user needs
- Lecture 27 - Success through new materials and manufacturing
- Lecture 28 - Pushing the boundaries of mass production
- Lecture 29 - A Classic chair for all times

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Breaking familiar assumptions
- Lecture 31 - Design and Collaboration
- Lecture 32 - Team work
- Lecture 33 - Collaborating with unlikely partners
- Lecture 34 - Principles of collaboration
- Lecture 35 - Design thinking
- Lecture 36 - Feedback and assessment
- Lecture 37 - Innovation by Design
- Lecture 38 - Facilitating the reach of a traditional craft
- Lecture 39 - Pitfalls of innovation
- Lecture 40 - The seven concerns of innovation
- Lecture 41 - From a concern to a palki
- Lecture 42 - A little design goes a long way

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Design, Technology and Innovation

Subject Co-ordinator - Dr. B.K. Chakravarthy

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Jaipur Foot - A classic innovation - Part 1
- Lecture 2 - Jaipur Foot - A classic innovation - Part 2
- Lecture 3 - User Centred Helmet Design - Part 1
- Lecture 4 - User Centred Helmet Design - Part 2
- Lecture 5 - Challenges of Reaching a Million Users - Part 1
- Lecture 6 - Challenges of Reaching a Million Users - Part 2
- Lecture 7 - Challenges of Reaching a Million Users - Part 3
- Lecture 8 - Technology to Solution - Part 1
- Lecture 9 - Technology to Solution - Part 2
- Lecture 10 - A Collaborative Excellence - Part 1
- Lecture 11 - A Collaborative Excellence - Part 2
- Lecture 12 - Collaborative Innovation Methods - Part 1
- Lecture 13 - Collaborative Innovation Methods - Part 2
- Lecture 14 - Collaborative Innovation Methods - Part 3
- Lecture 15 - Learnings from Grassroot Innovation - Part 1
- Lecture 16 - Learnings from Grassroot Innovation - Part 2
- Lecture 17 - Systemic Approach to Biomed Innovations - Part 1
- Lecture 18 - Systemic Approach to Biomed Innovations - Part 2
- Lecture 19 - Systemic Approach to Biomed Innovations - Part 3
- Lecture 20 - Research to Innovation - Part 1
- Lecture 21 - Research to Innovation - Part 2
- Lecture 22 - Smartcane for the Blind - A Success Story - Part 1
- Lecture 23 - Smartcane for the Blind - A Success Story - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Understanding Ethnography

Subject Co-ordinator - Prof. Nina Sabnani

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Situating Ethnography  
Lecture 3 - Engaging with the Other  
Lecture 4 - Equality and Empathy  
Lecture 5 - Notions of Reality  
Lecture 6 - Objectivity and Subjectivity  
Lecture 7 - Conclusion  
Lecture 8 - Introduction  
Lecture 9 - The Ethnographic Process  
Lecture 10 - Ethnography  
Lecture 11 - Fundamental Concepts  
Lecture 12 - Fundamental Concepts (Continued...)  
Lecture 13 - Conclusion  
Lecture 14 - Introduction  
Lecture 15 - The Research Question  
Lecture 16 - Is Ethnography the Method?  
Lecture 17 - Accessing Existing Knowledge  
Lecture 18 - Designing Fieldwork  
Lecture 19 - Case Studies  
Lecture 20 - Case Studies  
Lecture 21 - Case Studies  
Lecture 22 - Case Studies  
Lecture 23 - Conclusion  
Lecture 24 - Access  
Lecture 25 - Challenges of Access  
Lecture 26 - Building Rapport  
Lecture 27 - Gaining Trust  
Lecture 28 - Limits to Access  
Lecture 29 - Immersion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Ethics of Engaging
- Lecture 31 - Conclusion
- Lecture 32 - Introduction
- Lecture 33 - Types of Observation
- Lecture 34 - (ALM) LxT 1
- Lecture 35 - What to Observe
- Lecture 36 - Participant Observation
- Lecture 37 - Degrees of Participation
- Lecture 38 - Ethnographic Records
- Lecture 39 - Conclusion
- Lecture 40 - Introduction
- Lecture 41 - Forms of Interviews
- Lecture 42 - (ALM) LxT 1
- Lecture 43 - Characteristics of Interviews
- Lecture 44 - Listening and Speaking
- Lecture 45 - Reflexivity in Interviewing
- Lecture 46 - Designing the Interview
- Lecture 47 - Designing the Core Discussion - I
- Lecture 48 - Designing the Core Discussion - II
- Lecture 49 - Doing the Interview - I
- Lecture 50 - Doing the Interview - II
- Lecture 51 - Conclusion
- Lecture 52 - Introduction
- Lecture 53 - Researching THE Visual - I
- Lecture 54 - Researching THE Visual - II
- Lecture 55 - Researching WITH the Visual
- Lecture 56 - Choosing the Visual Medium
- Lecture 57 - Representation through Visuals
- Lecture 58 - (ALM) LxT 1
- Lecture 59 - Reflexivity in Visual Ethnography - I
- Lecture 60 - Reflexivity in Visual Ethnography - II
- Lecture 61 - Conclusion
- Lecture 62 - Introduction
- Lecture 63 - Designing Information for HIV-AIDS Affected Persons - Prof. Anirudha Joshi
- Lecture 64 - A New Approach to Urban Housing - Prof. Uday Athavankar
- Lecture 65 - Cognitive Ethnography - Prof. Sahana Murthy
- Lecture 66 - Participative Design for Language Learning - Prof. Alka Hingorani
- Lecture 67 - Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Understanding Incubation and Entrepreneurship

Subject Co-ordinator - Dr. B.K. Chakravarthy

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Entrepreneurship
- Lecture 2 - Hand holding for Entrepreneurship
- Lecture 3 - Methodology for Innovation
- Lecture 4 - Team Building
- Lecture 5 - Problem Statement presentation
- Lecture 6 - IDEAS program DSSE IITB
- Lecture 7 - From Users to Customers: Solar Oven case-study
- Lecture 8 - IITH Student projects: Customer Discovery
- Lecture 9 - Healthcare and Innovation
- Lecture 10 - Med-Tech success Stories
- Lecture 11 - The Innovation Process
- Lecture 12 - Human Centered Innovation
- Lecture 13 - Creating User Experience Design
- Lecture 14 - Humanizing Technology
- Lecture 15 - Business Model Canvas
- Lecture 16 - Introduction to SINE Incubator
- Lecture 17 - Lean Model Canvas SINE
- Lecture 18 - Start-up Success Story Atomberg
- Lecture 19 - itic incubator IITH
- Lecture 20 - Success stories of CfHE
- Lecture 21 - Entrepreneurship: Plan to action
- Lecture 22 - From Corporate to Entrepreneurship
- Lecture 23 - Creative Ideation
- Lecture 24 - Building Proof of Concept
- Lecture 25 - Network Entrepreneurship
- Lecture 26 - Start-up Project Presentation 1
- Lecture 27 - Start-up Project Presentation 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - Ergonomics for beginners: Industrial design perspective

Subject Co-ordinator - Prof. Debkumar Chakrabarti

Co-ordinating Institute - IIT - Guwahati

- Lecture 1 - Introduction
- Lecture 2 - Design today - human aid to lifestyle
- Lecture 3 - Journey, fitting task to man
- Lecture 4 - Domain, philosophy and objective
- Lecture 5 - Mutual task comfort
- Lecture 6 - Ergonomics/ human factors fundamentals
- Lecture 7 - Physiology, (work physiology) and stress
- Lecture 8 - Human body - structure and function, anthropometrics
- Lecture 9 - Anthropometry
- Lecture 10 - Static and dynamic anthropometry
- Lecture 11 - Anthropometry landmark
- Lecture 12 - Anthropometry
- Lecture 13 - Measuring techniques
- Lecture 14 - Statistical treatment of data and
- Lecture 15 - Human body-structure and function
- Lecture 16 - Posture and job relation
- Lecture 17 - Posture and body supportive devices
- Lecture 18 - Chair characteristics
- Lecture 19 - Vertical work surface
- Lecture 20 - Horizontal work surface
- Lecture 21 - Movement
- Lecture 22 - Work Counter
- Lecture 23 - Communication and cognitive issues
- Lecture 24 - Psycho-social behaviour aspects,
- Lecture 25 - Information processing and perception
- Lecture 26 - Cognitive aspects and mental workload
- Lecture 27 - Human error and risk perception
- Lecture 28 - Visual performance
- Lecture 29 - Visual displays
- Lecture 30 - Environmental factors influencing
- Lecture 31 - Ergonomics design methodology
- Lecture 32 - Ergonomics criteria/check
- Lecture 33 - Design process involving

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 34 - Some checklist for task easiness
- Lecture 35 - Occupational safety and stress at workplace
- Lecture 36 - Workstation design
- Lecture 37 - Furniture support
- Lecture 38 - Vertical arm reach and relevant
- Lecture 39 - Humanising design
- Lecture 40 - Scope for exploration

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC: System Design for Sustainability

Subject Co-ordinator - Prof. Sharmistha Banerjee

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Sustainability and Sustainable Development - Understanding Un-sustainability and need for Sustainability
- Lecture 2 - Sustainability and Sustainable Development - Definitions
- Lecture 3 - Sustainability and Sustainable Development - Pathway
- Lecture 4 - Systems Approach to Design
- Lecture 5 - Evolution of sustainability within Design
- Lecture 6 - Diverse Approaches to Design for Sustainability - Part A
- Lecture 7 - Diverse Approaches to Design for Sustainability - Part B
- Lecture 8 - Relationship between approaches to Design for Sustainability and the application context
- Lecture 9 - Product Life Cycle Design - Methods and Strategies
- Lecture 10 - Product Life Cycle Assessment - Part A
- Lecture 11 - Product Life Cycle Assessment - Part B
- Lecture 12 - Life Cycle Assessment using Software
- Lecture 13 - Design for Product Life Cycle
- Lecture 14 - Product-Service System Design - Definition and Types
- Lecture 15 - Sustainable Product-Service System Design - Definition and Examples
- Lecture 16 - Sustainable Product-Service System Design - Examples
- Lecture 17 - Khadi Movement as a precursor to PSS thinking
- Lecture 18 - Sustainable Product-Service System Design - Transition Paths, Strategy and Challenges
- Lecture 19 - Sustainable Product-Service System Design - Methods and Tools - Part A
- Lecture 20 - Sustainable Product-Service System Design - Methods and Tools - Part B
- Lecture 21 - Sustainable Product-Service System Design - Methods and Tools - Part C
- Lecture 22 - Sustainable Product-Service System Design - Methods and Tools - Part D
- Lecture 23 - Sustainable Product-Service System Design - Methods and Tools - Part E
- Lecture 24 - Sustainable Product-Service System Design - Methods and Tools - Part F
- Lecture 25 - Sustainable Product-Service System Design - Methods and Tools - Part G
- Lecture 26 - Sustainable Product-Service System Design - Methods and Tools (Summary)
- Lecture 27 - Sufficiency Economy Philosophy applied to Sustainable PSS Thinking
- Lecture 28 - LCA of PSS
- Lecture 29 - Sustainable Product-Service System Design Applied to Distributed Economy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Other Design for Sustainability Tools and approaches - Architecture
- Lecture 31 - Other Design for Sustainability Tools and approaches - Agriculture
- Lecture 32 - Other Design for Sustainability Tools and approaches - Cities and communities
- Lecture 33 - Other Design for Sustainability Tools and approaches - Carbon Footprint
- Lecture 34 - Co-design Session
- Lecture 35 - Design for Sustainability - Engineering Design Criteria and Guidelines
- Lecture 36 - Design for Sustainability - Engineering Design Criteria and Guidelines (ICS Toolkit)
- Lecture 37 - Design for Sustainability - Concluding Lecture - Part A
- Lecture 38 - Design for Sustainability - Concluding Lecture - Part B

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Product Design and Innovation

Subject Co-ordinator - Prof. Debayan Dhar, Prof.Swati Pal, Prof. Supradip Das

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Innovation

Lecture 2 - Design Inspired Innovation and User Innovation

Lecture 3 - Product Design - Part I

Lecture 4 - Product Design - Part II

Lecture 5 - Product Design - Part III

Lecture 6 - Introduction to User study and Problem and need Identification

Lecture 7 - Contextual Enquiry

Lecture 8 - Physical model

Lecture 9 - Creative Techniques and tools for concept generation, concept evaluation

Lecture 10 - Importance and Overview of Human Factors/Ergonomics in Product Design

Lecture 11 - Physical Ergonomics Principles and Issues (Part 1) - Anthropometry

Lecture 12 - Physical Ergonomics Principles and Issues (Part 2) - Biomechanics

Lecture 13 - Cognitive and Emotional aspects of Human Factors with respect to Product Design and Innovation

Lecture 14 - Tools and Techniques for Prototyping

Lecture 15 - Evaluation Tools and Techniques for User-Product Interaction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Interaction Design

Subject Co-ordinator - Prof.Abhishek Shrivastava

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Definitions and Concepts in Interaction Design

Lecture 2 - Relevance of goals in Interaction Design

Lecture 3 - System model, mental model, and representation model

Lecture 4 - Interaction Models and Interaction Paradigms

Lecture 5 - Interaction paradigm

Lecture 6 - Overview of Goal Directed Design Process

Lecture 7 - The Research phase in Goal Directed Design Process - Part 1

Lecture 8 - The Research phase in Goal Directed Design Process - Part 2

Lecture 9 - The Research phase in Goal Directed Design Process - Part 3

Lecture 10 - The Modeling phase in Goal Directed Design Process

Lecture 11 - The Requirement definition phase in Goal Directed Design Process - Part 1

Lecture 12 - The Requirement definition phase in Goal Directed Design Process - Part 2

Lecture 13 - The Framework definition and refinement phase in Goal Directed Design Process - Interaction fram

Lecture 14 - The Framework definition and refinement phase in Goal Directed Design Process - Visual design an

Lecture 15 - Design evaluation and testing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Ergonomics in Automotive Design

Subject Co-ordinator - Dr. Sougata Karmakar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Automotive Ergonomics

Lecture 2 - Driver Information Acquisition and Processing

Lecture 3 - Anthropometric and Biomechanical Data in Automotive Design

Lecture 4 - Occupant Packaging

Lecture 5 - Principles of Control and Display Design

Lecture 6 - Usability evaluation of In-vehicle control and displays

Lecture 7 - Human Fields of View and Driver's Fields of View

Lecture 8 - Vehicle Entry and Exit

Lecture 9 - Driver Distraction and Driving Performance Measurement

Lecture 10 - Driver Workload Measurement

Lecture 11 - Virtual Ergonomics Evaluation Technique and its application in Automotive Design

Lecture 12 - Automotive Craftsmanship

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Ergonomics Workplace Analysis

Subject Co-ordinator - Prof. Urmi R. Salve

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Ergonomics Workplace Assessment - I
- Lecture 2 - Introduction to Ergonomics Workplace Assessment - II
- Lecture 3 - Task Analysis
- Lecture 4 - Physiological Fundamentals of Workplace Evaluation
- Lecture 5 - Biomechanics in Workplace Evaluation
- Lecture 6 - Assessment of Physical Job Demand
- Lecture 7 - Assessment of Physical and Cognitive Work with Psychophysiological Methods
- Lecture 8 - Assessment of Physical and Cognitive Work with Psychophysiological Methods
- Lecture 9 - Assessment of Mental Workload
- Lecture 10 - Neuroergonomics in Work Evaluation
- Lecture 11 - Psychosocial Aspect of Workplace Analysis
- Lecture 12 - Assessment of Thermal Environment
- Lecture 13 - Assessment of Visual Environment
- Lecture 14 - Analysis of Auditory Environment and Noise Pollution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Ergonomics Research Techniques

Subject Co-ordinator - Prof. Urmi R. Salve

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Introduction

Lecture 2 - Introduction

Lecture 3 - Plan for Identifying av Belastnings faktorer (PLIBEL) method

Lecture 4 - Ducth Musculoskeletal Questionnaire (DMQ)

Lecture 5 - Musculoskeletal discomfort National Institute for Occupational Safety and Health (NIOSH)

Lecture 6 - Job Strain Index (JSI)

Lecture 7 - Ovako Working posture Analysis System (OWAS)

Lecture 8 - Rapid Upper Limb Analysis (RULA)

Lecture 9 - Rapid Entire Body Analysis (REBA)

Lecture 10 - Manual handling Assessment Charts (MAC)

Lecture 11 - Manual handling Assessment Charts (MAC)

Lecture 12 - Manual handling at work

Lecture 13 - Quick exposure checklist (QEC)

Lecture 14 - National Institute for Occupational Safety and Health (NIOSH) Lifting equation

Lecture 15 - Borg scale and Rodgers muscle fatigue analysis

Lecture 16 - Snook's Table

Lecture 17 - Lumber motion monitor (LMM)

Lecture 18 - Occupational repetitive action methods (OCRA) methods

Lecture 19 - Hand Arm Risk assessment Method (HARM)

Lecture 20 - Assessment of repetitive tasks of the upper limbs (ART)

Lecture 21 - Risk Assessment of Pushing and Pulling (RAPP)

Lecture 22 - Movement and Assistance of hospital patients (MAPO) method

Lecture 23 - Introduction

Lecture 24 - Observation, interviews and verbal protocol

Lecture 25 - Focus group

Lecture 26 - Hierarchical task analysis

Lecture 27 - Allocation of function methodology

Lecture 28 - Allocation of function methodology

Lecture 29 - Critical decision method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Systemic human error reduction and prediction approach (SHERPA)
- Lecture 31 - Task analysis for error identification (TAFEI)
- Lecture 32 - NASA task load index (TLX)
- Lecture 33 - Multiple resource time sharing model
- Lecture 34 - Critical path analysis
- Lecture 35 - Situational awareness global assessment technique
- Lecture 36 - Electroencephalogram (EEG)
- Lecture 37 - Eye tracking
- Lecture 38 - Human Error Assessment and Reduction Technique (HEART)
- Lecture 39 - Cognitive Reliability and Error Analysis Method (CREAM)
- Lecture 40 - Measurement of thermal conditions at workplaces
- Lecture 41 - Measurement of different environmental factors - Part I
- Lecture 42 - Measurement of different environmental factors - Part II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Geographic Information System

Subject Co-ordinator - Prof. Bharath H Aithal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to GIS
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Introduction (Continued...)
- Lecture 4 - Introduction (Continued...)
- Lecture 5 - Introduction (Continued...)
- Lecture 6 - Real World to Digital World Through GIS
- Lecture 7 - Real World to Digital World Through GIS (Continued...)
- Lecture 8 - Real World to Digital World Through GIS (Continued...)
- Lecture 9 - GIS Data (Continued...)
- Lecture 10 - Real World to Digital World Through GIS (Continued...)
- Lecture 11 - Representing the Real World
- Lecture 12 - Representing the Real World (Continued...)
- Lecture 13 - Representing the Real World (Continued...)
- Lecture 14 - Representing the Real World in Surface Models (Continued...)
- Lecture 15 - Representing the Real World (Continued...)
- Lecture 16 - Querying and Georeferencing
- Lecture 17 - Elevation, Relative and Discrete Referencing
- Lecture 18 - Coordinate Systems
- Lecture 19 - Maps and Numbering
- Lecture 20 - Map Projections
- Lecture 21 - Data Quality and Measures
- Lecture 22 - Positional Accuracy and Source of Errors
- Lecture 23 - Classification Accuracy and Pixel Errors
- Lecture 24 - Spatial Data Editing and Transformations
- Lecture 25 - Map Display and Visualization in GIS
- Lecture 26 - Introduction to GPS
- Lecture 27 - GPS
- Lecture 28 - GPS errors and DGPS
- Lecture 29 - GNSS and Applications

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to QGIS
- Lecture 31 - Introduction to database
- Lecture 32 - DataBase Management System - Introduction
- Lecture 33 - DataBase Management System - (Continued...)
- Lecture 34 - DBMS models
- Lecture 35 - Normalization forms
- Lecture 36 - Creating and Maintaining a database
- Lecture 37 - Spatial Query using SQL - Introduction
- Lecture 38 - Spatial analysis
- Lecture 39 - Spatial analysis (Continued...)
- Lecture 40 - Basic Editing
- Lecture 41 - Introduction to Remote Sensing
- Lecture 42 - Basic spatial analysis
- Lecture 43 - Basic spatial analysis
- Lecture 44 - Advanced spatial analysis
- Lecture 45 - Advanced spatial analysis
- Lecture 46 - Introduction to QGIS and Data Import
- Lecture 47 - QGIS Plugins
- Lecture 48 - Georeferencing an Image
- Lecture 49 - Creating Vector Features
- Lecture 50 - Vector Functions and Querying
- Lecture 51 - Data Acquisition and Raster Functions - I
- Lecture 52 - Data Acquisition and Raster Functions - II
- Lecture 53 - Map composition
- Lecture 54 - Bhuvan geoportal and Google earth
- Lecture 55 - Introduction to R - Part I
- Lecture 56 - Introduction to R - Part II
- Lecture 57 - Open Source GIS Softwares
- Lecture 58 - Open Source GIS softwares
- Lecture 59 - PROS and CONS of open source
- Lecture 60 - GIS Data Standards
- Lecture 61 - Open Geospatial Consortium (OGC)
- Lecture 62 - National Spatial Data Infrastructure (NSDI)
- Lecture 63 - Introduction to Web GIS and Geoserver
- Lecture 64 - Geoserver - Raster and SLD Integration

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - Principles of Engineering System Design

Subject Co-ordinator - Dr. T. Asokan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to system Design
- Lecture 2 - Engineering systems Classification & examples
- Lecture 3 - Modern System design processes
- Lecture 4 - Six functions of design process
- Lecture 5 - Tools for enabling creative development
- Lecture 6 - Team Development
- Lecture 7 - System Requirement Analysis
- Lecture 8 - Originating Requirements
- Lecture 9 - Functional Architecture Development
- Lecture 10 - Functional Decomposition
- Lecture 11 - Functional Decomposition
- Lecture 12 - Physical Architecture Development
- Lecture 13 - Implementing Fault Tolerance in Physical Architecture
- Lecture 14 - Operational Architecture Development - Part I
- Lecture 15 - Operational Architecture Development - Part II
- Lecture 16 - Interface architecture Development
- Lecture 17 - Interface standards and Design process
- Lecture 18 - Integration and qualification
- Lecture 19 - Qualification planning and methods
- Lecture 20 - System Design Example
- Lecture 21 - System Design Examples
- Lecture 22 - System Design Examples (Continued...)
- Lecture 23 - Graphical Modelling Techniques
- Lecture 24 - Process modeling
- Lecture 25 - Behavior modeling
- Lecture 26 - Graphical Modelling Techniques (Continued...)
- Lecture 27 - System modeling and simulation
- Lecture 28 - Bondgraph modeling of Dyanamic systems
- Lecture 29 - Decision making in System Design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Decision making in System Design (Continued...)

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - Vehicle Dynamics

Subject Co-ordinator - Dr. R. Krishnakumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Vehicle Dynamics
- Lecture 2 - Longitudinal Dynamics
- Lecture 3 - Vehicle Load Distribution - Acceleration and Braking
- Lecture 4 - Brake Force Distribution, Braking Efficiency and Braking Distance
- Lecture 5 - Tractor - Semi Trailer
- Lecture 6 - Tire Mechanics - An Introduction
- Lecture 7 - Mechanical Properties of Rubber
- Lecture 8 - Slip, Grip and Rolling Resistance
- Lecture 9 - Tire Construction and Force Development
- Lecture 10 - Contact Patch and Contact Pressure Distribution
- Lecture 11 - Tire Brush Model
- Lecture 12 - Lateral Force Generation
- Lecture 13 - Ply Steer and Conicity - Part 1
- Lecture 14 - Ply Steer and Conicity - Part 2
- Lecture 15 - Tire Models - Magic Formula
- Lecture 16 - Classification of Tyre Models and Combined Slip
- Lecture 17 - Lateral Dynamics - An Introduction
- Lecture 18 - Lateral Dynamics - Bicycle Model
- Lecture 19 - Lateral Dynamics - Stability and Steering Conditions
- Lecture 20 - Understeer Gradient and State Space Approach
- Lecture 21 - Handling Response of a Vehicle
- Lecture 22 - Mimuro Plot for Lateral Transient Response - Part 1
- Lecture 23 - Mimuro Plot for Lateral Transient Response - Part 2
- Lecture 24 - Parameters affecting vehicle handling characteristics
- Lecture 25 - Subjective and Objective Evaluation of Vehicle Handling - Part 1
- Lecture 26 - Subjective and Objective Evaluation of Vehicle Handling - Part 2
- Lecture 27 - Subjective and Objective Evaluation of Vehicle Handling and Rollover P
- Lecture 28 - Rollover Prevention (Continued...) and Vertical Dynamics
- Lecture 29 - Vertical Dynamics - An Introduction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Vertical Dynamics - Quarter Car Model
- Lecture 31 - Noise, Vibration and Harshness - Random Processes
- Lecture 32 - Random Process and Conclusion (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Control Systems

Subject Co-ordinator - Prof. C.S.Shankar Ram

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Control Systems - Part 1  
Lecture 2 - Introduction to Control Systems - Part 2  
Lecture 3 - Overview of Feedback Control Systems - Part 1  
Lecture 4 - Overview of Feedback Control Systems - Part 2  
Lecture 5 - Mathematical Preliminaries - Part 1  
Lecture 6 - Mathematical Preliminaries - Part 2  
Lecture 7 - Transfer Function - Part 1  
Lecture 8 - Transfer Function - Part 2  
Lecture 9 - System Response - Part 1  
Lecture 10 - System Response - Part 2  
Lecture 11 - BIBO Stability - Part 1  
Lecture 12 - BIBO Stability - Part 2  
Lecture 13 - Effect of Zeros - Part 1  
Lecture 14 - Effect of Zeros - Part 2  
Lecture 15 - Closed Loop System - Part 1  
Lecture 16 - Closed Loop System - Part 2  
Lecture 17 - First Order Systems - Part 1  
Lecture 18 - First Order Systems - Part 2  
Lecture 19 - Second Order Systems - Part 1  
Lecture 20 - Second Order Systems - Part 2  
Lecture 21 - Controllers - Part 1  
Lecture 22 - Controllers - Part 2  
Lecture 23 - Closed Loop Control - Part 1  
Lecture 24 - Closed Loop Control - Part 2  
Lecture 25 - Routh's Stability Criterion - Part 1  
Lecture 26 - Routh's Stability Criterion - Part 2  
Lecture 27 - Special Cases of Routh's Stability Criterion - Part 1  
Lecture 28 - Special Cases of Routh's Stability Criterion - Part 2  
Lecture 29 - Performance Specifications - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Performance Specifications - Part 2
- Lecture 31 - Steady State Error Analysis - Part 1
- Lecture 32 - Steady State Error Analysis - Part 2
- Lecture 33 - Root Locus 1 - Part 1
- Lecture 34 - Root Locus 1 - Part 2
- Lecture 35 - Root Locus 2 - Part 1
- Lecture 36 - Root Locus 2 - Part 2
- Lecture 37 - Root Locus 3 - Part 1
- Lecture 38 - Root Locus 3 - Part 2
- Lecture 39 - Root Locus 4 - Part 1
- Lecture 40 - Root Locus 4 - Part 2
- Lecture 41 - Case Study - Modelling - Part 1
- Lecture 42 - Case Study - Modelling - Part 2
- Lecture 43 - Case Study - Control Design - Part 1
- Lecture 44 - Case Study - Control Design - Part 2
- Lecture 45 - State Space Representation - Part 1
- Lecture 46 - State Space Representation - Part 2
- Lecture 47 - Frequency Response - Part 1
- Lecture 48 - Frequency Response - Part 2
- Lecture 49 - Bode Plot 1 - Part 1
- Lecture 50 - Bode Plot 1 - Part 2
- Lecture 51 - Bode Plot 2 - Part 1
- Lecture 52 - Bode Plot 2 - Part 2
- Lecture 53 - Bode Plot 3 - Part 1
- Lecture 54 - Bode Plot 3 - Part 2
- Lecture 55 - Bode Plot 4 - Part 1
- Lecture 56 - Bode Plot 4 - Part 2
- Lecture 57 - Nyquist Plot 1 - Part 1
- Lecture 58 - Nyquist Plot 1 - Part 2
- Lecture 59 - Nyquist Plot 2 - Part 1
- Lecture 60 - Nyquist Plot 2 - Part 2
- Lecture 61 - Nyquist Stability Criterion - Part 1
- Lecture 62 - Nyquist Stability Criterion - Part 2
- Lecture 63 - Relative Stability 1 - Part 1
- Lecture 64 - Relative Stability 1 - Part 2
- Lecture 65 - Relative Stability 2 - Part 1
- Lecture 66 - Relative Stability 2 - Part 2
- Lecture 67 - Lead Compensation - Part 1
- Lecture 68 - Lead Compensation - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Lead Compensator Design - Part 1
- Lecture 70 - Lead Compensator Design - Part 2
- Lecture 71 - Lag and Lag-Lead Compensation - Part 1
- Lecture 72 - Lag and Lag-Lead Compensation - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Fundamentals of Automotive Systems

Subject Co-ordinator - Prof. C.S.Shankar Ram

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview and Classification of Internal Combustion Engines - Part 1  
Lecture 2 - Course Overview and Classification of Internal Combustion Engines - Part 2  
Lecture 3 - Engine Components - Part 1  
Lecture 4 - Engine Components - Part 2  
Lecture 5 - Operation of Four Stroke Engines - Part 1  
Lecture 6 - Operation of Four Stroke Engines - Part 2  
Lecture 7 - Two Stroke Engine and Engine Cycles - Part 1  
Lecture 8 - Two Stroke Engine and Engine Cycles - Part 2  
Lecture 9 - Otto Cycle and Diesel Cycle - Part 1  
Lecture 10 - Otto Cycle and Diesel Cycle - Part 2  
Lecture 11 - Dual Cycle and Engine Performance - Part 1  
Lecture 12 - Dual Cycle and Engine Performance - Part 2  
Lecture 13 - Engine Performance - Part 1  
Lecture 14 - Engine Performance - Part 2  
Lecture 15 - Supercharging and Combustion in SI Engines - Part 1  
Lecture 16 - Supercharging and Combustion in SI Engines - Part 2  
Lecture 17 - Knocking in SI Engines - Part 1  
Lecture 18 - Knocking in SI Engines - Part 2  
Lecture 19 - Combustion in CI Engines and Carburetion - Part 1  
Lecture 20 - Combustion in CI Engines and Carburetion - Part 2  
Lecture 21 - Fuel Introduction Systems - Part 1  
Lecture 22 - Fuel Introduction Systems - Part 2  
Lecture 23 - Analysis of Carburetor - Part 1  
Lecture 24 - Analysis of Carburetor - Part 2  
Lecture 25 - Engine Emissions - Part 1  
Lecture 26 - Engine Emissions - Part 2  
Lecture 27 - Emission Control Systems - Part 1  
Lecture 28 - Emission Control Systems - Part 2  
Lecture 29 - Automotive Powertrain - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Automotive Powertrain - Part 2
- Lecture 31 - Automotive Clutch - Part 1
- Lecture 32 - Automotive Clutch - Part 2
- Lecture 33 - Transmission - Part 1
- Lecture 34 - Transmission - Part 2
- Lecture 35 - Powertrain Analysis - Part 1
- Lecture 36 - Powertrain Analysis - Part 2
- Lecture 37 - Powertrain Analysis 2 - Part 1
- Lecture 38 - Powertrain Analysis 2 - Part 2
- Lecture 39 - Transmission Matching - Part 1
- Lecture 40 - Transmission Matching - Part 2
- Lecture 41 - Brake System - Part 1
- Lecture 42 - Brake System - Part 2
- Lecture 43 - Components of a Brake System and Drum Brake - Part 1
- Lecture 44 - Components of a Brake System and Drum Brake - Part 2
- Lecture 45 - Disc Brake and Introduction to Hydraulic Brake - Part 1
- Lecture 46 - Disc Brake and Introduction to Hydraulic Brake - Part 2
- Lecture 47 - Hydraulic Brake System - Part 1
- Lecture 48 - Hydraulic Brake System - Part 2
- Lecture 49 - Air Brake System - Part 1
- Lecture 50 - Air Brake System - Part 2
- Lecture 51 - Antilock Brake System 1 - Part 1
- Lecture 52 - Antilock Brake System 1 - Part 2
- Lecture 53 - Antilock Brake System 2 - Part 1
- Lecture 54 - Antilock Brake System 2 - Part 2
- Lecture 55 - Braking Analysis - Part 1
- Lecture 56 - Braking Analysis - Part 2
- Lecture 57 - Steering System - Part 1
- Lecture 58 - Steering System - Part 2
- Lecture 59 - Manual Steering Systems - Part 1
- Lecture 60 - Manual Steering Systems - Part 2
- Lecture 61 - Power Steering and Kinematic Steering Analysis - Part 1
- Lecture 62 - Power Steering and Kinematic Steering Analysis - Part 2
- Lecture 63 - Wheel Alignment - Part 1
- Lecture 64 - Wheel Alignment - Part 2
- Lecture 65 - Introduction to Suspension System - Part 1
- Lecture 66 - Introduction to Suspension System - Part 2
- Lecture 67 - Shock Absorbers and Independent Suspension - Part 1
- Lecture 68 - Shock Absorbers and Independent Suspension - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Dependent Suspension and Suspension Analysis - Part 1
- Lecture 70 - Dependent Suspension and Suspension Analysis - Part 2
- Lecture 71 - Introduction to Electric and Hybrid Powertrain - Part 1
- Lecture 72 - Introduction to Electric and Hybrid Powertrain - Part 2
- Lecture 73 - Tyres - Part 1
- Lecture 74 - Tyres - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Functional and Conceptual Design

Subject Co-ordinator - Dr. T Asokan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Birth and Growth of a Product  
Lecture 3 - Types of Design  
Lecture 4 - Stage-Gate and Spiral Design  
Lecture 5 - Stages in New Product Development  
Lecture 6 - Laboratory Exercise - 1  
Lecture 7 - Reverse Engg. and Redesign  
Lecture 8 - Technical Questioning and Mission Statement  
Lecture 9 - Mission Statement- Examples  
Lecture 10 - Laboratory Exercise - 2  
Lecture 11 - Identifying Customer Needs  
Lecture 12 - Customer Need Analysis  
Lecture 13 - Product Specifications  
Lecture 14 - Laboratory Exercise - 3  
Lecture 15 - Need - Metric Matrix  
Lecture 16 - Establishing Target Specifications  
Lecture 17 - HoQ  
Lecture 18 - Laboratory Exercise - 4  
Lecture 19 - Functional Decomposition  
Lecture 20 - FAST Method  
Lecture 21 - Laboratory Exercise - 5  
Lecture 22 - Function Structure (Flow Method)  
Lecture 23 - Flow Method Examples  
Lecture 24 - Laboratory Exercise - 6  
Lecture 25 - Product and Portfolio Architecture  
Lecture 26 - Portfolio Architecture Selection  
Lecture 27 - Laboratory Exercise - 7  
Lecture 28 - Product Architecture  
Lecture 29 - Identification of Modules

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Laboratory Exercise - 8
- Lecture 31 - Concept Development
- Lecture 32 - Intuitive Methods
- Lecture 33 - Laboratory Exercise - 9
- Lecture 34 - Logical Method- TRIZ
- Lecture 35 - Concept Selection
- Lecture 36 - Laboratory Exercise - 10
- Lecture 37 - Concept Scoring
- Lecture 38 - Laboratory Exercise - 11

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Engineering Design - NOC:Introduction to Robotics

Subject Co-ordinator - Dr. Krishna Vasudevan, Dr. Balaraman Ravindran, Dr. T Asokan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Evolution of Robotics

Lecture 3 - Kinematics- Coordinate transformations

Lecture 4 - Homogeneous Transformation Matrix

Lecture 5 - Industrial Robot- Kinematic Structures

Lecture 6 - Robot Architectures

Lecture 7 - Kinematic Parameters

Lecture 8 - DH Algorithm

Lecture 9 - DH Algorithm- Examples

Lecture 10 - Forward Kinematics

Lecture 11 - Forward Kinematics- Examples

Lecture 12 - Inverse Kinematics

Lecture 13 - Inverse Kinematics- Examples

Lecture 14 - Differential Relations

Lecture 15 - Manipulator Jacobian and Statics

Lecture 16 - Overview of Electric Actuators and Operational Needs

Lecture 17 - Principles of DC Motor Operation

Lecture 18 - DC Motor Equations and Principles of Control

Lecture 19 - DC Motor Control Regions and Principles of Power Electronics

Lecture 20 - Power Electronic Switching and Current Ripple

Lecture 21 - The H-Bridge and DC Motor Control Structure

Lecture 22 - The Brushless DC Machine

Lecture 23 - Control of the Brushless DC Motor

Lecture 24 - The PM Synchronous Motor (PMSM) and SPWM

Lecture 25 - Principles of PMSM Control

Lecture 26 - Encoders for Speed and Position Estimation

Lecture 27 - Stepper Motors

Lecture 28 - Introduction to Probabilistic Robotics.

Lecture 29 - Recursive State Estimation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Recursive State Estimation
- Lecture 31 - Probability basics
- Lecture 32 - Probability basics
- Lecture 33 - Kalman Filter
- Lecture 34 - Extended Kalman Filter
- Lecture 35 - Particle Filter
- Lecture 36 - Binary Bayes
- Lecture 37 - Velocity Motion Model
- Lecture 38 - Odometry Motion Model
- Lecture 39 - Occupa Grid Mapping
- Lecture 40 - Range Finder Measurement Model
- Lecture 41 - Localization Taxonomy
- Lecture 42 - Markov Localization
- Lecture 43 - Path Planning

## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTTEL Video Course - General - Introduction to Japanese Language and Culture

Subject Co-ordinator - Mrs. Vatsala Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Japanese scripts
- Lecture 2 - Jiko shoukai (Self introduction)
- Lecture 3 - Dochira kara desu ka ( Where are you from?)
- Lecture 4 - Senmon wa nan desu ka (What is your specialization?)
- Lecture 5 - Kore wa hon desu (This is a book)
- Lecture 6 - Ikura desu ka (How much is it?)
- Lecture 7 - Ima nan-ji desu ka (What is the time now?)
- Lecture 8 - Kaigi wa roku-ji-han kara desu (The meeting is from 6
- Lecture 9 - Ashita Tokyo e ikimasu. (I will go to Tokyo tomorrow)
- Lecture 10 - Watashi wa mainichi roku-ji ni okimasu (I wake up at 6 o'clock everyday)
- Lecture 11 - Itsu Kanpur e kimashita ka (When did you come to Kanpur?)
- Lecture 12 - Y?binkyoku wa asoko ni arimasu (The post office is over there)
- Lecture 13 - Rao san wa doko ni imasu ka (Where is Mr. Rao?)
- Lecture 14 - Pikuniku e ikimash? (Let's go for a picnic)
- Lecture 15 - Kesa pan to tamago o tabemashita (I ate eggs and bread for breakfast)
- Lecture 16 - Depa-to no tonari no biru wa gink? desu (The building next to the department store is the bank)
- Lecture 17 - Taj hoteru wa ookii hoteru desu(Hotel Taj is a big hotel)
- Lecture 18 - Hoteru de nani o tabemashita ka (What did you eat at the hotel?)
- Lecture 19 - Tokyo wa ?kikute kirei desu (Tokyo is big and beautiful)
- Lecture 20 - Ko-hi- wa oishiku arimasen(Coffee is not tasty)
- Lecture 21 - Hantai kotoba (Opposites)
- Lecture 22 - Watashi wa mainichi miruku o nomimasu (I drink milk everyday)
- Lecture 23 - Watashi wa oniisan ni kamera o moratta(I received a camera from my brother)
- Lecture 24 - Nani o tabetai desu ka(What do you want to eat?)
- Lecture 25 - Nani o sashiagemasu ka (Giving and Receiving)
- Lecture 26 - Sensei wa watashi ni hon o kuremashita (My teacher gave me a book)
- Lecture 27 - Chotto matte kudasai ( Just a minute please)
- Lecture 28 - Ke-ki o tabete mite kudasai ( Eat and see how is the cake)
- Lecture 29 - Nani o shite imasu ka(What are you doing?)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tokyo ni sunde imasu ( I live in Tokyo)
- Lecture 31 - Kanji ga kakemasu (I can write Kanji)
- Lecture 32 - Im?to wa ningy? o hoshigatte imasu (My sister wants a doll)
- Lecture 33 - Aisukuri-mu ga ke-ki yori suki desu (I like ice-cream more than cakes)
- Lecture 34 - Kutsu o kai ni ikimasu ( I am going to buy shoes)
- Lecture 35 - Ashita motto atsuku narimasu (It is going to become very hot tomorrow)
- Lecture 36 - Rainen Tokyo e iku to omoimasu (I think I will go to Tokyo next year)
- Lecture 37 - Pen de kaite mo ii desu ka(Is it alright to write in pen?)
- Lecture 38 - Comprehensions and Expressions
- Lecture 39 - Basic Kanji
- Lecture 40 - Basic Kanji

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - Astronomy in Ancient, Medieval and Early Telescopic Era of India

Subject Co-ordinator - Prof. Amitabha Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Pre Siddhantic Astronomy

Lecture 3 - Siddhantic Astronomy

Lecture 4 - Astronomy in Medieval India

Lecture 5 - Introduction to Telescopic Astronomy and Concluding remarks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Stress Management

Subject Co-ordinator - Prof. Rajlakshmi Guha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Stress
- Lecture 2 - Sources of stress
- Lecture 3 - Types of Stress
- Lecture 4 - Personality Factors and Stress
- Lecture 5 - Stress and the College Student
- Lecture 6 - Stress and Nervous System
- Lecture 7 - Hypothalamic-Pituitary-Adrenal (HPA) Axis
- Lecture 8 - Effect of Stress on Immune System
- Lecture 9 - Health Risk Associated with Chronic Stress
- Lecture 10 - Stress and Major Psychiatric Disorders
- Lecture 11 - Understanding your stress level
- Lecture 12 - Role of Personality Pattern, Self Esteem, Locus of Control
- Lecture 13 - Role of Thoughts Beliefs and Emotions - I
- Lecture 14 - Role of Thoughts Beliefs and Emotions - II
- Lecture 15 - Life Situation Intrapersonal
- Lecture 16 - Developing Cognitive Coping Skills
- Lecture 17 - Autogenic Training, Imagery and Progressive Relaxation
- Lecture 18 - Other Relaxation Techniques
- Lecture 19 - Exercise and Health
- Lecture 20 - DIY Strategies Stress Management

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Outcome Based Pedagogic Principles for Effective Teaching

Subject Co-ordinator - Prof. Shyamal Kumar Das Mandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Need of 21st Century Education

Lecture 2 - Accreditation

Lecture 3 - Outcome based Learning

Lecture 4 - Approach to Design Outcome based Learning

Lecture 5 - Approach to Design Outcome based Learning (Continued...)

Lecture 6 - Instructional Design for Active Learning

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - Ayurvedic Inheritance of India

Subject Co-ordinator - Dr. M.S. Valiathan

Co-ordinating Institute - Manipal University

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Roots of Ayurveda
- Lecture 2 - Traditional Medicine in Buddhist India
- Lecture 3 - Period of Systematization
- Lecture 4 - Philosophical ideas in Ayurveda
- Lecture 5 - Human Body in Health
- Lecture 6 - Human Body in Disease
- Lecture 7 - Food and Drinks
- Lecture 8 - Code for Healthy Living
- Lecture 9 - Diseases
- Lecture 10 - Diagnosis and Prognosis
- Lecture 11 - Medical Treatment of Diseases
- Lecture 12 - Materia Medica
- Lecture 13 - Surgical Treatment of Diseases
- Lecture 14 - Surgical Instruments
- Lecture 15 - Treatment of fractures; some surgical procedures
- Lecture 16 - Principles and methods of rejuvenation
- Lecture 17 - Selection of Students
- Lecture 18 - A Science Initiative in Ayurveda (ASIIA)
- Lecture 19 - Ayurvedic Biology
- Lecture 20 - Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Introduction to Research

Subject Co-ordinator - Dr. G. Phanikumar, Prof. C. Balaji, Dr. Arun K.Tangirala, Dr. Abhijit P. Deshpande, Pr

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Insight into research

Lecture 2 - Role of Guide and Student

Lecture 3 - Art of Re-Search

Lecture 4 - Persistent small steps towards success

Lecture 5 - Overview of research

Lecture 6 - Overview of Literature Survey

Lecture 7 - Literature Survey using Web of Science

Lecture 8 - Literature Survey using Scopus

Lecture 9 - Writing Up

Lecture 10 - Tutorial on using BibTeX with LaTeX to add references to a document

Lecture 11 - Tutorial on using Microsoft Word with Bibliographic Sources

Lecture 12 - Tutorial on using Microsoft Word with endnote entries

Lecture 13 - Experimental skills

Lecture 14 - Data analysis - Part 1

Lecture 15 - Data analysis - Part 2

Lecture 16 - Modelling skills - Part 1

Lecture 17 - Modelling skills - Part 2

Lecture 18 - Safety in laboratory

Lecture 19 - How to make Technical presentation

Lecture 20 - Creativity in Research - Part 1

Lecture 21 - Creativity in research - Part 2

Lecture 22 - Creativity in research - Part 3

Lecture 23 - Technical Writing

Lecture 24 - Group discussion on Ethics in Research

Lecture 25 - Intellectual property - Part 1

Lecture 26 - Intellectual property - Part 2

Lecture 27 - DOE Part 1

Lecture 28 - DOE part 2

Lecture 29 - DOE part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - DOE part 4
- Lecture 31 - DOE part 5
- Lecture 32 - Research in Applied Mechanics
- Lecture 33 - Research in Chemical Engineering
- Lecture 34 - Research in Civil Engineering
- Lecture 35 - Research in Computer Science and Engineering
- Lecture 36 - Research in Engineering Design
- Lecture 37 - Research in Humanities and Social Sciences
- Lecture 38 - Research in Mechanical Engineering
- Lecture 39 - Research in Metallurgical and Materials Engineering
- Lecture 40 - Research in Ocean Engineering
- Lecture 41 - Research in Management Studies
- Lecture 42 - Research in Aerospace Engineering
- Lecture 43 - Research in Biotechnology
- Lecture 44 - Research in Chemistry
- Lecture 45 - Research in Electrical Engineering
- Lecture 46 - Research in Mathematics
- Lecture 47 - Research in Physics
- Lecture 48 - Discussion with Research Scholars

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC: Biology for engineers and other non-biologists

Subject Co-ordinator - Dr. Madhulika Dixit, Prof. G.K. Suraishkumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Origin of Life  
Lecture 3 - Evolution  
Lecture 4 - Cells  
Lecture 5 - Biomolecules  
Lecture 6 - Biomolecules  
Lecture 7 - Biomolecules  
Lecture 8 - Biomolecules  
Lecture 9 - Biomolecules  
Lecture 10 - Cell structure and function ^ Prokaryotes  
Lecture 11 - Cell structure and function ^ Eukaryotes  
Lecture 12 - Cell cycle  
Lecture 13 - Cell division ^ mitosis  
Lecture 14 - Cell division ^ meiosis  
Lecture 15 - Culture growth  
Lecture 16 - Mendelian genetics  
Lecture 17 - Mendelian genetics  
Lecture 18 - Mendelian genetics  
Lecture 19 - Mendelian genetics  
Lecture 20 - DNA replication  
Lecture 21 - Transcription  
Lecture 22 - Translation

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Digital and the Everyday - from Codes to Cloud

Subject Co-ordinator - Prof. Amit Prakash, Prof. Bidisha Chaudhuri

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course
- Lecture 2 - Introduction to the Winter School
- Lecture 3 - Socio-algorithmic processes and the Everyday - Part 1
- Lecture 4 - Socio-algorithmic processes and the Everyday - Part 2
- Lecture 5 - Socio-algorithmic processes and the Everyday - Part 3
- Lecture 6 - Data Protection and Privacy Regulation in the Digital Era - Part 1
- Lecture 7 - Data Protection and Privacy Regulation in the Digital Era - Part 2
- Lecture 8 - Data Protection and Privacy Regulation in the Digital Era - Part 3
- Lecture 9 - Data-driven Identities - Part 1
- Lecture 10 - Data-driven Identities - Part 2
- Lecture 11 - Data-driven Identities - Part 3
- Lecture 12 - Promises and Challenges of e-Health - Part 1
- Lecture 13 - Promises and Challenges of e-Health - Part 2
- Lecture 14 - Promises and Challenges of e-Health - Part 3
- Lecture 15 - Digital Finance - Part 1
- Lecture 16 - Digital Finance - Part 2
- Lecture 17 - Digital and our everyday interactions with the state - Part 1
- Lecture 18 - Digital and our everyday interactions with the state - Part 2
- Lecture 19 - Digital and our everyday interactions with the state - Part 3
- Lecture 20 - Creating a Machine Zone through Affected Feedback
- Lecture 21 - Creating a Machine Zone through Affected Feedback
- Lecture 22 - Creating a Machine Zone through Affected Feedback

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Effective Engineering Teaching in Practice

Subject Co-ordinator - Prof. G.K. Suraishkumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - An Inexperienced Engineering Teacher's View
- Lecture 3 - From traditional lecturing to helping students learn - 1
- Lecture 4 - From traditional lecturing to helping students learn - 2
- Lecture 5 - Better learning (Bloom's Taxonomy)
- Lecture 6 - Problem based learning (PBL) and Problem Solving - Part 1
- Lecture 7 - Problem based learning (PBL) and Problem Solving - Part 2
- Lecture 8 - Writing Learning Outcomes for a Course
- Lecture 9 - Active Learning
- Lecture 10 - Cooperative Group Learning
- Lecture 11 - Flipped Classroom
- Lecture 12 - Effective Laboratory Courses
- Lecture 13 - Assessment - Part 1
- Lecture 14 - Assessment - Part 2
- Lecture 15 - How can we use research in education? - Part A1
- Lecture 16 - How can we use research in education? - Part A2
- Lecture 17 - The Class, as a Whole - Part A3
- Lecture 18 - Psychological Type (Orientation) and Learning - Part B
- Lecture 19 - Cognitive Development Theories - Two Main Examples - Part C
- Lecture 20 - Learning Theories - Part D
- Lecture 21 - Feedback and Reflection - Part 1
- Lecture 22 - Feedback and Reflection - Part 2
- Lecture 23 - Feedback and Reflection - Part 3
- Lecture 24 - Live Session 1
- Lecture 25 - Live Session 2

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Virtual Reality Engineering

Subject Co-ordinator - Dr. M. Manivannan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course mechanics
- Lecture 2 - Goals and VR definitions
- Lecture 3 - Historical perspective
- Lecture 4 - Birds-eye view (general)
- Lecture 5 - Birds-eye view (general) (Continued...)
- Lecture 6 - Birds-eye view (hardware)
- Lecture 7 - Birds-eye view (software)
- Lecture 8 - Birds-eye view (sensation and perception)
- Lecture 9 - Geometric modeling
- Lecture 10 - Transforming models
- Lecture 11 - Matrix algebra and 2D rotations
- Lecture 12 - 3D rotations and yaw, pitch, and roll
- Lecture 13 - 3D rotations and yaw, pitch, and roll (Continued...)
- Lecture 14 - Axis-angle representations
- Lecture 15 - Quaternions
- Lecture 16 - Converting and multiplying rotations
- Lecture 17 - Converting and multiplying rotations (Continued...)
- Lecture 18 - Homogeneous transforms
- Lecture 19 - The chain of viewing transforms
- Lecture 20 - Eye transforms
- Lecture 21 - Eye transforms (Continued...)
- Lecture 22 - Canonical view transform
- Lecture 23 - Viewport transform
- Lecture 24 - Viewport transform (Continued...)
- Lecture 25 - Three interpretations of light
- Lecture 26 - Refraction
- Lecture 27 - Simple lenses
- Lecture 28 - Diopters
- Lecture 29 - Imaging properties of lenses

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lens aberrations
- Lecture 31 - Optical system of eyes
- Lecture 32 - Photoreceptors
- Lecture 33 - Sufficient resolution for VR
- Lecture 34 - Light intensity
- Lecture 35 - Eye movements
- Lecture 36 - Eye movements (Continued...)
- Lecture 37 - Eye movement issues for VR
- Lecture 38 - Neuroscience of vision
- Lecture 39 - Three Psychophysical Laws
- Lecture 40 - Sensation and Perception
- Lecture 41 - Psychophysics of Visual Perception
- Lecture 42 - Gamma Encoding
- Lecture 43 - Limiting Resolution
- Lecture 44 - Depth perception
- Lecture 45 - Depth perception (Continued...)
- Lecture 46 - Motion perception from Visual System
- Lecture 47 - Frame rates and displays
- Lecture 48 - Frame rates and displays (Continued...)
- Lecture 49 - Psychophysics of Depth Perception
- Lecture 50 - Overview
- Lecture 51 - Orientation tracking
- Lecture 52 - Tilt drift correction
- Lecture 53 - Yaw drift correction
- Lecture 54 - Tracking with a camera
- Lecture 55 - Perspective n-point problem
- Lecture 56 - Filtering
- Lecture 57 - Lighthouse approach
- Lecture 58 - Visual Rendering-Overview
- Lecture 59 - Visual Rendering-overview (Continued...)
- Lecture 60 - Shading models
- Lecture 61 - Rasterization
- Lecture 62 - Pixel shading
- Lecture 63 - VR-specific problems
- Lecture 64 - Distortion shading
- Lecture 65 - Post-rendering image warp
- Lecture 66 - Why Haptics?
- Lecture 67 - What is Haptics?
- Lecture 68 - Branches of Haptics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Human Haptics - Tactile System
- Lecture 70 - Kinesthetic System
- Lecture 71 - Motor System
- Lecture 72 - Haptic Devices and Interfaces - Kinesthetic Devices
- Lecture 73 - Haptic Devices and Interfaces - Tactile Devices
- Lecture 74 - Physics and Physiology
- Lecture 75 - Auditory perception
- Lecture 76 - Auditory localization
- Lecture 77 - Rendering
- Lecture 78 - Spatialization and display
- Lecture 79 - Combining other senses
- Lecture 80 - Interfaces -overview
- Lecture 81 - Evaluation of VR Systems
- Lecture 82 - Social interaction
- Lecture 83 - System control
- Lecture 84 - Manipulation
- Lecture 85 - Locomotion
- Lecture 86 - Principles of Perception
- Lecture 87 - Introduction to Kalman Filter
- Lecture 88 - Introduction to Extended Kalman Filter
- Lecture 89 - Grand Challenges in VR/AR
- Lecture 90 - Ultimate VR/AR System

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Non-Conventional Energy Resources

Subject Co-ordinator - Dr. Prathap Haridoss

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Renewable Energy Technologies
- Lecture 2 - Energy Usage by Humans - Estimate of Impact on Atmosphere
- Lecture 3 - Conventional Sources of Energy
- Lecture 4 - Non-Conventional Sources of Energy - An Overview
- Lecture 5 - Energy consumption
- Lecture 6 - Details of Energy usage in each sector
- Lecture 7 - Consequences of Energy consumption
- Lecture 8 - Solar Energy incident on Earth, Solar Spectrum
- Lecture 9 - The Solar Energy Budget
- Lecture 10 - Electromagnetic Radiation - The Solar Spectrum
- Lecture 11 - Solar flat plate collector
- Lecture 12 - Solar Radiator
- Lecture 13 - Solar Energy - The Semiconductor
- Lecture 14 - Solar energy - The p-n junction
- Lecture 15 - Solar Cell - Growing the single crystal and making the p-n junction
- Lecture 16 - Solar Energy - Interaction of p-n junction with radiation
- Lecture 17 - Solar Energy - Solar cell characteristics and usage
- Lecture 18 - Solar Energy - Solar cell construction
- Lecture 19 - Solar Energy - Solar Photocatalysis
- Lecture 20 - Wind Energy - Overview
- Lecture 21 - Wind Energy - Energy Considerations
- Lecture 22 - Wind Energy - Efficiency
- Lecture 23 - Wind Energy - Parts and Materials
- Lecture 24 - Wind Energy - Design Considerations
- Lecture 25 - Ocean Thermal Energy - Conversion (OTEC)
- Lecture 26 - Geothermal Energy
- Lecture 27 - Geothermal Energy Technological aspects
- Lecture 28 - Biomass Usage and Issues
- Lecture 29 - Battery Basics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Battery Testing and Performance
- Lecture 31 - Lithium ion Batteries
- Lecture 32 - Common Battery Structures and Types
- Lecture 33 - Types of Fuel Cells
- Lecture 34 - Fuel Processing for PEM Fuel Cells
- Lecture 35 - Fuel Cells
- Lecture 36 - Characterization of Electrochemical Devices
- Lecture 37 - Fuel Cells
- Lecture 38 - Supercapacitors
- Lecture 39 - Flywheels
- Lecture 40 - Magnetohydrodynamic Power Generation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - General - NOC:Introduction to Remote Sensing

Subject Co-ordinator - Dr.Arun K.Saraf

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is satellite based remote sensing?

Lecture 2 - Development of remote sensing technology and advantages

Lecture 3 - Different platforms of remote sensing.

Lecture 4 - Electromagnetic Spectrum, solar reflection and thermal emission

Lecture 5 - Interaction of EM radiation with atmosphere including atmospheric scattering, absorption and emission

Lecture 6 - Interaction mechanism of EM radiation with ground and spectral response curve

Lecture 7 - Principles of image interpretation

Lecture 8 - Multi-spectral scanners and imaging devices

Lecture 9 - Salient characteristics of Landsat, IRS, Cartosat, Resourcesat sensors

Lecture 10 - Image characteristics and different resolutions in Remote Sensing

Lecture 11 - Image interpretation of different geological landforms, rock types and structures

Lecture 12 - Remote Sensing Integration with GIS and GPS

Lecture 13 - Geo-referencing Technique

Lecture 14 - Basic Image Enhancement Techniques

Lecture 15 - Spatial Filtering, Band ratio and Principal Component Analysis techniques

Lecture 16 - Image Classification Techniques

Lecture 17 - InSAR Techniques in its applications

Lecture 18 - Hyperspectral Remote Sensing

Lecture 19 - Integrated applications of RS and GIS in groundwater studies

Lecture 20 - Limitations of Remote Sensing Techniques

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Contemporary Issues in Philosophy of Mind and Cognition

Subject Co-ordinator - Dr. Rajakishore Nath, Dr. Ranjan K. Panda

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Transcendental Consciousness  
Lecture 3 - Plato's Theory of Mind  
Lecture 4 - Parable of Cave  
Lecture 5 - Aristotle's Concept Mind  
Lecture 6 - The Concept of Mind in Upanishadas  
Lecture 7 - Dualism - I  
Lecture 8 - Dualism - II  
Lecture 9 - Dualism - III  
Lecture 10 - Against Dualism  
Lecture 11 - Property Dualism  
Lecture 12 - Varieties of Materialism  
Lecture 13 - Mind-Body Identity Theory  
Lecture 14 - Functionalism  
Lecture 15 - Different Models of Cognitive Mind  
Lecture 16 - Connectionism and Folk - Psychology  
Lecture 17 - Representation - I  
Lecture 18 - Representation - II  
Lecture 19 - Artificial Intelligence - I  
Lecture 20 - Artificial Intelligence - II  
Lecture 21 - Artificial Intelligence - III  
Lecture 22 - The Limit of Artificial Intelligence - I  
Lecture 23 - The Limit of Artificial Intelligence - II  
Lecture 24 - Biological Naturalism  
Lecture 25 - The Concept of Intentionality  
Lecture 26 - The Structure of Consciousness - I  
Lecture 27 - The Structure of Consciousness - II  
Lecture 28 - Phenomenal Consciousness - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Phenomenal Consciousness - II
- Lecture 30 - Language, Representation & Meaning - I
- Lecture 31 - Language & Meaning - II
- Lecture 32 - Language & Mind
- Lecture 33 - Language & World - I
- Lecture 34 - Language & World - II
- Lecture 35 - Emergentism & Supervenience
- Lecture 36 - Reduction & Realization - I
- Lecture 37 - Reduction & Realization - II
- Lecture 38 - The Cartesian Mind Revisited
- Lecture 39 - Personal Identity - I
- Lecture 40 - Personal Identity - II
- Lecture 41 - Creativity
- Lecture 42 - Creativity

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Understanding Creativity and Creative Writing

Subject Co-ordinator - Prof. Neelima Talwar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview
- Lecture 2 - In Conversation with Richard Schechner
- Lecture 3 - Multilingual Plurality
- Lecture 4 - Multilingual Plurality
- Lecture 5 - Interplay of Languages and Forms of Writing - Part I
- Lecture 6 - Interplay of Languages and Forms of Writing - Part II
- Lecture 7 - Creativity and Cultures
- Lecture 8 - Notion of Play and The Three Domain Activities
- Lecture 9 - Theory of Enjoyment
- Lecture 10 - Divergences and Convergences - Part I
- Lecture 11 - Divergences and Convergences - Part II
- Lecture 12 - Creative and Cultural Spaces for Students
- Lecture 13 - Being and Doing
- Lecture 14 - Writers and Writing
- Lecture 15 - Creativity, Writing, Creative Writing
- Lecture 16 - Issues Related to the Teaching of Creative Writing
- Lecture 17 - Writers on Writing
- Lecture 18 - Critical Reading of Great Writers
- Lecture 19 - Critical Reading of Important Writers
- Lecture 20 - Reading and Writing
- Lecture 21 - Indian Writing
- Lecture 22 - Contemporary Indian Writers
- Lecture 23 - Contemporary Indian Writers
- Lecture 24 - Mosaic Patterns
- Lecture 25 - Introduction to Drama
- Lecture 26 - Performance and Script Writing
- Lecture 27 - Western Classical Theory
- Lecture 28 - Student Response - I
- Lecture 29 - Indian Drama

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interacting Continuum
- Lecture 31 - From The Perspective of Playwriting
- Lecture 32 - From The Playwright's Perspective - Part I
- Lecture 33 - From The Playwright's Perspective - Part II
- Lecture 34 - From The Perspective of Playwriting
- Lecture 35 - Drama in the Classroom
- Lecture 36 - Student Response - II
- Lecture 37 - Performative Reading of the Cherry Orchard
- Lecture 38 - Short Story as a Genre
- Lecture 39 - Short Stories by Indian Women Writers
- Lecture 40 - Modern Western Short Story
- Lecture 41 - Varieties of Writing Processes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Energy Resources, Economics and Environment

Subject Co-ordinator - Prof. Rangan Banerjee

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Energy Flow Diagram
- Lecture 2 - Global Trends in Energy Use
- Lecture 3 - Energy Use in India
- Lecture 4 - Energy and Environment
- Lecture 5 - The Kaya Identity
- Lecture 6 - Emission Factor
- Lecture 7 - Energy and Quality of Life
- Lecture 8 - Energy Inequality
- Lecture 9 - Energy Security
- Lecture 10 - Introduction to Country Energy Balance assignment
- Lecture 11 - Energy balance of Japan
- Lecture 12 - Energy balance of Australia
- Lecture 13 - Energy balance of Mexico
- Lecture 14 - Energy Economics - Part 1
- Lecture 15 - Energy Economics - Part 2
- Lecture 16 - Energy Economics - Part 3
- Lecture 17 - Energy Economics - Tutorial
- Lecture 18 - Energy resources - Part 1
- Lecture 19 - Energy resources - Part 2
- Lecture 20 - Renewable Energy Sources - Part 1
- Lecture 21 - Renewable Energy Sources - Part 2
- Lecture 22 - Materials for Energy
- Lecture 23 - Non Renewable Resource Economics - Part 1
- Lecture 24 - Non Renewable Resource Economics - Part 2
- Lecture 25 - Non Renewable Resource Economics - Part 3
- Lecture 26 - Preferences and Utility
- Lecture 27 - Utility and Social Choice - Part 1
- Lecture 28 - Utility and Social Choice - Part 2
- Lecture 29 - Utility and Social Choice - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Utility and Social Choice - Part 4
- Lecture 31 - Revision Paper-1 - Part 1
- Lecture 32 - Public and Private Good/Bads
- Lecture 33 - Aggregation of Demand Curves
- Lecture 34 - Externalities
- Lecture 35 - Revision Paper-1 - Part 2
- Lecture 36 - Revision paper-1 - Part 3
- Lecture 37 - Energy Project Financing - Part 1
- Lecture 38 - Energy Project Financing - Part 2
- Lecture 39 - Energy Project Financing - Tutorial
- Lecture 40 - Input Output Analysis - Part 1
- Lecture 41 - Input Output Analysis - Part 2
- Lecture 42 - Input Output Analysis - Part 3
- Lecture 43 - Input Output Analysis - Tutorial
- Lecture 44 - Primary Energy Analysis - Part 1
- Lecture 45 - Primary Energy Analysis - Part 2
- Lecture 46 - Net Energy Analysis - Part 1
- Lecture 47 - Net Energy Analysis - Part 2
- Lecture 48 - Net Energy Analysis - Part 3
- Lecture 49 - Net Energy Analysis - Part 4
- Lecture 50 - Energy Policy - Part 1
- Lecture 51 - Energy Policy - Part 2
- Lecture 52 - Energy Policy Examples - Part 1
- Lecture 53 - Energy Policy Examples - Part 2
- Lecture 54 - Revision Paper-2 - Part 1
- Lecture 55 - Revision Paper-2 - Part 2
- Lecture 56 - Future Energy Systems



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Paninian Grammar

Subject Co-ordinator - Prof. Malhar Kulkarni

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Aims and objectives of the course

Lecture 2 - Systemic and Textual approaches to study Pāṇini's grammar

Lecture 3 - Pāṇini and his linguistic background

Lecture 4 - Scholars and texts in the Pāṇini's grammatical tradition and their contribution

Lecture 5 - Non-Pāṇini's grammatical traditions

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

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Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 60

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Sandhi in Paninian Grammar

Subject Co-ordinator - Prof. Malhar Kulkarni

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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Lecture 58  
Lecture 59  
Lecture 60

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:àà,àà@àà%àà, samĀ•sa in PĀ•á¹ inian Grammar-I

Subject Co-ordinator - Prof. Malhar Kulkarni

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the contents of the course
- Lecture 2 - General features of the àààààààà•ààªàà•ààªàà•àà. tatpuruá¹fa compound
- Lecture 3 - Basics of the theory of compound formation in PĀ•á¹ inian grammar
- Lecture 4 - Meaning of the term àà,àà@àà%àà, samĀ•sa
- Lecture 5 - àà,àà@àà%àà, samĀ•sa and the process of speech production as described in the PĀ•á¹ inian grammar
- Lecture 6 - àà ààªàà•àààà artha and introduction to àà àà%ààªàà karaka
- Lecture 7 - 6 àà àà%ààªàà s karakas
- Lecture 8 - Introduction to àà,àà@ààªàà•àààà samartha
- Lecture 9 - Explanation of àà,àà@ààªàà•àààà samartha
- Lecture 10 - àà,àà%àà@ààªàà•àààààà•àà sĀ•marthya
- Lecture 11 - àà•àà àà%ààªàà•àààààà àà-àà%àààà ekĀ•rthĀ«bhĀ•va and its three features
- Lecture 12 - àà àà,àà@ààªàà•àààààà,àà@àà%àà, asamarthasamĀ•sa
- Lecture 13 - Basic terms and processes of compounding
- Lecture 14 - Steps in the process of Compounding
- Lecture 15 - Rules of compounding in PĀ•á¹ inian grammar - 1
- Lecture 16 - Rules of compounding in PĀ•á¹ inian grammar - 2
- Lecture 17 - Rules of compounding in PĀ•á¹ inian grammar - 3
- Lecture 18 - Rules of compounding in PĀ•á¹ inian grammar - 4
- Lecture 19 - Rules of compounding in PĀ•á¹ inian grammar - 5
- Lecture 20 - General remarks on compounding and historical development of Sanskrit Language
- Lecture 21 - àààààààà•ààªàà•ààªàà•àà. àà,àà@àà%àà, tatpuruá¹fa samĀ•sa-àà|àà•àààààà;àààààà àà-àà%ààdvitĀ«yĀ• àààà
- Lecture 22 - àààààààà•ààªàà•ààªàà•àà. àà,àà@àà%àà, tatpuruá¹fa samĀ•sa-àààààà àààààà àà-àà%àà tá¹ tĀ«yĀ• àààààà;àà
- Lecture 23 - àààààààà•ààªàà•ààªàà•àà. àà,àà@àà%àà, tatpuruá¹fa samĀ•sa-àààààà àààààà àà-àà%àà tá¹ tĀ«yĀ• àààààà;àà
- Lecture 24 - àààààààà•ààªàà•ààªàà•àà. àà,àà@àà%àà, tatpuruá¹fa samĀ•sa-àà àààààà•ààªàà•àààààà caturthĀ« àààààà;àà
- Lecture 25 - àààààààà•ààªàà•ààªàà•àà. àà,àà@àà%àà, tatpuruá¹fa samĀ•sa-ààªààà àà•àà àà@ààà paĀ±camĀ« àààààà;àà-àà
- Lecture 26 - àààààààà•ààªàà•ààªàà•àà. àà,àà@àà%àà, tatpuruá¹fa samĀ•sa-àà,ààªààà•àààààààà saptamĀ« àààààà;àà-àà
- Lecture 27 - àààààààà•ààªàà•ààªàà•àà. àà,àà@àà%àà, tatpuruá¹fa samĀ•sa-àà,ààªààà•àààààààà saptamĀ« àààààà;àà-àà
- Lecture 28 - àààààààà•ààªàà•ààªàà•àà. àà,àà@àà%àà, tatpuruá¹fa samĀ•sa-àà.àà.àà•àà àà àà á¹faá¹fá¹-hĀ« àààààà;àà
- Lecture 29 - àààààààà•ààªàà•ààªàà•àà. àà,àà@àà%àà, tatpuruá¹fa samĀ•sa-àà.àà.àà•àà àà àà á¹faá¹fá¹-hĀ« àààààà;àà

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- Lecture 30 - àöóàöóàÿ•àöªàÿ•àöªàÿ•àöª àö, àöªàöª¼àö, tatpuruá¹fa samÄ•sa-àö•àö•àÿ•àö àÿ á¹faá¹fa¹-hÄ« àöµàöçàö
- Lecture 31 - àö àöªàÿ•àöªàö§àöª¼àöªàö- karmadhÄ•raya - 1
- Lecture 32 - àö àöªàÿ•àöªàö§àöª¼àöªàö- karmadhÄ•raya - 2, (àö|àÿ•àöµàöçàö àÿ• dvigu)
- Lecture 33 - àö àöªàÿ•àöªàö§àöª¼àöªàö- karmadhÄ•raya - 3
- Lecture 34 - àö àöªàÿ•àöªàö§àöª¼àöªàö- karmadhÄ•raya - 4
- Lecture 35 - àö àöªàÿ•àöªàö§àöª¼àöªàö- karmadhÄ•raya - 5
- Lecture 36 - àö àöªàÿ•àöªàö§àöª¼àöªàö- karmadhÄ•raya - 6
- Lecture 37 - àö àöªàÿ•àöªàö§àöª¼àöªàö- karmadhÄ•raya - 7
- Lecture 38 - àö àöªàÿ•àöªàö§àöª¼àöªàö- karmadhÄ•raya - 8
- Lecture 39 - àö•àö àö|àÿ àöªàöçàö, àöªàöª¼àö, ekadeÄ isamÄ•sa + àöªàö àÿ• àöóàöóàÿ•àöªàÿ•àöªàÿ•àö• àö, àöªàöª¼àö,
- Lecture 40 - àöªàÿ•àöªàöª¼àö|àöçàö, àöªàöª¼àö, prÄ•disamÄ•sa + àö àöóàöçàö, àöªàöª¼àö, gatisamÄ•sa - 1
- Lecture 41 - àö àöóàöçàö, àöªàöª¼àö, gatisamÄ•sa - 2
- Lecture 42 - àö àöóàöçàö, àöªàöª¼àö, gatisamÄ•sa - 3
- Lecture 43 - àö àöóàöçàö, àöªàöª¼àö, gatisamÄ•sa - 3
- Lecture 44 - àö àöªàöªàöª|àö, àöªàöª¼àö, upapadasamÄ•sa - 1
- Lecture 45 - àö àöªàöªàöª|àö, àöªàöª¼àö, upapadasamÄ•sa - 2
- Lecture 46 - àö àöªàöªàöª|àö, àöªàöª¼àö, upapadasamÄ•sa - 3
- Lecture 47 - àö àöªàöªàöª|àö, àöªàöª¼àö, upapadasamÄ•sa - 4
- Lecture 48 - àö àöªàöªàöª|àö, àöªàöª¼àö, upapadasamÄ•sa - 5
- Lecture 49 - àö àöªàöªàöª|àö, àöªàöª¼àö, upapadasamÄ•sa - 6
- Lecture 50 - àö àöªàöªàöª|àö, àöªàöª¼àö, upapadasamÄ•sa - 7
- Lecture 51 - àö àöªàöªàöª|àö, àöªàöª¼àö, upapadasamÄ•sa - 8
- Lecture 52 - àö àöªàöªàöª|àö, àöªàöª¼àö, upapadasamÄ•sa - 9
- Lecture 53 - àö àöªàöªàöª|àö, àöªàöª¼àö, upapadasamÄ•sa - 10
- Lecture 54 - àö àöªàöªàöª|àö, àöªàöª¼àö, upapadasamÄ•sa - 11
- Lecture 55 - àö, àöªàöª¼àö, àöª¼àöªàÿ•àöóàöªàÿ•àöªàöóàÿ•àöªàö- samÄ•sÄ•ntapratyaya - 1
- Lecture 56 - àö, àöªàöª¼àö, àöª¼àöªàÿ•àöóàöªàÿ•àöªàöóàÿ•àöªàö- samÄ•sÄ•ntapratyaya - I
- Lecture 57 - àö, àöªàöª¼àö, àöª¼àöªàÿ•àöóàöªàÿ•àöªàöóàÿ•àöªàö- samÄ•sÄ•ntapratyaya - II
- Lecture 58 - àöªàÿ àöªàÿ•àöµàöçàö|àö àöªàöªàÿ•àöª- pÄ«rvapadakÄ•rya
- Lecture 59 - àö, àÿ•àöµàöçàöªàöªàöªàöªàÿ•àöª- svarakÄ•rya
- Lecture 60 - Examples

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:àà,àà@àà%àà, SamĀ•sa in PĀ•á¹ inian Grammar - II

Subject Co-ordinator - Prof. Malhar Kulkarni

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the contents of the course
- Lecture 2 - General features of the àà ààµà¥•àà-àà-à¥ àà-àà%ààµ avyayĀ«bhĀ•va, àà-àà¹à¥•ààµà¥•àà°à¥ àà¹àà; ba
- Lecture 3 - Basics of the theory of compound formation in PĀ•á¹ inian grammar
- Lecture 4 - Meaning of the term àà,àà@àà%àà, samĀ•sa
- Lecture 5 - àà,àà@àà%àà, samĀ•sa and the process of speech production as described in the PĀ•á¹ inian grammar
- Lecture 6 - àà àà°à¥•àà¥ artha and introduction to àà àà%àà°àà karaka
- Lecture 7 - 6 àà àà%àà°àà s karakas
- Lecture 8 - Introduction to àà,àà@àà°à¥•àà¥ samartha
- Lecture 9 - Explanation of àà,àà@àà°à¥•àà¥ samartha
- Lecture 10 - àà,àà%àà@àà°à¥•àà¥à¥•àà- sĀ•marthya
- Lecture 11 - àà•àà àà%àà°à¥•àà¥à¥ àà-àà%ààµ ekĀ•rthĀ«bhĀ•va and its three features
- Lecture 12 - àà àà,àà@àà°à¥•àà¥àà,àà@àà%àà, asamarthasamĀ•sa
- Lecture 13 - Basic terms and processes of compounding
- Lecture 14 - Steps in the process of Compounding
- Lecture 15 - Rules of compounding in PĀ•á¹ inian grammar - 1
- Lecture 16 - Rules of compounding in PĀ•á¹ inian grammar - 2
- Lecture 17 - Rules of compounding in PĀ•á¹ inian grammar - 3
- Lecture 18 - Rules of compounding in PĀ•á¹ inian grammar - 4
- Lecture 19 - Rules of compounding in PĀ•á¹ inian grammar - 5
- Lecture 20 - General remarks on compounding and historical development of Sanskrit Language
- Lecture 21 - àà ààµà¥•àà-àà-à¥ àà-àà%ààµ àà,àà@àà%àà, avyayĀ«bhĀ•va samĀ•sa â Genral information
- Lecture 22 - àà ààµà¥•àà-àà-à¥ àà-àà%ààµ àà,àà@àà%àà, ààµàà;àà§àà%àà" avyayĀ«bhĀ•va samĀ•sa vidhĀ•na
- Lecture 23 - àà ààµà¥•àà-àà-à¥ àà-àà%ààµ àà,àà@àà%àà, ààµàà;àà§àà%àà" avyayĀ«bhĀ•va samĀ•sa vidhĀ•na
- Lecture 24 - àà ààµà¥•àà-àà-à¥ àà-àà%ààµ àà,àà@àà%àà, ààµàà;àà§àà%àà" avyayĀ«bhĀ•va samĀ•sa vidhĀ•na
- Lecture 25 - àà ààµà¥•àà-àà-à¥ àà-àà%ààµ àà,àà@àà%àà, ààµàà;àà§àà%àà" avyayĀ«bhĀ•va samĀ•sa vidhĀ•na
- Lecture 26 - àà ààµà¥•àà-àà-à¥ àà-àà%ààµ àà,àà@àà%àà, ààµàà;àà§àà%àà" avyayĀ«bhĀ•va samĀ•sa vidhĀ•na
- Lecture 27 - àà ààµà¥•àà-àà-à¥ àà-àà%ààµ àà,àà@àà%àà, ààµàà;àà§àà%àà" avyayĀ«bhĀ•va samĀ•sa vidhĀ•na
- Lecture 28 - àà ààµà¥•àà-àà-à¥ àà-àà%ààµ àà,àà@àà%àà, ààµàà;àà§àà%àà" avyayĀ«bhĀ•va samĀ•sa vidhĀ•na
- Lecture 29 - àà ààµà¥•àà-àà-à¥ àà-àà%ààµ àà,àà@àà%àà, ààµàà;àà§àà%àà" avyayĀ«bhĀ•va samĀ•sa vidhĀ•na

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - avyaya bhava samasa vidhana
- Lecture 31 - avyaya bhava samasa vidhana
- Lecture 32 - avyaya bhava samasa vidhana
- Lecture 33 - avyaya bhava samasa vidhana
- Lecture 34 - avyaya bhava samasa vidhana
- Lecture 35 - avyaya bhava samasa vidhana
- Lecture 36 - avyaya bhava samasa vidhana
- Lecture 37 - avyaya bhava samasa vidhana
- Lecture 38 - avyaya bhava samasa vidhana
- Lecture 39 - avyaya bhava samasa vidhana
- Lecture 40 - avyaya bhava samasa vidhana
- Lecture 41 - bahuvrishi samasavidhana - General inf
- Lecture 42 - bahuvrishi samasavidhana
- Lecture 43 - bahuvrishi samasavidhana
- Lecture 44 - bahuvrishi samasavidhana
- Lecture 45 - bahuvrishi samasavidhana
- Lecture 46 - bahuvrishi samasavidhana
- Lecture 47 - bahuvrishi samasavidhana
- Lecture 48 - bahuvrishi samasavidhana
- Lecture 49 - bahuvrishi samasavidhana
- Lecture 50 - bahuvrishi samasavidhana
- Lecture 51 - bahuvrishi samasavidhana
- Lecture 52 - bahuvrishi samasavidhana
- Lecture 53 - bahuvrishi samasavidhana
- Lecture 54 - bahuvrishi samasavidhana
- Lecture 55 - bahuvrishi samasavidhana
- Lecture 56 - bahuvrishi samasavidhana
- Lecture 57 - dvandva samasa vidhana
- Lecture 58 - dvandva samasa vidhana
- Lecture 59 - dvandva samasa vidhana
- Lecture 60 - dvandva samasa vidhana



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Text, Textuality and Digital Media

Subject Co-ordinator - Prof. Arjun Ghosh

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Marshall McLuhan
- Lecture 3 - Marshall McLuhan
- Lecture 4 - Marshall McLuhan
- Lecture 5 - Walter Ong
- Lecture 6 - Walter Ong
- Lecture 7 - Walter Ong
- Lecture 8 - Dastangoi
- Lecture 9 - Dastangoi
- Lecture 10 - Manuscript Culture
- Lecture 11 - Manuscript Culture
- Lecture 12 - Feudalism to Capitalism
- Lecture 13 - Febre and Martin
- Lecture 14 - Guteberg and Revolution 15th Century
- Lecture 15 - Consequences of Print 16-17 Century
- Lecture 16 - John Dryden
- Lecture 17 - Robert Darnton
- Lecture 18 - Benedict Anderson
- Lecture 19 - Colonialism
- Lecture 20 - Print in Bengal
- Lecture 21 - Surveillance and Censorship
- Lecture 22 - Rise of the Telugu Novel
- Lecture 23 - Publishing in Hindi and Urdu
- Lecture 24 - Walter Benjamin
- Lecture 25 - Raymond Williams
- Lecture 26 - Jay David Bolter
- Lecture 27 - Robert Coover
- Lecture 28 - Robert Coover
- Lecture 29 - N. Katherine Hayles

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Richard Stallman
- Lecture 31 - Lawrence Lessig
- Lecture 32 - Copyright - Part 1
- Lecture 33 - Copyright - Part 2
- Lecture 34 - Nicholas Carr
- Lecture 35 - Scott Galloway
- Lecture 36 - Zeynep Tufecki
- Lecture 37 - Zeynep Tufecki
- Lecture 38 - Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Positive Psychology

Subject Co-ordinator - Prof. Kamlesh Singh

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Psychology
- Lecture 2 - Introduction to Positive Psychology
- Lecture 3 - Research Methods
- Lecture 4 - Character Strengths and Virtues/Positive Personality Traits - Part 1
- Lecture 5 - Character Strengths and Virtues/Positive Personality Traits - Part 2
- Lecture 6 - Character Strengths and Virtues/Positive Personality Traits - Part 3
- Lecture 7 - Happiness and Well-Being - Part 1
- Lecture 8 - Happiness and Well-Being - Part 2
- Lecture 9 - Happiness and Well-Being - Part 3
- Lecture 10 - Positive Emotional States and Processes - Part 1
- Lecture 11 - Positive Emotional States and Processes - Part 2
- Lecture 12 - Hope and Optimism
- Lecture 13 - Self and related Concepts
- Lecture 14 - Resilience
- Lecture 15 - Flow
- Lecture 16 - Mindfulness
- Lecture 17 - Spirituality, Grit and Mindset
- Lecture 18 - Minding and Compassion
- Lecture 19 - Forgiveness, Humanity and Gratitude
- Lecture 20 - Love, Empathy and Altruism
- Lecture 21 - Recent Trends and Directions In Positive Psychology - Part 1
- Lecture 22 - Recent Trends and Directions In Positive Psychology - Part 2
- Lecture 23 - Recent Trends and Directions In Positive Psychology - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Science Communication: Research Productivity and Da

Subject Co-ordinator - Prof. Nabi Hasan, Prof. Mohit Garg

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Science Communication

Lecture 2 - Channels of Science Communication

Lecture 3 - Open Science and Open Access

Lecture 4 - Open Research Data and Open Peer Review

Lecture 5 - Overview of Tools for Maximizing Academic Visibility and Impact of Research Output

Lecture 6 - Understanding Research Metrics: Author, Journal and Article Level Metrics

Lecture 7 - Abstract and Citation Database Scopus

Lecture 8 - Abstract and Citation Database: Web of Science

Lecture 9 - Health Science Database: PubMed

Lecture 10 - Free Academic Search Engine: Google Scholar

Lecture 11 - Installation of R

Lecture 12 - Installation of RStudio

Lecture 13 - Object and different types

Lecture 14 - Vector and Data Frame

Lecture 15 - Lists, Matrices, Factor, Array

Lecture 16 - Packages and Help

Lecture 17 - Science communication and different metrics

Lecture 18 - Lotka's law

Lecture 19 - Bradford's law

Lecture 20 - Zipf's Law

Lecture 21 - Descriptive Analysis - I

Lecture 22 - Descriptive Analysis - II

Lecture 23 - Descriptive Analysis - III

Lecture 24 - Analysis of Bradford and Lotka Law

Lecture 25 - Science Mapping - I

Lecture 26 - Science Mapping - II

Lecture 27 - Data Visualization: An overview, history and skills for researchers

Lecture 28 - Data Visualization: Types, tools and technologies

Lecture 29 - Visualization of Scientific Research Patterns and Trends with VOSviewer and CiteSpace

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- Lecture 30 - Text Mining - Introduction
- Lecture 31 - Regular Expression
- Lecture 32 - Text Pre-processing
- Lecture 33 - Topic Modeling
- Lecture 34 - THE, QS, Sanghai (ARWU) and (NIRF) Ranking
- Lecture 35 - Academic Integrity and Ethical Guidelines in Science Communication
- Lecture 36 - IPR/Copyright Issues and Practices in Print and Digital Environment
- Lecture 37 - Predatory Publishing: Issues, Challenges and the Road Ahead
- Lecture 38 - Case Study #1 Subject Domain
- Lecture 39 - Case Study #2 Author
- Lecture 40 - Case Study #3 Journal and Institution

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Cultural Studies

Subject Co-ordinator - Dr. Liza Das

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Understanding Cultural Studies - Part 1

Lecture 2 - Understanding Cultural Studies - Part 2

Lecture 3 - Evolution and Culture

Lecture 4 - Evolutionary Psychology

Lecture 5 - The Modern Mind

Lecture 6 - Memetics

Lecture 7 - Cultural Theory

Lecture 8 - Marxism - Part 1

Lecture 9 - Marxism - Part 2

Lecture 10 - Poststructuralism

Lecture 11 - Subjectivity

Lecture 12 - Identity

Lecture 13 - Ideology - Part 1

Lecture 14 - Ideology - Part 2

Lecture 15 - Representation - Part 1

Lecture 16 - Representation - Part 2

Lecture 17 - Power

Lecture 18 - Discourse

Lecture 19 - Gender - Part 1

Lecture 20 - Gender - Part 2

Lecture 21 - The Body

Lecture 22 - Space

Lecture 23 - Time

Lecture 24 - Development

Lecture 25 - Language

Lecture 26 - Ethnicity, Race and Nation

Lecture 27 - Globalisation

Lecture 28 - Consumption - Part 1

Lecture 29 - Consumption - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Biology
- Lecture 31 - Culture Industry
- Lecture 32 - Commodity
- Lecture 33 - Media
- Lecture 34 - Television
- Lecture 35 - New Media
- Lecture 36 - Science, Technology and Culture
- Lecture 37 - Cyberculture
- Lecture 38 - Cultural Policy
- Lecture 39 - Critiquing Cultural Studies
- Lecture 40 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - English Language and Literature

Subject Co-ordinator - Dr. Krishna Barua, Dr. Liza Das

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - The Scope of English Studies
- Lecture 3 - The English Language
- Lecture 4 - International English
- Lecture 5 - The Globalization of English
- Lecture 6 - World Englishes
- Lecture 7 - The Rise of Cultural Studies
- Lecture 8 - Old English
- Lecture 9 - Middle English
- Lecture 10 - Early Modern English
- Lecture 11 - Modern English - 1
- Lecture 12 - Modern English - 2
- Lecture 13 - The Age of Chaucer
- Lecture 14 - The Age of Shakespeare
- Lecture 15 - Milton and his Times
- Lecture 16 - The Augustans
- Lecture 17 - The Romantics
- Lecture 18 - The Victorians
- Lecture 19 - Modern Literature
- Lecture 20 - The Novel
- Lecture 21 - Poetry
- Lecture 22 - Drama
- Lecture 23 - Essay
- Lecture 24 - Short story
- Lecture 25 - Biography
- Lecture 26 - Autobiography
- Lecture 27 - History Of English Language
- Lecture 28 - Marxist Literary Criticism
- Lecture 29 - Feminist Criticism

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Structuralist Criticism
- Lecture 31 - Poststructuralism
- Lecture 32 - Postcolonialism
- Lecture 33 - Cognitive Approaches To Literature
- Lecture 34 - Classical Criticism
- Lecture 35 - Liberal Humanism
- Lecture 36 - Reader-response Criticism
- Lecture 37 - New Historicism
- Lecture 38 - Ecocriticism

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Game Theory for Economists

Subject Co-ordinator - Dr. Debarshi Das

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition of Game Theory and Rational Choice
- Lecture 2 - Interacting Decision Makers
- Lecture 3 - Strategic Games
- Lecture 4 - Matching Pennies, Stag Hunt and Nash Equilibrium
- Lecture 5 - Examples of Nash Equilibrium
- Lecture 6 - Altruism and Prisoner's Dilemma
- Lecture 7 - Variants Stag Hunt Game, Hawk Dove and Coordination Game
- Lecture 8 - Public Good Provision, Strict Nash Equilibrium
- Lecture 9 - Best Response Functions
- Lecture 10 - Strictly and Weakly Dominated Action
- Lecture 11 - Application of Weak Domination
- Lecture 12 - Symmetric Games and Symmetric Equilibrium
- Lecture 13 - Cournot Model of Oligopoly
- Lecture 14 - Different Aspects of Cournot Model
- Lecture 15 - Further Aspects of Cournot Model
- Lecture 16 - Cournot & Bertrand Models
- Lecture 17 - Different Aspects of Bertrand Model
- Lecture 18 - Electoral Competition 1
- Lecture 19 - Different Aspects of Hotelling Model
- Lecture 20 - Hotelling Model
- Lecture 21 - War of Attrition
- Lecture 22 - Second Price Sealed Bid Auction
- Lecture 23 - Further Aspects of Second Price Auction
- Lecture 24 - First Price Auction
- Lecture 25 - All Pay Auction, Multi Unit Auction
- Lecture 26 - Accident Laws
- Lecture 27 - Mixed Strategy Nash Equilibrium
- Lecture 28 - Mixed Strategy, Mixed Strategy Equilibrium
- Lecture 29 - Mixed Strategy Equilibrium

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Characterisation of Mixed Strategy Equilibrium
- Lecture 31 - Dominated Actions and Iterated Elimination
- Lecture 32 - Rationalisability and Beliefs
- Lecture 33 - Extensive Games
- Lecture 34 - Strategy and Equilibrium
- Lecture 35 - Nash Equilibrium and Its Problems
- Lecture 36 - Subgame Perfect Nash Equilibrium
- Lecture 37 - Backward Induction
- Lecture 38 - Backward Induction
- Lecture 39 - Ultimatum Game
- Lecture 40 - Stackelberg Duopoly Model

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Digital Human Modeling and Simulation for Virtual E

Subject Co-ordinator - Dr. Sougata Karmakar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Ergonomics

Lecture 2 - Notes 1

Lecture 3 - Use of percentile anthropometric and biomechanical data for product design - Part I

Lecture 4 - Use of percentile anthropometric and biomechanical data for product design - Part II

Lecture 5 - Use of percentile anthropometric and biomechanical data for product design - Part III

Lecture 6 - Use of percentile anthropometric and biomechanical data for product design - Part IV

Lecture 7 - Notes 2

Lecture 8 - Virtual Ergonomics and its Advantages

Lecture 9 - Notes 3

Lecture 10 - Introduction of Digital Human Modeling (DHM) and Simulation

Lecture 11 - Notes 4

Lecture 12 - Techniques/Process of virtual ergonomics evaluation using DHMs - Part A (Part I)

Lecture 13 - Notes 5

Lecture 14 - Techniques/Process of virtual ergonomics evaluation using DHMs - Part B (Part I)

Lecture 15 - Techniques/Process of virtual ergonomics evaluation using DHMs - Part B (Part II)

Lecture 16 - Techniques/Process of virtual ergonomics evaluation using DHMs - Part B (Part III)

Lecture 17 - Notes 6

Lecture 18 - Application of Digital Human Modeling and Simulation in various Industrial Sectors - Part I

Lecture 19 - Application of Digital Human Modeling and Simulation in various Industrial Sectors - Part II

Lecture 20 - Notes 7

Lecture 21 - Future research avenues and steps to be taken towards widespread - Part I

Lecture 22 - Future research avenues and steps to be taken towards widespread - Part II

Lecture 23 - Future research avenues and steps to be taken towards widespread - Part III

Lecture 24 - Notes 8

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Science, Technology and Society

Subject Co-ordinator - Dr. Sambit Mallick

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Cognitive Dimensions - I
- Lecture 2 - Cognitive Dimensions - II
- Lecture 3 - Ethical Dimensions
- Lecture 4 - Inductivism and Hypothesisism - I
- Lecture 5 - Inductivism and Hypothesisism - II
- Lecture 6 - Positivism - I
- Lecture 7 - Positivism - II
- Lecture 8 - Karl Popper - I
- Lecture 9 - Karl Popper - II
- Lecture 10 - Thomas Kuhn
- Lecture 11 - Popper versus Kuhn
- Lecture 12 - Paul Feyerabend
- Lecture 13 - Rewards and Recognitions - I
- Lecture 14 - Rewards and Recognitions - II
- Lecture 15 - Rewards and Recognitions - III
- Lecture 16 - Cumulative Advantage and Symbolism of Intellectual Property - I
- Lecture 17 - Cumulative Advantage and Symbolism of Intellectual Property - II
- Lecture 18 - Cumulative Advantage and Symbolism of Intellectual Property - III
- Lecture 19 - Max Weber
- Lecture 20 - Preliminary Exercise and Explanation
- Lecture 21 - Edwin Layton Jr.
- Lecture 22 - Langdon Winner - I
- Lecture 23 - Langdon Winner - II
- Lecture 24 - Langdon Winner - III
- Lecture 25 - Donald MacKenzie and Judy Wajcman - I
- Lecture 26 - Donald MacKenzie and Judy Wajcman - II
- Lecture 27 - Thomas Edison
- Lecture 28 - Capitalism, class, gender, city, machine, workplace - I
- Lecture 29 - Capitalism, class, gender, city, machine, workplace - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Capitalism, class, gender, city, machine, workplace - III
- Lecture 31 - Alvin Toffler and Daniel Bell
- Lecture 32 - Themes and Factors of Information Technology
- Lecture 33 - Information Technology and Reconceptualization of Class
- Lecture 34 - Reception of Modern Science in India
- Lecture 35 - Science Policies in India
- Lecture 36 - Summary of the Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Gender and Literature

Subject Co-ordinator - Prof. Avishek Parui

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - A Brief Overview of the Course
- Lecture 2 - Performativity and Embodiment
- Lecture 3 - The Chess Players - Part 1
- Lecture 4 - The Chess Players - Part 2
- Lecture 5 - Shooting an Elephant - Part 1
- Lecture 6 - Shooting an Elephant - Part 2
- Lecture 7 - Heart of Darkness - Part 1
- Lecture 8 - Heart of Darkness - Part 2
- Lecture 9 - Heart of Darkness - Part 3
- Lecture 10 - The Fly - Part 1
- Lecture 11 - The Fly - Part 2
- Lecture 12 - Look Back in Anger - Part 1
- Lecture 13 - Look Back in Anger - Part 2
- Lecture 14 - Look Back in Anger - Part 3
- Lecture 15 - Look Back in Anger - Part 4
- Lecture 16 - Look Back in Anger - Part 5
- Lecture 17 - Look Back in Anger - Part 6
- Lecture 18 - Gender and Popular Culture Lecture - 1
- Lecture 19 - Gender and Popular Culture Lecture = 2
- Lecture 20 - Gender and Popular Culture Lecture - 3
- Lecture 21 - Gender and Popular Culture Final Lecture

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTTEL Video Course - Humanities and Social Sciences - NOC:Ecology and Society

Subject Co-ordinator - Prof. Ngamjahao Kipgen

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Ecology and Society - 1
- Lecture 2 - Ecology and Society - 2
- Lecture 3 - Culture and Cultural Ecology
- Lecture 4 - Cultural Ecology and Economic
- Lecture 5 - Cultural Ecological Theory
- Lecture 6 - Human Ecology
- Lecture 7 - Human Ecology - Theoretical Approach
- Lecture 8 - Ecological Anthropology
- Lecture 9 - Ecosystem-based and Actor-based Model of Human Ecology
- Lecture 10 - Nature and Culture Debate
- Lecture 11 - Nature - A Contested Concept
- Lecture 12 - Conceptions of Nature
- Lecture 13 - Contested Domains and Boundaries of Culture
- Lecture 14 - MCQs Discussion
- Lecture 15 - Paradigms in Humanâ Environmental Relations - Part I
- Lecture 16 - Paradigms in Humanâ Environmental Relations - Part II
- Lecture 17 - Nature, Culture, Magic and Science
- Lecture 18 - Religion, Nature and Environment
- Lecture 19 - Religion, Nature and Environment Continue
- Lecture 20 - The Historical Roots of our Ecological Crisis
- Lecture 21 - Biodiversity Conservation Ethics in Buddhism
- Lecture 22 - Hinduism and Nature Conservation, Christian Religion Response to Ecological Crisis
- Lecture 23 - Hinduism and Nature Conservation, Christian Religion Response to Ecological Crisis
- Lecture 24 - Deep Ecology
- Lecture 25 - Social Ecology
- Lecture 26 - Ecological Feminist Philosophies
- Lecture 27 - Indigenous Knowledge
- Lecture 28 - Ecological Journey
- Lecture 29 - Kuki Jhumming Practices

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Debates on Shifting Cultivation

Lecture 31 - Course Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Sociological Perspectives on Modernity

Subject Co-ordinator - Dr. Sambit Mallick

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Thematic Preliminaries - I  
Lecture 2 - Thematic Preliminaries - II  
Lecture 3 - Thematic Preliminaries - III  
Lecture 4 - Sociological Modernism  
Lecture 5 - Sociological Modernism  
Lecture 6 - Sociological Modernism  
Lecture 7 - Sociological Modernism  
Lecture 8 - Sociological Modernism  
Lecture 9 - Sociological Modernism  
Lecture 10 - Sociological Modernism  
Lecture 11 - Sociological Modernism  
Lecture 12 - Structuralist Interpretation - I  
Lecture 13 - Structuralist Interpretation - II  
Lecture 14 - Structuralist Interpretation - III  
Lecture 15 - Western Marxism - I  
Lecture 16 - Western Marxism - II  
Lecture 17 - Modernity and Social Theory - I  
Lecture 18 - Modernity and Social Theory - II  
Lecture 19 - Modernity and Social Theory - III  
Lecture 20 - Modernity and Social Theory - IV  
Lecture 21 - Deconstruction of Modernity  
Lecture 22 - Deconstruction of Modernity  
Lecture 23 - Deconstruction of Modernity  
Lecture 24 - Deconstruction of Modernity  
Lecture 25 - Deconstruction of Modernity  
Lecture 26 - Deconstruction of Modernity  
Lecture 27 - A New Totality - I  
Lecture 28 - A New Totality - II  
Lecture 29 - Modernity in India

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - What have we discussed?

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Cognitive Psychology

Subject Co-ordinator - Prof. Naveen Kashyap

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - A Brief History of Cognitive Psychology - 1
- Lecture 2 - A Brief History of Cognitive Psychology - 2
- Lecture 3 - Studying Cognition
- Lecture 4 - Perception
- Lecture 5 - Models of Perception - 1
- Lecture 6 - Models of Perception - 2
- Lecture 7 - Basic Attention Processes
- Lecture 8 - Models of Attention
- Lecture 9 - Automization and Attention
- Lecture 10 - Memory Introduction
- Lecture 11 - Short Term Memory
- Lecture 12 - Working Memory
- Lecture 13 - Long-Term Memory Encoding
- Lecture 14 - Retrieval from Long-Term Memory
- Lecture 15 - Semantic Memory Basics
- Lecture 16 - Models of Semantic Memory
- Lecture 17 - Introducing Concepts and Categories - 1
- Lecture 18 - Introducing Concepts and Categories - 2
- Lecture 19 - Basics of Visual Memory
- Lecture 20 - Object Transformation in Visual Memory
- Lecture 21 - Basic Issues in Language
- Lecture 22 - Comprehension and Understanding of Language
- Lecture 23 - Introduction to Problem Solving
- Lecture 24 - Factors Influencing Problem Solving
- Lecture 25 - Insight and Creativity
- Lecture 26 - Reasoning - 1
- Lecture 27 - Reasoning - 2
- Lecture 28 - Classical Theory of Decision Making
- Lecture 29 - Prospect Theory of Decision Making

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Course Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Modern Indian Political Thought

Subject Co-ordinator - Prof. Mithilesh Kumar Jha

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the course

Lecture 2 - Raja Rammohan Roy

Lecture 3 - Raja Rammohan Roy

Lecture 4 - Raja Rammohan Roy

Lecture 5 - Rabindranath Tagore

Lecture 6 - Rabindranath Tagore

Lecture 7 - Rabindranath Tagore

Lecture 8 - Aurobindo Ghosh

Lecture 9 - Aurobindo Ghosh

Lecture 10 - Vivekananda

Lecture 11 - Vivekananda

Lecture 12 - Mahatma Gandhi

Lecture 13 - Mahatma Gandhi

Lecture 14 - Mahatma Gandhi

Lecture 15 - Muhammad Iqbal

Lecture 16 - Muhammad Iqbal

Lecture 17 - Savarkar

Lecture 18 - Savarkar

Lecture 19 - Jawaharlal Nehru

Lecture 20 - Jawaharlal Nehru

Lecture 21 - Jawaharlal Nehru

Lecture 22 - B.R.Ambedkar

Lecture 23 - B.R.Ambedkar

Lecture 24 - B.R.Ambedkar

Lecture 25 - Pandita Ramabai

Lecture 26 - Pandita Ramabai

Lecture 27 - Rammanohar Lohia

Lecture 28 - Rammanohar Lohia

Lecture 29 - Rammanohar Lohia

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Consumer Psychology

Subject Co-ordinator - Prof. Naveen Kashyap

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Consumer Psychology - I  
Lecture 2 - Introduction to Consumer Psychology - II  
Lecture 3 - Problem Recognition - I  
Lecture 4 - Problem Recognition - II  
Lecture 5 - Alternate Evaluation - I  
Lecture 6 - Alternate Evaluation - II  
Lecture 7 - Alternate Evaluation - III  
Lecture 8 - Post Purchase and Consumption - I  
Lecture 9 - Post Purchase and Consumption - II  
Lecture 10 - Perception and Cognition - I  
Lecture 11 - Perception and Cognition - II  
Lecture 12 - Memory and Learning - I  
Lecture 13 - Memory and Learning - II  
Lecture 14 - Emotion Motivation and Mood - I  
Lecture 15 - Emotion Motivation and Mood - II  
Lecture 16 - Attitude and Attitude Change - I  
Lecture 17 - Attitude and Attitude Change - II  
Lecture 18 - Communication and Persuasion - I  
Lecture 19 - Communication and Persuasion - II  
Lecture 20 - Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Modern Indian Drama

Subject Co-ordinator - Prof. Kiran Keshavamurthy

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Sanskrit and National Theatre
- Lecture 2 - History of Parsi Theatre and Female Impersonation
- Lecture 3 - Female Impersonation and Indian Folk Traditions
- Lecture 4 - Early Indian Playwrights
- Lecture 5 - Silence! The Court is in Session
- Lecture 6 - A Friend's Story
- Lecture 7 - Ghashiram Kotwal
- Lecture 8 - Kanyadaan
- Lecture 9 - Hayavadana
- Lecture 10 - Tughlaq
- Lecture 11 - The Dreams of Tipu Sultan
- Lecture 12 - The Fire and the Rain
- Lecture 13 - Broken Images
- Lecture 14 - Summary
- Lecture 15 - Introduction and Garbo
- Lecture 16 - Old Stone Mansion
- Lecture 17 - Desire in the Rocks
- Lecture 18 - Sonata
- Lecture 19 - Summary of Mahesh Elkunchwar
- Lecture 20 - Introduction and Final Solutions
- Lecture 21 - Bravely Fought the Queen
- Lecture 22 - Dance Like a Man
- Lecture 23 - Summary of Mahesh Dattani
- Lecture 24 - Introduction and Procession
- Lecture 25 - Bhoma
- Lecture 26 - Stale News and Summary
- Lecture 27 - Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Political Theory

Subject Co-ordinator - Prof. Mithilesh Kumar Jha

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General Outline and methods
- Lecture 2 - Political theories and ideologies
- Lecture 3 - Liberty
- Lecture 4 - Freedom as autonomy; Positive and negative liberty
- Lecture 5 - Freedom as Swaraj, Free speech and hate speech
- Lecture 6 - Introduction
- Lecture 7 - Equality of opportunity; preferential treatment
- Lecture 8 - Luck Egalitarianism and its critiques; Equality and Liberty
- Lecture 9 - Introduction and forms of rights
- Lecture 10 - Conflicts between rights
- Lecture 11 - Rights and Duties
- Lecture 12 - Justice
- Lecture 13 - Justice
- Lecture 14 - Justice
- Lecture 15 - Justice
- Lecture 16 - Introduction to Power and authority
- Lecture 17 - Power, legitimacy and hegemony
- Lecture 18 - Power and knowledge; different conceptions of power
- Lecture 19 - Introduction and different conceptions of state and sovereignty
- Lecture 20 - Modern nation state; liberal, Marxist and feminist conceptions of state
- Lecture 21 - State and governmentality
- Lecture 22 - Introduction
- Lecture 23 - Various models of democracy
- Lecture 24 - Challenges and Limits of Democracy; Free press and Democracy
- Lecture 25 - Citizenship
- Lecture 26 - T H Marshal and liberal conceptions of citizenship as legal and equal member
- Lecture 27 - Multiculturalism and Cosmopolitan Citizenship
- Lecture 28 - Introduction; Doom and Gloom; Democracy and environmental crisis
- Lecture 29 - Climate change and environmental justice

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Revisiting some key themes and concepts

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Human Behaviour

Subject Co-ordinator - Prof. Naveen Kashyap

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the Science of Human Behavior - I  
Lecture 2 - Introduction to the Science of Human Behavior - II  
Lecture 3 - Sensation - I  
Lecture 4 - Sensation - II  
Lecture 5 - Perception - I  
Lecture 6 - Perception - II  
Lecture 7 - Learning - I  
Lecture 8 - Learning - II  
Lecture 9 - Memory - I  
Lecture 10 - Memory - II  
Lecture 11 - Language - I  
Lecture 12 - Language - II  
Lecture 13 - Intelligence - I  
Lecture 14 - Intelligence - II  
Lecture 15 - Emotion - I  
Lecture 16 - Emotion - II  
Lecture 17 - Personality - I  
Lecture 18 - Personality - II  
Lecture 19 - Social Influence and Cognition - I  
Lecture 20 - Social Influence and Cognition - II  
Lecture 21 - Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:The Psychology of Language

Subject Co-ordinator - Prof. Naveen Kashyap

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Communication and Language - I

Lecture 2 - Communication and Language - II

Lecture 3 - Science of Language - I

Lecture 4 - Science of Language - II

Lecture 5 - Speech Perception - I

Lecture 6 - Speech Perception - II

Lecture 7 - Speech Production - I

Lecture 8 - Speech Production - II

Lecture 9 - Words - I

Lecture 10 - Words - II

Lecture 11 - Words - III

Lecture 12 - Sentences - I

Lecture 13 - Sentences - II

Lecture 14 - Discourse - I

Lecture 15 - Discourse - II

Lecture 16 - Reading and Writing - I

Lecture 17 - Reading and Writing - II

Lecture 18 - Bilingualism - I

Lecture 19 - Bilingualism - II

Lecture 20 - Overall Review

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Development Research Methods

Subject Co-ordinator - Prof. Rajshree Bedamatta

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Reflections on Development Studies and Development Research
- Lecture 2 - Types, Forms, and Processes of Development Studies Research
- Lecture 3 - The Rigour in Development Studies Research
- Lecture 4 - Paradigms of Development Research
- Lecture 5 - Development Research-Development Work Continuum and Action Research in Development Studies
- Lecture 6 - Ethics in Development Studies and Development Research
- Lecture 7 - Literature Study
- Lecture 8 - A General Lecture based on M.N. Srinivas's The Fieldworker and the Field
- Lecture 9 - Introducing Qualitative Research Methods
- Lecture 10 - Introducing Qualitative Research Methods (Continued...)
- Lecture 11 - Interviews and Focus Group Discussions
- Lecture 12 - Participatory Methods and Approaches
- Lecture 13 - Conducting Case Studies and Maintaining Field Diaries
- Lecture 14 - Introducing Quantitative Research Methods
- Lecture 15 - An Overview of Mixed Methods Research
- Lecture 16 - Field Surveys and Inventories
- Lecture 17 - Logical Framework and SWOT Analysis
- Lecture 18 - The importance of Census and other Secondary Data in Development Studies
- Lecture 19 - Communicating Research
- Lecture 20 - Operationalizing Rights-based Approaches to Development
- Lecture 21 - Poverty Measures and Analysis
- Lecture 22 - Gender-sensitive Indicators and Gender Analysis
- Lecture 23 - Social Capital Assessment Tools
- Lecture 24 - Monitoring and Evaluation
- Lecture 25 - A Final Note

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Indian Business History

Subject Co-ordinator - Prof. Vipul Dutta

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and General Outline
- Lecture 2 - Sources and Methodology to Study Indian Business History
- Lecture 3 - East India Company's early ventures in India
- Lecture 4 - Agency Houses
- Lecture 5 - Emergence of Bombay and Cotton Trade, 1750-1850
- Lecture 6 - Indian Business
- Lecture 7 - Emergence of Calcutta
- Lecture 8 - Swadeshi Movement
- Lecture 9 - Case Studies
- Lecture 10 - Indian Economy and Business during WW I
- Lecture 11 - Impact of the Second World War WW II
- Lecture 12 - Political Economy of the Global wars for India; Case Study
- Lecture 13 - Impact of Independence and Partition
- Lecture 14 - Planning, Statistics and Industrialization Policies
- Lecture 15 - Global Currents of economic Thought, 1947-1960
- Lecture 16 - Industrial Licensing Policies, Institutions 1947-1964
- Lecture 17 - Industrial Licensing Policies, 1966-1980
- Lecture 18 - Case Study
- Lecture 19 - Liberalisation of the Indian Economy, 1990s
- Lecture 20 - Business Developments in India; India's Energy Diplomacy through ONGC
- Lecture 21 - Indian Business History
- Lecture 22 - Learning Outcomes from Indian Business History

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Western Political Thought

Subject Co-ordinator - Prof. Mithilesh Kumar Jha

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General Outline and Method
- Lecture 2 - Method
- Lecture 3 - Intro and Justice
- Lecture 4 - State and Philosopher King
- Lecture 5 - Communism of Wives and Property and Critical Assessment of his Thought
- Lecture 6 - Intro and Ethics or Virtue
- Lecture 7 - Politics and His Ideal State
- Lecture 8 - Aristotle-III
- Lecture 9 - Machiavelli-I
- Lecture 10 - Machiavelli-II
- Lecture 11 - Machiavelli-III
- Lecture 12 - Intro and Human Nature
- Lecture 13 - The Leviathan or Sovereign
- Lecture 14 - Political Obligation and Critical Assessment of his Thought
- Lecture 15 - Intro, State of Nature and Natural Rights
- Lecture 16 - Limited Government
- Lecture 17 - Right to Dissent and Critical Assessment of his Thought
- Lecture 18 - Rousseau-I
- Lecture 19 - Rousseau-II
- Lecture 20 - Kant-I
- Lecture 21 - Kant-II
- Lecture 22 - Kant-III
- Lecture 23 - Hegel-I
- Lecture 24 - Hegel-II
- Lecture 25 - Hegel-III
- Lecture 26 - Marx-I
- Lecture 27 - Marx-II
- Lecture 28 - Marx-III
- Lecture 29 - Mill-I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Mill-II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Psychology of Stress, Health and Well-being

Subject Co-ordinator - Prof. Dilwar Hussain

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - The Nature of Stress - 1

Lecture 2 - The Nature of Stress - 2

Lecture 3 - The Biology of Stress

Lecture 4 - Stress, Health, and Non-infectious Diseases

Lecture 5 - Stress and Infectious Diseases

Lecture 6 - Stress and Psychological Disorders

Lecture 7 - Stress, Trauma and Posttraumatic growth - 1

Lecture 8 - Stress, Trauma and Posttraumatic growth - 2

Lecture 9 - Factors Influencing Stress Tolerance

Lecture 10 - Coping Strategies: Definition and Types

Lecture 11 - Unconscious mind and defensive coping

Lecture 12 - Characteristics of constructive coping; Physical ways of coping

Lecture 13 - Coping with relaxation exercises

Lecture 14 - Mental ways of coping

Lecture 15 - Coping with social support

Lecture 16 - Coping with meditation and mindfulness

Lecture 17 - Positive mental health and well-being

Lecture 18 - Well-being and resilience

Lecture 19 - What is happiness? What makes us happy?

Lecture 20 - Socio-demographic factors and happiness

Lecture 21 - Positive emotions

Lecture 22 - Genetic set point and hedonic adaptation

Lecture 23 - Sustainable happiness model

Lecture 24 - Sustainable happiness with intentional activities

Lecture 25 - Cultivating happiness with gratitude

Lecture 26 - Cultivating happiness with acts of kindness

Lecture 27 - Social comparison and happiness

Lecture 28 - Cultivating happiness with signature strengths 1 (VIA character strengths)

Lecture 29 - Cultivating happiness with signature strengths 2 (Gallup's/Clifton strength finder)

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- Lecture 30 - Cultivating happiness with Flow
- Lecture 31 - Humanistic psychology and self-actualization
- Lecture 32 - Self-determination, motivation, and well-being
- Lecture 33 - Meaning in life and well-being
- Lecture 34 - Life goals and well-being

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Phonetics and Phonology: A Broad Overview

Subject Co-ordinator - Prof. Shakuntala Mahanta

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Articulation of consonants - 1

Lecture 2 - Articulation of consonants - 2

Lecture 3 - Articulation of vowels

Lecture 4 - Language endangerment and linguistic diversity

Lecture 5 - Linguistic diversity - consonants in the languages of the world

Lecture 6 - Linguistic diversity - consonants and vowels in the languages of the world

Lecture 7 - Linguistic diversity - conclusion

Lecture 8 - Acoustic analysis: sound waves

Lecture 9 - Acoustic analysis: source filter theory and spectrograms

Lecture 10 - Acoustic analysis: vowels and formants

Lecture 11 - Acoustic analysis: formant calculation

Lecture 12 - Perceptual cues, variability in the speech signal, acoustic-phonetic invariance

Lecture 13 - Segmentation problem, categorical perception, cp in infants and animals

Lecture 14 - Measuring perceptual distinctiveness, multidimensional scaling, speech perception theories

Lecture 15 - development of the ideas of phonemes and features

Lecture 16 - phonemes as categories, phonemes in different languages, allophonic rules

Lecture 17 - problems in phonemic analysis, context and phonotactics

Lecture 18 - Psychological reality of phonemes

Lecture 19 - Distinctive features and natural classes

Lecture 20 - Phonological rule application

Lecture 21 - Distinctive features, feature economy and markedness

Lecture 22 - Morphophonological rules

Lecture 23 - Syllables

Lecture 24 - Stress

Lecture 25 - Phonetics and phonology of intonation, microprosody, stylization

Lecture 26 - Nuclear tone, pitch accent and boundary tones

Lecture 27 - Focus, givenness

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Philosophical Foundations of Social Research

Subject Co-ordinator - Prof. Sambit Mallick

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Empiricism and Rationalism
- Lecture 2 - Comte and Positivism; Epistemology and Ontology
- Lecture 3 - The Rules of Sociological Method
- Lecture 4 - Sociology of Knowledge
- Lecture 5 - Religion and the Division of Labour in Society
- Lecture 6 - Positivism and Neo-Kantianism
- Lecture 7 - Methodology of the Social Sciences
- Lecture 8 - Interpretive Sociology
- Lecture 9 - Methodological Individualism and Interpretative Understanding of Social Action
- Lecture 10 - Weberian Social Sciences: Methodological Implications
- Lecture 11 - Materialist Conception of History
- Lecture 12 - Dialectic
- Lecture 13 - Nature, Ideology and Science
- Lecture 14 - Systematic Falsification
- Lecture 15 - Hypothetico - Deductive Model
- Lecture 16 - The Structure of Scientific Revolutions
- Lecture 17 - Popper Versus Kuhn
- Lecture 18 - Positivism Versus Hermeneutics - I
- Lecture 19 - Positivism Versus Hermeneutics - II
- Lecture 20 - Philosophy of Social Sciences: Taking Stock
- Lecture 21 - End of the Philosophy of the Social Sciences
- Lecture 22 - Return of Grand Theory in the Human Sciences
- Lecture 23 - An Overview of the Course

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Sociology of Development

Subject Co-ordinator - Prof. Sambit Mallick

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Sociology of development: An overview
- Lecture 2 - Development historically
- Lecture 3 - Decolonization, nationalism and development - I
- Lecture 4 - Decolonization, nationalism and development - II
- Lecture 5 - Decolonization, nationalism and development - III
- Lecture 6 - Social evolution and social change
- Lecture 7 - Social change and progress
- Lecture 8 - Modernization Theory: An Overview
- Lecture 9 - State and Class under Peripheral Capitalism
- Lecture 10 - Critique of Samuel Huntington
- Lecture 11 - Class, State and Revolution
- Lecture 12 - The Empirical Peasantry and the Hypothetical Proletariat
- Lecture 13 - Class and Classness: Substitutes and Realities
- Lecture 14 - Modernization and Huntington's Argument
- Lecture 15 - Huntington, Social Sciences and Ideology
- Lecture 16 - The Ideological, Empirical and Methodological Critiques - I
- Lecture 17 - The Ideological, Empirical and Methodological Critiques - II
- Lecture 18 - Dependency Theory: Intellectual Antecedents
- Lecture 19 - The Latin American Debates on Underdevelopment - I
- Lecture 20 - The Latin American Debates on Underdevelopment - II
- Lecture 21 - Dependency Theory in Transition - I
- Lecture 22 - Dependency Theory in Transition - II
- Lecture 23 - Critiques of Dependency Theory - I
- Lecture 24 - Critiques of Dependency Theory - II
- Lecture 25 - Limits to Growth - I
- Lecture 26 - Limits to Growth - II
- Lecture 27 - E. F. Schmacher's Small is Beautiful
- Lecture 28 - Ivan Illich's Towards a History of Needs
- Lecture 29 - Paradigms Lost, Paradigms Regained: Development studies in the 21st century - I

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Lecture 30 - Paradigms Lost, Paradigms Regained: Development studies in the 21st century - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Environment and Development

Subject Co-ordinator - Prof. Ngamjahao Kipgen

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Development, Economic Growth and Sustainable Development
- Lecture 2 - Basic Ecosystem Ecology
- Lecture 3 - Environmentalism
- Lecture 4 - Environmental movement
- Lecture 5 - Environmentalism in the global south
- Lecture 6 - Ecofeminism
- Lecture 7 - Feminist political ecology
- Lecture 8 - Marx and ecology
- Lecture 9 - Deep ecology
- Lecture 10 - Gandhi and ecology
- Lecture 11 - Social ecology
- Lecture 12 - Religion, environment and historical roots of ecological crisis
- Lecture 13 - Biodiversity conservation ethics in Buddhism and Hinduism
- Lecture 14 - Christian religion in the age of ecological crisis
- Lecture 15 - Natural resource management
- Lecture 16 - Common property vs. private property
- Lecture 17 - Livelihoods, forests, and conservation
- Lecture 18 - Conservation-induced displacement
- Lecture 19 - Environment impact assessment and national rehabilitation and resettlement policy
- Lecture 20 - Dispossession and land acquisition
- Lecture 21 - Mining, development, and indigenous people
- Lecture 22 - Competing visions of development along the Narmada
- Lecture 23 - Dams, development, and resistance: Case studies
- Lecture 24 - Development theory and gendered approach to development
- Lecture 25 - Gender, environment and sustainable development
- Lecture 26 - Climate change interventions and policy framework
- Lecture 27 - Eastern Himalayas and climate change
- Lecture 28 - Ecological knowledge, biodiversity conservation and sustainability
- Lecture 29 - Traditional religion and conservation of nature in Northeast India: Case study

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Indigenous knowledge, environment and development
- Lecture 31 - Relevance of indigenous knowledge: Case study

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Market Structures

Subject Co-ordinator - Prof. Amarjyoti Mahanta

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Industrial Organization, Preferences
- Lecture 2 - Utility maximization and derivation of demand curve
- Lecture 3 - Examples of utility maximization, demand curve and market demand curve
- Lecture 4 - Tutorial Module 1
- Lecture 5 - Production Function
- Lecture 6 - Cost minimization problem
- Lecture 7 - Derivation of cost curves
- Lecture 8 - Tutorial on Production and cost curves
- Lecture 9 - Optimal output and supply curve of a firm
- Lecture 10 - Derivation of Market price in competitive market
- Lecture 11 - Long run market price and Pareto optimality
- Lecture 12 - Tutorial on Perfectly Competitive Market
- Lecture 13 - Monopoly price
- Lecture 14 - Price Discrimination - I
- Lecture 15 - Price Discrimination - II
- Lecture 16 - Tutorial on Monopoly
- Lecture 17 - Introduction to Game Theory, Iterated Elimination of Dominated Strategy
- Lecture 18 - Pure Strategy Nash Equilibrium
- Lecture 19 - Mixed Strategy Nash Equilibrium
- Lecture 20 - Existence of Nash Equilibrium in Games with 2 Players and 2 Strategies
- Lecture 21 - Tutorial on Normal Form Games
- Lecture 22 - Dynamic Games, Backward Induction
- Lecture 23 - Subgame Perfect Nash Equilibrium
- Lecture 24 - Tutorial on Dynamic Games
- Lecture 25 - Cournot Duopoly
- Lecture 26 - Cournot Oligopoly
- Lecture 27 - Tutorial on Cournot Competition
- Lecture 28 - Bertrand Competition with and without fixed cost
- Lecture 29 - Bertrand Competition with capacity constraint

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Bertrand Competition with capacity constraint
- Lecture 31 - Tutorial on Bertrand Competition
- Lecture 32 - Bertrand Competition with Decreasing returns to scale
- Lecture 33 - Stackelberg Quantity Competition
- Lecture 34 - Tutorial on Bertrand Competition and Stackelberg Quantity Competition
- Lecture 35 - Stackelberg Price Competition
- Lecture 36 - Simultaneous move Hotelling Model
- Lecture 37 - Tutorial on Stackelberg Price Competition
- Lecture 38 - Sequential Move Hotelling Model
- Lecture 39 - Dixit's Model of Entry Deterrence
- Lecture 40 - Tutorial on Sequential move Hotelling Model
- Lecture 41 - Dixit's Model of Entry Deterrence
- Lecture 42 - Bundling and Tying
- Lecture 43 - Tutorial on Dixit's Model of Entry Deterrence

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Mathematics for Economics - I

Subject Co-ordinator - Prof. Debarshi Das

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Aim of the course, real numbers
- Lecture 2 - Logic, proof
- Lecture 3 - Definitions
- Lecture 4 - Set operations
- Lecture 5 - Definitions
- Lecture 6 - Linear functions
- Lecture 7 - Quadratic functions
- Lecture 8 - Exponential functions, etc.
- Lecture 9 - Differentiation: preliminaries
- Lecture 10 - Rules of differentiation
- Lecture 11 - Partial differentiation
- Lecture 12 - Higher order differentiations
- Lecture 13 - Approximations and elasticities
- Lecture 14 - Differentiability, series, PDV
- Lecture 15 - NPV, evaluation of investment projects
- Lecture 16 - Exponential, logarithmic functions
- Lecture 17 - Tutorials - 1a
- Lecture 18 - Tutorials - 1b
- Lecture 19 - Tutorials - 1c
- Lecture 20 - Extreme, stationary points, first derivative test
- Lecture 21 - Global and local extreme points
- Lecture 22 - Second derivative test
- Lecture 23 - Inflection points
- Lecture 24 - Profit maximizations
- Lecture 25 - Area under a curve, indefinite integral
- Lecture 26 - Definite integral
- Lecture 27 - Oil extraction, income distribution, PDV
- Lecture 28 - Integration by parts, substitution, Lorenz curve
- Lecture 29 - First order difference equations, solution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dynamic stability, Cobweb model
- Lecture 31 - Market model with inventory, Phase diagrams, Higher order equations
- Lecture 32 - Multiplier-acceleration model
- Lecture 33 - Tutorials - 2a
- Lecture 34 - Tutorials - 2b

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Language, Culture and Cognition: An Introduction

Subject Co-ordinator - Prof. Bidisha Som

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Nature of human thought - I

Lecture 2 - Brain and cognition, Seat of thought - II

Lecture 3 - Language, meaning, reality - III

Lecture 4 - Categorization

Lecture 5 - Categorization: (Continued...)

Lecture 6 - Frames: another way to understand categories

Lecture 7 - Metaphor

Lecture 8 - Metaphor and Metonymy

Lecture 9 - Image schema

Lecture 10 - Image schema (Continued...)

Lecture 11 - Language acquisition

Lecture 12 - Language acquisition (Continued...)

Lecture 13 - Language in the brain

Lecture 14 - Language in the brain (Continued...)

Lecture 15 - Language and attention

Lecture 16 - Language and visual attention

Lecture 17 - Attention in Sentence processing

Lecture 18 - Executive control/function and its facets

Lecture 19 - Role of executive function in language processing

Lecture 20 - Mental simulation and its relation with language; summary of the course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Bilingualism: A Cognitive and Psycholinguistic Perspective

Subject Co-ordinator - Prof. Bidisha Som

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Becoming and being bilingual

Lecture 2 - Attitude, Acculturation and Bilingualism

Lecture 3 - Who is a Bilingual ?

Lecture 4 - Bilingual acquisition among children: simultaneous bilingualism

Lecture 5 - Successive Bilingualism

Lecture 6 - Language and cognition among bilinguals

Lecture 7 - Bilingual cognition (Continued...)

Lecture 8 - Bilingual Memory Models

Lecture 9 - Bilingual brain: neural representation of languages

Lecture 10 - Data from processing studies on bilingual representation in brain

Lecture 11 - Speech perception and comprehension: theories

Lecture 12 - Speech perception and production studies

Lecture 13 - Lexical processing: background

Lecture 14 - Lexical processing: different experimental paradigms: comprehension and production

Lecture 15 - Sentence processing

Lecture 16 - Metalinguistic Awareness

Lecture 17 - Executive Control: bilingual advantage

Lecture 18 - cognitive reserve, new developments

Lecture 19 - New research trends in bilingualism

Lecture 20 - New models. Applied areas

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Psychology of Emotion: Theory and Applications

Subject Co-ordinator - Prof. Dilwar Hussain

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Emotions: Concepts and Categories
- Lecture 2 - Historical Background and Theories
- Lecture 3 - Communication and Measurement of Emotions
- Lecture 4 - Universals and cultural differences in emotions - 1
- Lecture 5 - Universals and cultural differences in emotions - 2
- Lecture 6 - Emotions and the Body
- Lecture 7 - Emotions and the Brain
- Lecture 8 - Self-evaluative emotions-Guilt, shame, Embarrassment, and pride
- Lecture 9 - Social Comparison Emotions-Envy and Jealousy
- Lecture 10 - Positive Emotions
- Lecture 11 - Happiness and Subjective Well-being - 1
- Lecture 12 - Happiness and Subjective Well-being - 2
- Lecture 13 - Emotions in Groups - 1
- Lecture 14 - Emotions in Groups - 2
- Lecture 15 - Emotions and Cognitions: Introduction
- Lecture 16 - Emotion and Memory
- Lecture 17 - Emotion and Judgment/Decesion making
- Lecture 18 - Depression
- Lecture 19 - Anxiety Disorders
- Lecture 20 - Emotion regulation: Introduction
- Lecture 21 - Adaptive emotion regulation using ABC model
- Lecture 22 - Adaptive emotion regulation using mindfulness
- Lecture 23 - Emotional intelligence: Introduction
- Lecture 24 - Skills of EI-Self-awareness
- Lecture 25 - Skills of EI-Self-regulation/Self-management
- Lecture 26 - Skills of EI-Self-Motivation
- Lecture 27 - Skills of EI-Empathy
- Lecture 28 - Skills of EI-Social intelligence and social skills
- Lecture 29 - Emotional intelligence and workplace

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Emotional intelligence, health and well-being
- Lecture 31 - Development of emotional intelligence

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Communication Skills

Subject Co-ordinator - Dr. T. Ravichandran

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Barriers to Communication - 1  
Lecture 3 - Barriers to Communication - 2  
Lecture 4 - Barriers to Communication - 3  
Lecture 5 - Non-Verbal Communication - 1  
Lecture 6 - Non-Verbal Communication - 2  
Lecture 7 - Non-Verbal Communication - 3  
Lecture 8 - Non-Verbal Communication - 4  
Lecture 9 - Non-Verbal Communication - 5  
Lecture 10 - Listening Skills - 1  
Lecture 11 - Listening Skills - 2  
Lecture 12 - Listening Skills - 3  
Lecture 13 - Business Letters Writing - 1  
Lecture 14 - Business Letters Writing - 2  
Lecture 15 - Business Letters Writing - 3  
Lecture 16 - Business Letters Writing - 4  
Lecture 17 - Report Writing - 1  
Lecture 18 - Report Writing - 2  
Lecture 19 - Group Discussion - 1  
Lecture 20 - Group Discussion - 2  
Lecture 21 - Group Discussion - 3  
Lecture 22 - Interview Skills - 1  
Lecture 23 - Interview Skills - 2  
Lecture 24 - Interview Skills - 3  
Lecture 25 - Interview Skills - 4  
Lecture 26 - Interview Skills - 5  
Lecture 27 - Interview Skills - 6  
Lecture 28 - Interview Skills - 7  
Lecture 29 - Netiquette - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Netiquette - 2
- Lecture 31 - Oral Presentation - 1
- Lecture 32 - Oral Presentation - 2
- Lecture 33 - Oral Presentation - 3
- Lecture 34 - Cross Cultural Communication - 1
- Lecture 35 - Cross Cultural Communication - 2
- Lecture 36 - Cross Cultural Communication - 3
- Lecture 37 - Cross Cultural Communication - 4
- Lecture 38 - Common Errors - 1
- Lecture 39 - Common Errors - 2
- Lecture 40 - Common Errors - 3

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Ethics

Subject Co-ordinator - Dr. Vineet Sahu

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Ethics - 'Crtio' A Socratic dialoguea
- Lecture 2 - Introduction to Ethics -An assessment of Ethical relativism
- Lecture 3 - Consequentialism -Introduction
- Lecture 4 - Consequentialism Rule and Act
- Lecture 5 - Hedonism
- Lecture 6 - Utilitarianism
- Lecture 7 - Deontological theories - Introduction
- Lecture 8 - Deontological theories - Immanuel Kant
- Lecture 9 - Ethical Rules (with reference to W D Ross)
- Lecture 10 - Situation Ethics
- Lecture 11 - Virtue Ethics
- Lecture 12 - Metaethical Theories
- Lecture 13 - Ethical Relativism
- Lecture 14 - Ethical Naturalism
- Lecture 15 - Ethical Naturalism (Continued...)
- Lecture 16 - Ethical Naturalism-Emotivism
- Lecture 17a - Ethical Non-naturalism
- Lecture 17b - Ethical Non-naturalism-II
- Lecture 18 - Non-cognitive or Nondescriptivist Theories - Intuitionism
- Lecture 19 - Non-cognitive or Nondescriptivist Theories - Intuitionism Nihilism
- Lecture 20 - Why be Moral?
- Lecture 21 - Ethics in the Indian tradition
- Lecture 22 - Theory of Karma - Part 1
- Lecture 23 - Theory of Karma - Part 2
- Lecture 24 - Nishkama Karma - Part 1
- Lecture 25 - Nishkama Karma - Part 2
- Lecture 26 - Gandhian Ethics - Part 1
- Lecture 27 - Gandhian Ethics - Part 2
- Lecture 28 - Gandhian Ethics - Part 3 (Satyagraha)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Purusharthas
- Lecture 30 - Buddhist Ethics - Part 1
- Lecture 31 - Buddhist Ethics - Part 2 - Jaina Ethics
- Lecture 32 - Some ethical issues (Applied Ethics) Discussing Peter Singer's 'Famine Affluence and Morality'
- Lecture 33 - Some ethical issues (Applied Ethics) Discussing Peter Singer's 'Famine Affluence and Morality'
- Lecture 34 - Discussing Thomas Pogge's 'Real World Justice' - Part 1
- Lecture 35 - Discussing Thomas Pogge's 'Real World Justice' - Part 2
- Lecture 36 - Discussing Thomas Pogge's 'Real World Justice' - Part 3
- Lecture 37 - Sexuality
- Lecture 38 - Sexuality

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - International Economics

Subject Co-ordinator - Dr. Somesh K. Mathur

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - International Economics  
Lecture 2 - International Economics  
Lecture 3 - International Economics  
Lecture 4 - International Economics  
Lecture 5 - International Economics  
Lecture 6 - International Economics  
Lecture 7 - International Economics  
Lecture 8 - International Economics  
Lecture 9 - International Economics  
Lecture 10 - International Economics  
Lecture 11 - International Economics  
Lecture 12 - International Economics  
Lecture 13 - International Economics  
Lecture 14 - International Economics  
Lecture 15 - International Economics  
Lecture 16 - International Economics  
Lecture 17 - International Economics  
Lecture 18 - International Economics  
Lecture 19 - International Economics  
Lecture 20 - International Economics  
Lecture 21 - International Economics  
Lecture 22 - International Economics  
Lecture 23 - International Economics  
Lecture 24 - International Economics  
Lecture 25 - International Economics  
Lecture 26 - International Economics  
Lecture 27 - International Economics  
Lecture 28 - International Economics  
Lecture 29 - International Economics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - International Economics  
Lecture 31 - International Economics  
Lecture 32 - International Economics  
Lecture 33 - International Economics  
Lecture 34 - International Economics  
Lecture 35 - International Economics  
Lecture 36 - International Economics  
Lecture 37 - International Economics  
Lecture 38 - International Economics  
Lecture 39 - International Economics  
Lecture 40 - International Economics  
Lecture 41 - International Economics  
Lecture 42 - International Economics  
Lecture 43 - International Economics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Introduction to Logic

Subject Co-ordinator - Dr. A.V. Ravishankar Sarma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Identification of Arguments

Lecture 2 - Non-arguments

Lecture 3 - Types of Arguments

Lecture 4 - Nature and Scope of Deductive and Inductive Arguments

Lecture 5 - Truth, Validity and Soundness

Lecture 6 - Strength of Inductive arguments, Counter example method

Lecture 7 - Toulmin's Model of Argumentation

Lecture 8 - Identification of Formal and Informal Fallacies

Lecture 9 - Informal Fallacies

Lecture 10 - Fallacies of Weak Induction and Fallacies arising out of ambiguity in Language

Lecture 11 - Introduction and motivation for Syllogistic Logic

Lecture 12 - Aristotle theory of Syllogisms - 1

Lecture 13 - Syllogistic Poem, Reduction of Syllogisms

Lecture 14 - Syllogistic Poem, Reduction of Syllogisms

Lecture 15 - Nature and Scope of Propositional Logic

Lecture 16 - Syntax of Propositional Logic

Lecture 17 - Logical Connectives

Lecture 18 - Truth Table Method

Lecture 19 - Semantic Tableaux Method for Propositional Logic

Lecture 20 - Knights and Knaves Puzzles

Lecture 21 - Semantic Tableaux Method

Lecture 22 - Natural Deduction Method

Lecture 23 - Natural Deduction

Lecture 24 - Conjunctive and Disjunctive Normal Forms

Lecture 25 - CNF, DNF and satisfiability and Validity

Lecture 26 - Resolution and refutation method

Lecture 27 - Resolution and refutation method

Lecture 28 - Axiomatic Propositional Logic

Lecture 29 - Hilbert Ackermann Axiomatic system

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- Lecture 30 - Proofs in the PM system
- Lecture 31 - Hilbert and Ackermann System
- Lecture 32 - Outlines of Predicate Logic
- Lecture 33 - Outlines of Predicate Logic
- Lecture 34 - Building blocks of Predicate Logic
- Lecture 35 - Quantifiers, freedom, bondage
- Lecture 36 - Translation in to predicate Logic
- Lecture 37 - Semantics of Predicate Logic
- Lecture 38 - Truth, satisfiability, validity in Predicate Logic
- Lecture 39 - Formation Trees for wffs in predicate Logic
- Lecture 40 - Semantic Tableaux Method for Predicate Logic
- Lecture 41 - Semantic Tableaux method
- Lecture 42 - Natural Deduction in Predicate Logic
- Lecture 43 - Important theorems in First order Logic
- Lecture 44 - Limitations of first order logic and Introduction to the course

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Population and Society

Subject Co-ordinator - Prof. A.K. Sharma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Basics Concepts
- Lecture 3 - Perspectives On Population
- Lecture 4 - Indian Society
- Lecture 5 - Social Change in India
- Lecture 6 - India
- Lecture 7 - Methodology
- Lecture 8 - Primary and Secondary Data and Related Issues
- Lecture 9 - Sources of Population Data
- Lecture 10 - Participatory Rural Appraisal
- Lecture 11 - Demographic Models - I
- Lecture 12 - Demographic models - II
- Lecture 13 - Contemporary Issues In Modelling Population Processes
- Lecture 14 - World Population Growth
- Lecture 15 - Demographic Transition in the Nineteenth and Twentieth Centuries
- Lecture 16 - Demographic schism between Developed and Developing Countries and Future Prospects
- Lecture 17 - History Of Growth
- Lecture 18 - Population of India - II
- Lecture 19 - Trends In Death and Birth Rates
- Lecture 20 - Population projections, Migration and Future Prospects
- Lecture 21 - Urbanization and Development
- Lecture 22 - Urbanization in India
- Lecture 23 - Theories Of urbanization and Development
- Lecture 24 - Future Of Urbanization In India
- Lecture 25 - Population Theories
- Lecture 26 - Marxist theory Of Population
- Lecture 27 - Demographic Transition Theory and Related Issues
- Lecture 28 - Gandhian Theory Of population
- Lecture 29 - Population Policy

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- Lecture 30 - Effectiveness Of population Policies
- Lecture 31 - Family Planning Programme and Beyond
- Lecture 32 - National Population Policy
- Lecture 33 - The First Policy Statement
- Lecture 34 - Subsequent Developments Leading To National Population Policy 2000
- Lecture 35 - Ecological Degradation and Environmental Protection
- Lecture 36 - Differences In Perception Between Developed and Developing Countries
- Lecture 37 - Total Environment Impact and Beliefs
- Lecture 38 - Emerging Issues In sociology Of Population
- Lecture 39 - Population Issues In The framework of MDGs
- Lecture 40 - Population Issues (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Macro Economics

Subject Co-ordinator - Prof. Surajit Sinha

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Introduction to Sociology

Subject Co-ordinator - Prof. A.K. Sharma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is sociology?
- Lecture 2 - Sociological approaches
- Lecture 3 - Nature of society
- Lecture 4 - Cooperation and conflict
- Lecture 5 - Family-I
- Lecture 6 - Family-II
- Lecture 7 - State-I
- Lecture 8 - State-II
- Lecture 9 - State-III
- Lecture 10 - State-IV
- Lecture 11 - Sociology of work-I
- Lecture 12 - Sociology of work-II
- Lecture 13 - Sociology of work-III
- Lecture 14 - Sociology of work-IV
- Lecture 15 - Religion-I
- Lecture 16 - Religion-II
- Lecture 17 - Religion-III
- Lecture 18 - What is sociology?
- Lecture 19 - Religion-V
- Lecture 20 - Religion-VI
- Lecture 21 - Education-I
- Lecture 22 - Education-II
- Lecture 23 - Social stratification-I
- Lecture 24 - Social stratification-II
- Lecture 25 - Social stratification-III
- Lecture 26 - Social stratification-IV
- Lecture 27 - Deviance-I
- Lecture 28 - Deviance-II
- Lecture 29 - Deviance-III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Social change-I
- Lecture 31 - Social change-II
- Lecture 32 - Social change-III
- Lecture 33 - Social change-IV
- Lecture 34 - Population-I
- Lecture 35 - Population-II
- Lecture 36 - Perspectives in Sociology-I
- Lecture 37 - Perspectives in Sociology-II
- Lecture 38 - Social Problems and Theory
- Lecture 39 - Sociological methods-I
- Lecture 40 - Sociological methods-II
- Lecture 41 - Sociological methods-III

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Money and Banking

Subject Co-ordinator - Prof. Surajit Sinha

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
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Lecture 23  
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Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Human Adjustment Processes

Subject Co-ordinator - Prof. Braj Bhushan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Module-1 - Lecture-1  
Module-1 - Lecture-2  
Module-1 - Lecture-3  
Module-1 - Lecture-4  
Module-2 - Lecture-1  
Module-2 - Lecture-2  
Module-2 - Lecture-3  
Module-3 - Lecture-1  
Module-4 - Lecture-1  
Module-4 - Lecture-2  
Module-4 - Lecture-3  
Module-4 - Lecture-4  
Module-4 - Lecture-5  
Module-4 - Lecture-6  
Module-4 - Lecture-7  
Module-4 - Lecture-8  
Module-4 - Lecture-9  
Module-5 - Lecture-1  
Module-5 - Lecture-2  
Module-5 - Lecture-3  
Module-6 - Lecture-1  
Module-6 - Lecture-2  
Module-6 - Lecture-3  
Module-6 - Lecture-4  
Module-7 - Lecture-1  
Module-7 - Lecture-2  
Module-7 - Lecture-3  
Module-7 - Lecture-4  
Module-7 - Lecture-5

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Module-8 - Lecture-1  
Module-8 - Lecture-2  
Module-8 - Lecture-3  
Module-8 - Lecture-4  
Module-9 - Lecture-1  
Module-9 - Lecture-2  
Module-9 - Lecture-3  
Module-9 - Lecture-4  
Module-9 - Lecture-5  
Module-10 - Lecture-1  
Understanding Oneself

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Selected Topics in Psychology

Subject Co-ordinator - Prof. Manas K Mandal, Prof. JBP Sinha, Prof. Alok Bajpai, Prof. Rakesh K. Gupta,  
Prof. Ramadhar Singh, Prof. Braj Bhushan, Prof. Vivek Benegal, Prof. Ajit Dalal,  
Prof. Girishwar Misra

Co-ordinating Institute - DRDO | ASSERT | Institute of Management Studies | Consultant Psychiatrist,  
Fortis Memorial Research Institute | IIM - Bangalore | IIT - Kanpur | NIMHANS |  
University of Allahabad | University of Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction Selected Topics in Psychology
- Lecture 2 - Psychology
- Lecture 3 - Psychology
- Lecture 4 - Beginning, growth and decline of Western psychology in India
- Lecture 5 - The core and context of Indian psychology
- Lecture 6 - The indigenization of psychology in India
- Lecture 7 - Weaving culture into psychology
- Lecture 8 - Culture and Self
- Lecture 9 - Cultural and organizational behaviour
- Lecture 10 - How do similar attitudes determine attraction?
- Lecture 11 - Why do similar attitudes determine attraction?
- Lecture 12 - A beautiful mind? Perspective on brain , mind and it's challenges
- Lecture 13 - Emotion and well?being
- Lecture 14 - Mental health and illness - Part 1
- Lecture 15 - Mental health and illness - Part 2
- Lecture 16 - Folk Healing Traditions in India
- Lecture 17 - To sleep or not
- Lecture 18 - Issues and challenges in psychological assessment
- Lecture 19 - Nontraditional research in behavioural sciences
- Lecture 20 - What a surprise
- Lecture 21 - Neuropsychology and cognitive neuroscience research
- Lecture 22 - Functional MRI in psychology - Part 1
- Lecture 23 - Functional MRI in psychology - Part 2
- Lecture 24 - Side bias in human behaviour
- Lecture 25 - Brain microstructural correlates of cognition in Cerebral Palsy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 26 - Brain microstructural correlates of cognition in vitamin B12 deficiency
- Lecture 27 - The neuroscience of addictive behaviour
- Lecture 28 - Who is at risk and why? The neurogenetics of vulnerability to addiction - Part 1
- Lecture 29 - Who is at risk and why? The neurogenetics of vulnerability to addiction - Part 2
- Lecture 30 - The gambler's lament
- Lecture 31 - Art and the brain - Part 1
- Lecture 32 - Art and the brain - Part 2
- Lecture 33 - Technological advances in other areas and their impact on psychology
- Lecture 34 - Positioning the state of psychology in India in the global scenario
- Lecture 35 - Introduction Selected Topics in Psychology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Elements of Visual Representation

Subject Co-ordinator - Dr. Shatarupa Thakurta Roy

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Visual Literacy
- Lecture 2 - What is Art? Visual styles
- Lecture 3 - Principle of Visual Communication
- Lecture 4 - Elements of Visual Representation
- Lecture 5 - Need of Visual Harmony, Aerial Perspective in Visual Representation
- Lecture 6 - Visual Mediums Method and Material
- Lecture 7 - Visual Arrangement
- Lecture 8 - Illusion of Space Overlapping and Vertical Location
- Lecture 9 - Multiple point Perspective, Cubist form
- Lecture 10 - Oriental Perspective, Isometric Projection
- Lecture 11 - Unconventional Space, Visual Riddle
- Lecture 12 - Perspective, Foreshortening and Amplification
- Lecture 13 - Static Form
- Lecture 14 - Impression of Movement
- Lecture 15 - Movement by Repetition
- Lecture 16 - Use of Multiple Image to Depict Motion
- Lecture 17 - Principle of Op Art
- Lecture 18 - Asymmetry in Visual Narration
- Lecture 19 - Scale and Space in Composition
- Lecture 20 - Choosing the Right Scale
- Lecture 21 - Natural Proportion
- Lecture 22 - Ideal Proportion
- Lecture 23 - Arbitrary and Mandatory Proportion
- Lecture 24 - Form of Visual Paradox
- Lecture 25 - Line as Line and Line as Shape
- Lecture 26 - Character Specific Use of Line in Visual Representation
- Lecture 27 - Implied, Psychic, Contour Line and Gesture Line
- Lecture 28 - Line as Building Block
- Lecture 29 - Line for Rendering

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quality of Line in Visual Expression
- Lecture 31 - Example of Unified Composition
- Lecture 32 - Visual Continuity
- Lecture 33 - Gestalt law of Universal Whole
- Lecture 34 - Unity in Variation. Visual Climax and Harmony
- Lecture 35 - Degree of Emphasis to Maintain Harmony
- Lecture 36 - Rhythm and Motion in Visual Representation Alternating and Progressing Arrangement
- Lecture 37 - Visual Balance in Symmetry, Radial and Crystallographic Balance
- Lecture 38 - Balance in Asymmetry
- Lecture 39 - Visual Balance in Colour Combination, Conflicting Colours
- Lecture 40 - Balance through Achromatic Value Distribution
- Lecture 41 - Local, optical and Arbitrary colour
- Lecture 42 - Colour in Digital Media Pigment and Light, Resolution
- Lecture 43 - Rectilinear and Curvilinear Form
- Lecture 44 - Volume and Surface Texture
- Lecture 45 - Visual and Tactile Texture
- Lecture 46 - Form, Texture and Pattern
- Lecture 47 - Visual Analysis
- Lecture 48 - Steps of Problem Solving

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Practical English: Learning and Teaching

Subject Co-ordinator - Dr. Bhaskar Dasgupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
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Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC: Brief introduction to Psychology

Subject Co-ordinator - Braj Bhushan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Psychiatry:An overview

Subject Co-ordinator - Mr. Alok Bajpai

Co-ordinating Institute - Consultant Psychiatrist

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Neuroanatomy
- Lecture 2 - Neurophysiology
- Lecture 3 - Imaging
- Lecture 4 - Electrophysiology
- Lecture 5 - Psychology
- Lecture 6 - Mental Status Examination 1 & 2
- Lecture 7 - Classificatory Systems
- Lecture 8 - Investigation and Psychological Testing
- Lecture 9 - Organic Syndromes
- Lecture 10 - Schizophrenia
- Lecture 11 - Mood Disorders
- Lecture 12 - Anxiety Disorders
- Lecture 13 - Obsessive Compulsive Disorder
- Lecture 14 - Childhood Disorder Introduction
- Lecture 15 - Autism
- Lecture 16 - Learning Disability
- Lecture 17 - ADHD
- Lecture 18 - Personality Disorder
- Lecture 19 - Sleep Disorder 1
- Lecture 20 - Sleep Disorder 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Indian Art - An appreciation

Subject Co-ordinator - Prof.Soumik Nandy Majumdar

Co-ordinating Institute - Visva Bharati University, Santiniketan

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Geographical Expanse
- Lecture 2 - Chronological Journey
- Lecture 3 - Forms of Indian Architecture
- Lecture 4 - Variations in Indian Sculpture
- Lecture 5 - Formats of Indian Painting
- Lecture 6 - Pre-historic art
- Lecture 7 - Ancient Art
- Lecture 8 - Early Buddhist Art
- Lecture 9 - Art of the Royal Dynasty
- Lecture 10 - Islamic Architecture
- Lecture 11 - Wonder from Classical period
- Lecture 12 - Narrative Art in Sculpture
- Lecture 13 - Narrative Art in Miniature Painting
- Lecture 14 - Indigenous Art
- Lecture 15 - Indigenous Art
- Lecture 16 - End of Traditional Art - Advent of the British
- Lecture 17 - Art patronized by the Colonial Rulers
- Lecture 18 - Art for National Cause
- Lecture 19 - Art in the post-independent India
- Lecture 20 - Art Now - Trends in contemporary art

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Basic Concepts of Modal Logic

Subject Co-ordinator - Dr. A.V. Ravishankar Sarma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is logic? General Introduction
- Lecture 2 - Propositional Logic
- Lecture 3 - Propositional Logic
- Lecture 4 - Semantic Tableaux Method for Propositional Logic
- Lecture 5 - Semantic Tableaux Method
- Lecture 6 - Semantic Tableaux Method-3
- Lecture 7 - Limitations of Classical Logic
- Lecture 8 - Origin of Modal Logic
- Lecture 9 - Origin of Modal Logic
- Lecture 10 - Strict Implication
- Lecture 11 - Strict Implication
- Lecture 12 - Language of Normal Modal Logic
- Lecture 13 - Language of Modal Logic, Modal Sentences - 1
- Lecture 14 - Language of Modal Logic 2
- Lecture 15 - Axiomatic Modal Logic
- Lecture 16 - Semantics of Modal Logic
- Lecture 17 - Kripke semantics for Modal Logic systems
- Lecture 18 - Kripke semantics for Modal Logic
- Lecture 19 - Kripke Semantics for Modal Logic
- Lecture 20 - Semantic Tableaux method - I
- Lecture 21 - Semantic Tableaux method - II
- Lecture 22 - Possible worlds and Modal realism
- Lecture 23 - Conditional logic introduction
- Lecture 24 - Conditional logic C
- Lecture 25 - Conditional logics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Probability and Stochastic for Finance II

Subject Co-ordinator - Dr. Joydeep Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Interest Rates
- Lecture 2 - Fixed Income Securities
- Lecture 3 - Term Structure of Interest Rates - I
- Lecture 4 - Optimization Models In Finance
- Lecture 5 - Crash course on KKT Condition
- Lecture 6 - Mean Variance Portfolio Optimization - I
- Lecture 7 - Mean Variance Portfolio Optimization - II
- Lecture 8 - Mean Variance Portfolio Optimization - III
- Lecture 9 - Mean Variance Portfolio Optimization - IV
- Lecture 10 - Last lecture on Portfolio Optimization
- Lecture 11 - Capital Asset Pricing Model
- Lecture 12 - The Binomial Model [Lox-Ross-Rubenstein Model]
- Lecture 13 - The Binomial Method - II
- Lecture 14 - Binomial Method - III (Multi-period model)
- Lecture 15 - Binomial model - IV
- Lecture 16 - Girsanov's Theorem (Basic tool)
- Lecture 17 - Girsanov's Theorem (Statement and proof)
- Lecture 18 - Stock price under risk neutral measure
- Lecture 19 - The Black Scholes formula
- Lecture 20 - Final Lecture

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Psychology

Subject Co-ordinator - Braj Bhushan

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Major Areas of Psychology
- Lecture 2 - Major Milestones in Psychology
- Lecture 3 - Methods in Psychology
- Lecture 4 - Schools of thoughts in Psychology
- Lecture 5 - Sensory Mechanisms
- Lecture 6 - External Factors in Perception
- Lecture 7 - Theory of Signal Detection
- Lecture 8 - Gestalt Principles
- Lecture 9 - Form Perception
- Lecture 10 - Role of Culture in Perception
- Lecture 11 - Basic Concepts of Learning
- Lecture 12 - Classical Conditioning
- Lecture 13 - Concepts and Applications of Classical Conditioning
- Lecture 14 - Operant Conditioning
- Lecture 15 - Observational Learning
- Lecture 16 - Cognitive Learning
- Lecture 17 - Models of Memory
- Lecture 18 - Short Term Memory - Storage and Retention
- Lecture 19 - Long Term Memory - Episodic Memory
- Lecture 20 - Long Term Memory - Autobiographical and Semantic Memory
- Lecture 21 - Long Term Memory - Procedural Memory
- Lecture 22 - Forgetting
- Lecture 23 - Theories of Emotion - 1
- Lecture 24 - Theories of Emotion - 2
- Lecture 25 - Basic Emotions
- Lecture 26 - Culture and Emotions
- Lecture 27 - Musculature Analysis of Facial Expressions
- Lecture 28 - Biological Basis of Emotion
- Lecture 29 - Nature vs Nurture

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Behavioural Genetics - I
- Lecture 31 - Behavioural Genetics - II
- Lecture 32 - Intelligence
- Lecture 33 - Aptitude
- Lecture 34 - Various Perspectives of Personality
- Lecture 35 - Neo Freudian and Behaviourist Perspective
- Lecture 36 - Behaviourist and Humanistic Perspective
- Lecture 37 - Indian Perspective of Personality and Assessment of Personality
- Lecture 38 - Psychometric tests of Personality Assessment
- Lecture 39 - Lab Session 1
- Lecture 40 - Lab Session 2
- Lecture 41 - Lab Session 3
- Lecture 42 - Lab Session 4
- Lecture 43 - Lab Session 5

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Folk and Minor Art in India

Subject Co-ordinator - Dr. Shatarupa Thakurta Roy

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Changing Definition of Folk and Minor Art
- Lecture 2 - Timelines and Regions
- Lecture 3 - Traditional Roots
- Lecture 4 - Timelessness
- Lecture 5 - Evolution in Purpose
- Lecture 6 - Contemporary Practice
- Lecture 7 - Classification and Connections
- Lecture 8 - Early Literary Resources
- Lecture 9 - Mythical Associations
- Lecture 10 - Idea of Nationalism and Modernism in the Context of Folk Art-I and II
- Lecture 11 - Relevance of the Art Practice
- Lecture 12 - Contextualization and Decontextualization
- Lecture 13 - Concept of Communication for Social Purpose
- Lecture 14 - Aesthetic Perspective
- Lecture 15 - Secularity and Religious Plurality
- Lecture 16 - Ethnographic perspective on the study of Folk Art and Culture
- Lecture 17 - About the Exponents who brought the culture under the Limelight
- Lecture 18 - Commonality and Congruity in the Diverse Content of Art
- Lecture 19 - School of Art in Madhubani Painting
- Lecture 20 - Art as a Feminine Preserve vs the Male painters of Madhubani
- Lecture 21 - Yamapata, Pytkar and other art practice of Jharkhand
- Lecture 22 - Patachitra of Bengal
- Lecture 23 - Patachitra of Odisha
- Lecture 24 - Continuum of the Practice
- Lecture 25 - Continuum of the Practice
- Lecture 26 - Continuum of the Practice
- Lecture 27 - Case study-1
- Lecture 28 - Case study-2
- Lecture 29 - Case study-3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Characteristics of Contemporary Collection - Semiotic Analysis
- Lecture 31 - Characteristics of Contemporary Collection - Thematic and Iconic Analysis
- Lecture 32 - Characteristics of Contemporary Collection of Indian Folk and Minor Art
- Lecture 33 - Thematic Change in Contemporary Collection of Indian Folk and Minor Art
- Lecture 34 - Individual Expression in Contemporary Collection of Indian Folk and Minor Art
- Lecture 35 - Cultural Condition
- Lecture 36 - Cultural Condition
- Lecture 37 - Contextualizing Folk idiom - Part I
- Lecture 38 - Contextualizing Folk idiom - Part II
- Lecture 39 - Contextualizing Folk idiom - Part III
- Lecture 40 - Coexistence and Collaborations with Mainstream Art
- Lecture 41 - Alternative Context
- Lecture 42 - Need of Paradigm Shift - I
- Lecture 43 - Need of Paradigm Shift - II
- Lecture 44 - Endnote

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Developing Soft Skills and Personality

Subject Co-ordinator - Dr. T. Ravichandran

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Planning and Goal-Setting
- Lecture 3 - Human Perceptions
- Lecture 4 - Types of Soft Skills
- Lecture 5 - Aiming for Excellence
- Lecture 6 - Need Achievement and Spiritual Intelligence
- Lecture 7 - Conflict Resolution Skills
- Lecture 8 - Inter-Personal Conflicts
- Lecture 9 - Inter-Personal Conflicts
- Lecture 10 - Types of Conflicts
- Lecture 11 - Types of Stress
- Lecture 12 - Regulating Stress
- Lecture 13 - Habits
- Lecture 14 - Habits
- Lecture 15 - Habits
- Lecture 16 - Breaking Bad Habits
- Lecture 17 - Using the Zeigarnik Effect for Productivity and Personal Growth
- Lecture 18 - Forming Habits of Success
- Lecture 19 - Communication
- Lecture 20 - Communication
- Lecture 21 - Communication
- Lecture 22 - Telephone Communication
- Lecture 23 - Telephone Communication
- Lecture 24 - Telephone Communication
- Lecture 25 - Technology and Communication
- Lecture 26 - Technology and Communication
- Lecture 27 - Topic
- Lecture 28 - Technology and Communication
- Lecture 29 - Technology and Communication

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Technology and Communication
- Lecture 31 - Communication Skills
- Lecture 32 - Barriers to Communication
- Lecture 33 - Barriers to Communication
- Lecture 34 - Barriers To Communication
- Lecture 35 - Non-Verbal Communication
- Lecture 36 - Non-Verbal Communication
- Lecture 37 - Nonverbal Communication
- Lecture 38 - Non-Verbal Communication
- Lecture 39 - Non-Verbal Communication
- Lecture 40 - Non-Verbal Communication
- Lecture 41 - Body Language
- Lecture 42 - Body Language
- Lecture 43 - Lecture 43
- Lecture 44 - Presentation Skills
- Lecture 45 - Presentation Skills
- Lecture 46 - Presentation Skills
- Lecture 47 - Reading Skills
- Lecture 48 - Human Relations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:How the Brain Creates Mind

Subject Co-ordinator - Alok Bajpai

Co-ordinating Institute - Consultant Psychiatrist

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Brain - 1  
Lecture 2 - Brain - 2  
Lecture 3 - Brain - 3  
Lecture 4 - Electrical Activity In Brain - 1  
Lecture 5 - Electrical Activity In Brain - 2  
Lecture 6 - EEG  
Lecture 7 - Dynamics - 1  
Lecture 8 - Dynamics - 2  
Lecture 9 - Dynamics - 3  
Lecture 10 - Dynamics - 4  
Lecture 11 - Cognition and Emotions - 1  
Lecture 12 - Cognition and Emotions - 2 Edit Lesson  
Lecture 13 - Cognition and Emotions - 3  
Lecture 14 - Cognition and Emotions - 4  
Lecture 15 - Consciousness  
Lecture 16 - Sleep - 1  
Lecture 17 - Sleep - 2  
Lecture 18 - Sleep - 3  
Lecture 19 - Future of Brain - 1  
Lecture 20 - Future of Brain - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Understanding Design Thinking and People Centred De

Subject Co-ordinator - Prof. Jhumkee Iyengar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Design Thinking

Lecture 2 - The Need to be People Centered

Lecture 3 - People Centered Design Methodology

Lecture 4 - Examine and Reflect on the Problem

Lecture 5 - Reconsider and arrive at the "right" problem to solve

Lecture 6 - Research with Users and their Contexts

Lecture 7 - Question Framing and Conducting Research

Lecture 8 - User Stories and Themes

Lecture 9 - Personas

Lecture 10 - Insight Statements, "How Might We" Questions, Design Strategy Statement

Lecture 11 - Generating Ideas

Lecture 12 - Top Five Ideas

Lecture 13 - Bundle Ideas and Create a Concept

Lecture 14 - Scenarios and Storyboards

Lecture 15 - Rapid Prototyping

Lecture 16 - Importance of Testing with People

Lecture 17 - Testing your Design with People

Lecture 18 - Conducting the Usability Test

Lecture 19 - Record Results, Enhance, Retest and Refine Design

Lecture 20 - Create a Pitch for your Design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Enhancing Soft Skills and Personality

Subject Co-ordinator - Dr. T. Ravichandran

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction  
Lecture 3 - MIND-SET-1  
Lecture 4 - MIND-SET-2  
Lecture 5 - MIND-SET-3  
Lecture 6 - Managing Time-1  
Lecture 7 - Managing Time-2  
Lecture 8 - Handling Delay-1  
Lecture 9 - Handling Delay-2  
Lecture 10 - Assertiveness - 1  
Lecture 11 - Assertiveness - 2  
Lecture 12 - Assertiveness - 3  
Lecture 13 - Managing Negative Emotions  
Lecture 14 - Channelizing Positive Emotions - 1  
Lecture 15 - Channelizing Positive Emotions - 2  
Lecture 16 - People Skills-1-What Makes Others Dislike You  
Lecture 17 - People Skills-2-What Makes Others Like You - 1  
Lecture 18 - People Skills-3  
Lecture 19 - People Skills-4-Being Attractive - 1  
Lecture 20 - People Skills-5-Being Attractive - 2  
Lecture 21 - English Skills  
Lecture 22 - English Skills-2  
Lecture 23 - English Skills-3  
Lecture 24 - English Skills-4  
Lecture 25 - English Skills-5  
Lecture 26 - Significance of Humour in Communication - 1  
Lecture 27 - Humour in the Workplace  
Lecture 28 - Function of Humour in the Workplace  
Lecture 29 - Money and Personality

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Managing Money
- Lecture 31 - Health and Personality
- Lecture 32 - Managing Health-1 Importance of Exercise
- Lecture 33 - Managing Health-2 Diet and Sleep
- Lecture 34 - Love and Personality
- Lecture 35 - Managing Love
- Lecture 36 - Ethics and Etiquette
- Lecture 37 - Business Etiquette
- Lecture 38 - Managing Mind and Memory
- Lecture 39 - Improving Memory
- Lecture 40 - Care for Environment

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Postcolonial Literature

Subject Co-ordinator - Prof. Sayan Chattopadhyay

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Commonwealth Literature
- Lecture 3 - Colonial Discourse Analysis
- Lecture 4 - Colonial Discourse Analysis
- Lecture 5 - Joseph Conrad's Heart of Darkness
- Lecture 6 - Colonialism
- Lecture 7 - Chinua Achebe's Things Fall Apart - I
- Lecture 8 - Chinua Achebe's Things Fall Apart - II
- Lecture 9 - Decolonisation and the Discourse of Nationalism
- Lecture 10 - Sonnets of Henry Derozio
- Lecture 11 - Raja Rao's Kanthapura - I
- Lecture 12 - Raja Rao's Kanthapura - II
- Lecture 13 - Critics of Nationalism
- Lecture 14 - Homi Bhabha and the concept of Cultural Hybridity
- Lecture 15 - Caribbean Poetry
- Lecture 16 - Diasporic Literature
- Lecture 17 - Gayatri C. Spivak
- Lecture 18 - Mahasweta Devi's Pterodactyl - I
- Lecture 19 - Mahasweta Devi's Pterodactyl - II
- Lecture 20 - Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introducing Modern Western Art: Movements and Artists

Subject Co-ordinator - Prof.Soumik Nandy Majumdar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is Modern Art?

Lecture 2 - Pre-history of Modern Art

Lecture 3 - Chronology of Modern Western Art

Lecture 4 - Beginning(s) of Modern Art - 1 (Romanticism and Realism)

Lecture 5 - Beginning(s) of Modern Art - 2 (Impressionism and Post - Impressionism)

Lecture 6 - Fauvism and Matisse

Lecture 7 - Cubism and Picasso

Lecture 8 - Futurism and Dada-ism

Lecture 9 - Surrealism

Lecture 10 - German Expressionism

Lecture 11 - Rodin - the precursor of Modern Sculpture

Lecture 12 - From Figuration to Abstract (Henry Moore and Brancusi)

Lecture 13 - Pure Abstract Sculpture (Constructivism and Minimalism)

Lecture 14 - Introspection and Innovations (Giacometti and Calder)

Lecture 15 - Outdoor Sculpture and Public Art

Lecture 16 - Abstract Painting (Picasso, Paul Klee, Mondrian)

Lecture 17 - Abstract Expressionism

Lecture 18 - Art and Optical Science: Op Art

Lecture 19 - Art and the Mass Culture: Pop Art

Lecture 20 - Contemporary Trends: Breaking the Barriers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Cognition, Transformation and Lives

Subject Co-ordinator - Alok Bajpai

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Cognition, Emotion and Transformation
- Lecture 2 - Self and Others
- Lecture 3 - Human Cognition
- Lecture 4 - Cognition and Human Behaviour
- Lecture 5 - Human Emotions
- Lecture 6 - Understanding Emotions
- Lecture 7 - Stories from the Brain
- Lecture 8 - Stories from the Brain (Continued...)
- Lecture 9 - Humans and Madness
- Lecture 10 - Humans and Madness (Continued...)
- Lecture 11 - Vices and Virtues
- Lecture 12 - Change and its Context
- Lecture 13 - Can we transform?
- Lecture 14 - Need for transformation
- Lecture 15 - Process of Transformation
- Lecture 16 - Biographical models of transformations
- Lecture 17 - Biographical narrative of Gandhi
- Lecture 18 - Gandhi's process of transformation
- Lecture 19 - Transformation and Ethics
- Lecture 20 - Transformation and Society

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Visual Perception and Art - A Survey Across the Cul

Subject Co-ordinator - Prof.Soumik Nandy Majumdar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introductory Lecture  
Lecture 2 - What is Visual Perception?  
Lecture 3 - Visual Perception and Visual Reality  
Lecture 4 - Visual Perception and Creativity - 1  
Lecture 5 - Visual Perception and Creativity - 2  
Lecture 6 - Child art  
Lecture 7 - Pre-historic art  
Lecture 8 - Folk art  
Lecture 9 - Primitive art  
Lecture 10 - Photography  
Lecture 11 - Popular visual culture  
Lecture 12 - Mimetic and Non-mimetic art  
Lecture 13 - Traditional art  
Lecture 14 - Traditional art  
Lecture 15 - Realistic art of the West  
Lecture 16 - Alternative realism  
Lecture 17 - Breakthrough in Visual Perception  
Lecture 18 - Abstract art - 1  
Lecture 19 - Abstract art - 2  
Lecture 20 - Contemporary art

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Basic Cognitive Processes

Subject Co-ordinator - Prof. ARK Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Cognitive Psychology
- Lecture 2 - A Brief History of Cognitive Psychology
- Lecture 3 - A Brief History of Cognitive Psychology (Continued...)
- Lecture 4 - Foundational Assumptions of Cognitive Psychology
- Lecture 5 - Foundations of Cognitive Psychology
- Lecture 6 - Foundations of Cognitive Psychology
- Lecture 7 - Approaches towards Cognitive Psychology
- Lecture 8 - Modularity and Cognitive Neuropsychology
- Lecture 9 - Basic Concepts in Cognitive Neuroscience
- Lecture 10 - The Cerebral Cortex
- Lecture 11 - Basics of Research Methods
- Lecture 12 - Research Methods in Cognitive Psychology
- Lecture 13 - Sensation and Perception
- Lecture 14 - Psychophysics
- Lecture 15 - Signal Detection Theory
- Lecture 16 - Physiology of Visual Perception
- Lecture 17 - Representation in Perception
- Lecture 18 - Approaches to Visual Perception - 1
- Lecture 19 - Approaches to Visual Perception - 2
- Lecture 20 - Approaches to Visual Perception - 3
- Lecture 21 - Theories of Object Recognition
- Lecture 22 - Perception and Action
- Lecture 23 - Auditory Perception - I
- Lecture 24 - Auditory Perception - II
- Lecture 25 - Attention - I
- Lecture 26 - Attention - II
- Lecture 27 - Attention - III
- Lecture 28 - Attention - IV
- Lecture 29 - Memory - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Memory - II
- Lecture 31 - Memory - III
- Lecture 32 - Memory - IV
- Lecture 33 - Memory - V
- Lecture 34 - Memory - VI
- Lecture 35 - Memory - VII
- Lecture 36 - Everyday Memory and Memory Errors
- Lecture 37 - Disorders for Perception and Attention
- Lecture 38 - Disorders of Memory
- Lecture 39 - Summary and Q & A

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Calculus of One Real Variable

Subject Co-ordinator - Dr. Joydeep Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Numbers
- Lecture 2 - Countability and Uncountability
- Lecture 3 - Examples of Irrational numbers
- Lecture 4 - Functions
- Lecture 5 - Limits of Functions - I
- Lecture 6 - Limits of Functions - II
- Lecture 7 - Continuous Functions
- Lecture 8 - Intermediate Value Theorem
- Lecture 9 - Maximum Value Theorem
- Lecture 10 - Supremum and Infimum
- Lecture 11 - Derivative of a Function
- Lecture 12 - Rules of Differentiation
- Lecture 13 - Maxima and Minima
- Lecture 14 - Rolles Theorem and Lagrange Mean Value Theorem (MVT)
- Lecture 15 - Monotonic Functions and Inverse Functions
- Lecture 16 - Newton's Method for solving Equations
- Lecture 17 - Optimization Problems
- Lecture 18 - Integration-I
- Lecture 19 - Integration-II
- Lecture 20 - Integration-III
- Lecture 21 - Integration theory of Riemann - I
- Lecture 22 - Integration theory of Riemann - II
- Lecture 23 - Integration Rule
- Lecture 24 - Fundamental Theorem of Calculus (in Riemann style)
- Lecture 25 - The Kurzweil-Henstock Integral (K-H Integral)
- Lecture 26 - Calculating Indefinite Integrals
- Lecture 27 - Improper Integral - I
- Lecture 28 - Improper Integral - II
- Lecture 29 - Application of Definite Integral - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Application of definite Integral - II
- Lecture 31 - Application of definite Integral - III
- Lecture 32 - Application of definite Integral - III (Continued.....)
- Lecture 33 - Numerical Integration - I
- Lecture 34 - Numerical Integration - II
- Lecture 35 - Sequences
- Lecture 36 - Sequences (Continued...)
- Lecture 37 - Infinite Series
- Lecture 38 - infinite series (Continued...)
- Lecture 39 - Taylors Theorem, other issues and end of the course - I
- Lecture 40 - Taylors Theorem, other issues and end of the course - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:An Introduction to Microeconomics

Subject Co-ordinator - Dr. Vimal Kumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Economics ?
- Lecture 2 - Resources, Wants and Scarcity
- Lecture 3 - Allocation, Command, Market and Mixed Economy
- Lecture 4 - Individual
- Lecture 5 - Rationality, Self Interest and Optimization
- Lecture 6 - Branches of Economics
- Lecture 7 - Introduction to Demand and Supply
- Lecture 8 - Demand
- Lecture 9 - Demand
- Lecture 10 - Market Demand Function
- Lecture 11 - Factors Affecting Demand
- Lecture 12 - Supply and Market Supply
- Lecture 13 - Supply
- Lecture 14 - Factors Affecting Supply
- Lecture 15 - Market Equilibrium
- Lecture 16 - Few Examples
- Lecture 17 - Application
- Lecture 18 - Consumer Surplus
- Lecture 19 - Producer Surplus
- Lecture 20 - Total Surplus
- Lecture 21 - Effect of Price Control on Surplus
- Lecture 22 - Implications of Market Equilibrium
- Lecture 23 - Price Elasticity of Demand
- Lecture 24 - Elastic, Inelastic and Unit- elastic Demand
- Lecture 25 - Perfectly Elastic and Perfectly Inelastic Demand
- Lecture 26 - More on Elasticity
- Lecture 27 - Factors Affecting Price Elasticity of Demand
- Lecture 28 - Effect of Taxation
- Lecture 29 - Tax Imposed on Seller

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Incidence of Tax
- Lecture 31 - Incidence of Tax
- Lecture 32 - Incidence of Tax
- Lecture 33 - Towards Consumer Theory
- Lecture 34 - Budget Line and Budget Set
- Lecture 35 - Factors Affecting the Budget Line
- Lecture 36 - Few Examples of Changes in Budget Line
- Lecture 37 - Consumption Set
- Lecture 38 - Convexity of Consumption Set
- Lecture 39 - Describing Utility
- Lecture 40 - Some Axioms
- Lecture 41 - Preferences as a Mathematical Construct
- Lecture 42 - Rationality in Real Life Vs. Rationality in Economics
- Lecture 43 - More on Three Axioms of Rationality
- Lecture 44 - Defining Utility Function
- Lecture 45 - Ordinal Vs. Cardinal Utility
- Lecture 46 - Properties of Preferences
- Lecture 47 - Indifference Set
- Lecture 48 - Indifference Curve
- Lecture 49 - Behavioural Assumption
- Lecture 50 - Properties of Preferences
- Lecture 51 - Marginal Rate of Substitution (MRS)
- Lecture 52 - DMRS and Convexity
- Lecture 53 - Summary
- Lecture 54 - Utility Maximization
- Lecture 55 - Utility Maximization
- Lecture 56 - More on Utility Maximization
- Lecture 57 - Utility Maximization
- Lecture 58 - Example Revisited
- Lecture 59 - Marginal Utility Vs. Marginal Rate of Substitution (MRS)
- Lecture 60 - Perfect Substitutes
- Lecture 61 - Perfect Complements
- Lecture 62 - An Example with Quasi Linear Preferences
- Lecture 63 - Demand Revisited
- Lecture 64 - Effect of Income on Quantity Demanded
- Lecture 65 - Effect of Change in Price
- Lecture 66 - Substitution Effect and Income Effect
- Lecture 67 - Giffen Good
- Lecture 68 - Expenditure Minimization as a Dual Problem of Utility Maximization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Marshallian and Hicksian Demand Function
- Lecture 70 - Slutsky Equation
- Lecture 71 - An Application
- Lecture 72 - Towards Producer Theory
- Lecture 73 - Technology or Production Function
- Lecture 74 - Isoquants
- Lecture 75 - Few Axioms Related to Technology
- Lecture 76 - Axioms/ Assumptions Continued
- Lecture 77 - Production in Short Run
- Lecture 78 - Average and Marginal Product of Labour (APL and MPL)
- Lecture 79 - More on APL and MPL
- Lecture 80 - Law of Diminishing Marginal Returns
- Lecture 81 - Production in Long Run
- Lecture 82 - MRTS
- Lecture 83 - Decreasing MRTS
- Lecture 84 - Elasticity of Substitution
- Lecture 85 - Returns to Scale
- Lecture 86 - Elasticity of Scale
- Lecture 87 - Economic Terminology
- Lecture 88 - Economic Terminology
- Lecture 89 - Economic Terminology
- Lecture 90 - Diminishing Marginal Product Vs. DMRTS
- Lecture 91 - Returns to Scale through Graphs
- Lecture 92 - Cost in Long Run
- Lecture 93 - Cost Minimization
- Lecture 94 - Cost Minimization
- Lecture 95 - Cost Minimization
- Lecture 96 - More on Cost Minimization
- Lecture 97 - Cost Function in the Long Run
- Lecture 98 - Cost in Short Run
- Lecture 99 - Cost in Short Run
- Lecture 100 - Shape of Cost Curves
- Lecture 101 - Factor Demand Function
- Lecture 102 - Output Expansion Path
- Lecture 103 - Cost Revisited
- Lecture 104 - Cobb-Douglas Function
- Lecture 105 - Short Run Vs. Long Run Cost Minimization
- Lecture 106 - Short Run Vs. Long Run Cost Minimization Through Graphs
- Lecture 107 - Average Cost in Short Run Vs. Long Run

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Short Run Marginal Cost Vs. Long Run Marginal Cost
- Lecture 109 - Profit Maximization
- Lecture 110 - Marginal Revenue
- Lecture 111 - Profit Maximization in Short Run Through Graphs
- Lecture 112 - Profit Maximization in Short Run Through Algebra and Calculus
- Lecture 113 - Market Environment
- Lecture 114 - Perfectly Competitive Market
- Lecture 115 - Supply Curve
- Lecture 116 - An example obtaining the short run supply function
- Lecture 117 - Two Interpretation of Supply Function
- Lecture 118 - Profit maximization implies cost minimization
- Lecture 119 - Producer's Surplus Revisited
- Lecture 120 - Profit Maximization and Returns to Scale
- Lecture 121 - Short Run Supply Vs. Long Run Supply
- Lecture 122 - Long Run Equilibrium and Supply Function
- Lecture 123 - Introduction to Monopoly
- Lecture 124 - Marginal Revenue of the Monopolist
- Lecture 125 - Monopoly
- Lecture 126 - Profit Maximization for the Monopolist
- Lecture 127 - Inverse Elasticity Pricing Rule
- Lecture 128 - Profit Maximization for the Monopolist through Graph
- Lecture 129 - No Supply Function for Monopoly
- Lecture 130 - Monopoly
- Lecture 131 - Imposition of the Tax on the Monopolist
- Lecture 132 - Welfare Effects of Monopoly Pricing
- Lecture 133 - Price Discrimination
- Lecture 134 - Monopoly
- Lecture 135 - Responses from Policy Makers
- Lecture 136 - Introduction to Oligopoly
- Lecture 137 - Nash Equilibrium
- Lecture 138 - Cournot Model of Duopoly
- Lecture 139 - Stackelberg Model of Duopoly
- Lecture 140 - Bertrand Model of Duopoly
- Lecture 141 - Market Environment

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Advanced Cognitive Processes

Subject Co-ordinator - Prof. ARK Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Preface, Outline and Course Structure  
Lecture 2 - Knowledge - I  
Lecture 3 - Knowledge - II  
Lecture 4 - Knowledge - III  
Lecture 5 - Knowledge - IV  
Lecture 6 - Knowledge - V  
Lecture 7 - Visual Imagery - I  
Lecture 8 - Visual Imagery - II  
Lecture 9 - Cognitive Maps  
Lecture 10 - Mental Imagery  
Lecture 11 - Language  
Lecture 12 - Language  
Lecture 13 - Evolution of Language  
Lecture 14 - Language Acquisition - I  
Lecture 15 - Language Acquisition - II  
Lecture 16 - Language Comprehension - I  
Lecture 17 - Language Comprehension - II  
Lecture 18 - Language Production  
Lecture 19 - Reading - I  
Lecture 20 - Reading - II  
Lecture 21 - Aphasia  
Lecture 22 - Bilingualism  
Lecture 23 - Reasoning and Decision Making - I  
Lecture 24 - Reasoning and Decision Making - II  
Lecture 25 - Reasoning and Decision Making - III  
Lecture 26 - Problem Solving - I  
Lecture 27 - Problem Solving - II  
Lecture 28 - Problem Solving - III  
Lecture 29 - Problem Solving - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Creativity
- Lecture 31 - Cognition and Emotion - I
- Lecture 32 - Cognition and Emotion - II
- Lecture 33 - Cognition and Emotion - III
- Lecture 34 - Cognition and Emotion - IV
- Lecture 35 - Cognition and Emotion - V
- Lecture 36 - Cognitive Development - I
- Lecture 37 - Cognitive Development - II
- Lecture 38 - Cognitive Development - III
- Lecture 39 - Cognitive Development - IV
- Lecture 40 - Summary and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Literary Theory

Subject Co-ordinator - Prof. Sayan Chattopadhyay

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Literature and Mimesis
- Lecture 3 - Literature and Mimesis
- Lecture 4 - Literature and Mimesis
- Lecture 5 - Literature and Mimesis
- Lecture 6 - Literature and the Sublime
- Lecture 7 - Neoclassical Literary Theory
- Lecture 8 - Literature and Romanticism - I
- Lecture 9 - Literature and Romanticism - II
- Lecture 10 - New Criticism
- Lecture 11 - Formalism
- Lecture 12 - Dialogism I
- Lecture 13
- Lecture 14 - Reader Response Theory I
- Lecture 15 - Reader Response Theory II
- Lecture 16 - Structuralism I
- Lecture 17 - Structuralism II
- Lecture 18 - Poststructuralism I
- Lecture 19 - Poststructuralism II
- Lecture 20 - Poststructuralism III
- Lecture 21 - Marxist Literary Theory I
- Lecture 22 - Marxist Literary Theory II
- Lecture 23 - Marxist Literary Theory III
- Lecture 24 - Literature and Psychoanalysis
- Lecture 25 - Literature and Psychoanalysis
- Lecture 26 - Literature and Psychoanalysis
- Lecture 27 - Literature and Psychoanalysis IV
- Lecture 28 - Literature and Psychoanalysis V
- Lecture 29 - Feminism and Literature I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Feminism and Literature II
- Lecture 31 - Feminism and Literature III
- Lecture 32 - Modernism and Postmodernism
- Lecture 33 - Postcolonial Theory I
- Lecture 34 - Postcolonial Theory II
- Lecture 35 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Development of Sociology in India

Subject Co-ordinator - Prof. Ashish Saxena

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6 - On Civilizational perspective  
Lecture 7 - On Indological perspective  
Lecture 8 - On Indological perspective  
Lecture 9 - On Marxian perspective  
Lecture 10 - On Marxian perspective  
Lecture 11 - Structural-functional perspective  
Lecture 12 - Structural-functional perspective  
Lecture 13 - On Environmental Perspective  
Lecture 14 - On Environmental Perspective  
Lecture 15 - On Gender perspective  
Lecture 16 - On Gender perspective  
Lecture 17 - Subaltern perspective  
Lecture 18 - Subaltern perspective  
Lecture 19 - On Dalit Perspective  
Lecture 20 - On Dalit Perspective

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to the Psychology of Language

Subject Co-ordinator - Prof. ARK Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Language
- Lecture 2 - Basic Concepts in Psycholinguistics
- Lecture 3 - Animal Communication
- Lecture 4 - Evolution of Language
- Lecture 5 - Language and Thought
- Lecture 6 - Do children talk ? And How ?
- Lecture 7 - The First Steps in Language Acquisition
- Lecture 8 - Segmenting the speech stream
- Lecture 9 - Learning Word - Meanings
- Lecture 10 - Acquiring Morphological and Syntactic Knowledge
- Lecture 11 - Speech Production - 1
- Lecture 12 - Speech Production - 2
- Lecture 13 - Speech Production - 3
- Lecture 14 - Speech Comprehension - 1
- Lecture 15 - Speech Comprehension - 2
- Lecture 16 - Understanding Word Meaning
- Lecture 17 - Word Meaning and Lexical Access
- Lecture 18 - Lexical Access
- Lecture 19 - Ambiguity and Representation of Meaning in the Brain
- Lecture 20 - Meaning in the Brain
- Lecture 21 - What is a sentence ?
- Lecture 22 - Parsing Sentences - 1
- Lecture 23 - Parsing Sentences - 2
- Lecture 24 - Parsing Sentences - 3
- Lecture 25 - Parsing Sentences - 4
- Lecture 26 - Reading - 1
- Lecture 27 - Theories of Reading
- Lecture 28 - Cognitive Processes in Reading
- Lecture 29 - Recognising Visual Words

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dyslexia
- Lecture 31 - Neural Basis of Word Meaning
- Lecture 32 - Neural Basis of Language Comprehension
- Lecture 33 - Neural Basis of Language Comprehension
- Lecture 34 - Neural Basis of Language Comprehension and Production
- Lecture 35 - Aphasia
- Lecture 36 - Bilingualism - 1
- Lecture 37 - Bilingualism - 2
- Lecture 38 - Bilingualism - 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Population Studies

Subject Co-ordinator - Prof. A.K. Sharma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Population Studies

Lecture 2 - Population Ecology / Geography

Lecture 3 - Population Growth

Lecture 4 - Population Growth and Development

Lecture 5 - Population Dynamics - 1

Lecture 6 - Population Dynamics - 2

Lecture 7 - Population Policies

Lecture 8 - Population Policy in India

Lecture 9 - Population and Family Welfare - 1

Lecture 10 - Population and Family Welfare - 2

Lecture 11 - Techniques of Population Analysis - 1

Lecture 12 - Techniques of Population Analysis - 2

Lecture 13 - Population and Society

Lecture 14 - Population and Society

Lecture 15 - Statistical Techniques in Population Studies - 1

Lecture 16 - Statistical Techniques in Population Studies - 2

Lecture 17 - Population Growth and Women - 1

Lecture 18 - Population Growth and Women - 2

Lecture 19 - Population Concepts and Aging - 1

Lecture 20 - Population Concepts and Aging - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Psychology of Everyday

Subject Co-ordinator - Alok Bajpai

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Understanding Psychology

Lecture 2 - Psychology and Psychiatry

Lecture 3 - Understanding day-to-day behaviour - I

Lecture 4 - Understanding day-to-day behaviour - II

Lecture 5 - Revisiting normal-abnormal dilemma - I

Lecture 6 - Revisiting normal-abnormal dilemma - II

Lecture 7 - Revisiting normal-abnormal dilemma - III

Lecture 8 - Revisiting normal-abnormal dilemma - IV

Lecture 9 - Issues confronting the young adults - I and II

Lecture 10 - Issues confronting the young adults - III and IV

Lecture 11 - Mental health issues of adults - I and II

Lecture 12 - Mental health issues of adults - III

Lecture 13 - Mental health issues of adults - IV

Lecture 14 - Mental health issues of child and adolescents - I and II

Lecture 15 - Mental health issues of child and adolescents - III and IV

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Brain and Behaviour

Subject Co-ordinator - Prof. ARK Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - A Brief History of Cognitive Neuroscience
- Lecture 2 - A Brief History of Cognitive Neuroscience (Continued...)
- Lecture 3 - Structure and Function of the Nervous System
- Lecture 4 - Neuronal communication
- Lecture 5 - An Overview of the Nervous System
- Lecture 6 - The Cerebral Cortex
- Lecture 7 - Methods in Cognitive Neuroscience
- Lecture 8 - Studying the Damaged Brain
- Lecture 9 - Structural Analysis of the Brain
- Lecture 10 - Measuring Structure and Function Together in the Brain
- Lecture 11 - Neuroscience of Sensation and Perception
- Lecture 12 - Olfaction
- Lecture 13 - Somatosensation
- Lecture 14 - Vision
- Lecture 15 - Moving beyond Sensation
- Lecture 16 - Attention
- Lecture 17 - Models of Attention
- Lecture 18 - Neural Mechanisms of Attention
- Lecture 19 - Mechanisms of Attention
- Lecture 20 - Networks of Attention
- Lecture 21 - Memory
- Lecture 22 - Mechanisms of Memory
- Lecture 23 - The Medial Temporal Lobe Memory System
- Lecture 24
- Lecture 25
- Lecture 26 - Emotion
- Lecture 27 - Categorizing Emotions
- Lecture 28 - Emotions and Other Cognitive Processes
- Lecture 29 - Emotions and other Cognitive Processes (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cognitive Control of Emotions
- Lecture 31 - Cognitive Neuroscience of Language
- Lecture 32 - Language in the Human Brain
- Lecture 33 - Language Comprehension - I
- Lecture 34 - Language Comprehension - II
- Lecture 35 - Neural Models of Language
- Lecture 36 - Neuroscience of Social Cognition
- Lecture 37 - Theory of Mind
- Lecture 38 - Neural Correlates of Mental State Attribution
- Lecture 39 - Autism and Mental State Attribution
- Lecture 40 - Social Knowledge in Social Cognition

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Modern Indian Art From the Colonial Period to the P

Subject Co-ordinator - Prof.Soumik Nandy Majumdar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview of Modern Indian Art

Lecture 2 - Advent of the British Colonial Rule

Lecture 3 - Company Painting - A new genre in Indian Art

Lecture 4 - Kalighat Painting - from folk art to urban milieu

Lecture 5 - Raja Ravi Varma, Amrita Sher-Gil, Jamini Roy

Lecture 6 - Early Modern Indian Sculpture

Lecture 7 - Nationalism, Rabindranath Tagore and Bengal School

Lecture 8 - Calcutta - the happening center of modern Indian art

Lecture 9 - Santiniketan - the alternative modernism Nandalal and Benode Behari

Lecture 10 - Santiniketan - the alternative modernism Ramkinkar and Rabindranath

Lecture 11 - 1940s - a different social reality

Lecture 12 - Calcutta Groups and Bombay Progressive Artists Group

Lecture 13 - Post Independent Sculpture

Lecture 14 - Diversities in style and content

Lecture 15 - Diversities in style and content

Lecture 16 - Abstraction in modern Indian art

Lecture 17 - Neo figuration and the narrative trends

Lecture 18 - Folk Art and Modernism

Lecture 19 - Breaking the barriers

Lecture 20 - Experiments Innovations

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# NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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NPTTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Japanese Language and Culture

Subject Co-ordinator - Mrs.Vatsala Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Japanese Scripts

Lecture 2 - Jikou Shoukai

Lecture 3 - Dochira kara desu ka?

Lecture 4 - Senmon wa nan desu ka?

Lecture 5 - Kore wa hon desu.

Lecture 6 - Are wa nan desu ka?

Lecture 7 - Ikura desu ka?

Lecture 8 - Ima nan-ji desu ka?

Lecture 9 - Kaigi wa roku-ji han kara desu.

Lecture 10 - Ashita TÅ•kyÅ• e ikimasu.

Lecture 11 - Watashi wa mainichi roku-ji ni okimasu.

Lecture 12 - Itsu Kanpur e kimashita ka?

Lecture 13 - YÅ«binkyoku wa asoko ni arimasu.

Lecture 14 - Rao san wa doko ni imasu ka?

Lecture 15 - Pikunikku e ikimashÅ•.

Lecture 16 - Kesa pan to tamago o tabemashita.

Lecture 17 - Depa-to no tonari no biru wa ginkÅ• desu.

Lecture 18 - Taj hoteru wa ookii hoteru desu.

Lecture 19 - Hoteru de nani o tabemashita ka?

Lecture 20 - TÅ•kyÅ• wa Å•ki kute kirei desu.

Lecture 21 - Ko-hi- wa oishiku arimasen.

Lecture 22 - Hantai Kotoba ( Opposites)

Lecture 23 - Watashi wa mainichi miruku o nomimasu.

Lecture 24 - Watashi wa oniisan ni kamera o moratta.

Lecture 25 - Nani o tabetai desu ka?

Lecture 26 - Nani o sashiagemasu ka?

Lecture 27 - Sensei wa watashi ni hon o kuremashita.

Lecture 28 - Watashi wa pikunikku e ikitakunai.

Lecture 29 - Chotto matte kudasai.

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ke-ki o tabete mite kudasai.ã ã ±ã ¼ã -ã ã ã é£ã·¹ã·|ã ã·¿ã·|ã ã·ã· ã· ã· ã
- Lecture 31 - Heya ni nani ga arimasu ka?ã é ¨ã± ã ã·«ã ä½ã ã ã· ã ã· ã ã·¾ã· ã ã· i¼
- Lecture 32 - Nani o shite imasu ka?ã ä½ã ã ã ã· ã·|ã· ã·¾ã· ã ã· i¼
- Lecture 33 - TÅ·kyÅ· ni sunde imasu.ã æ·±ã°-ã ã·«ã ã· ã ã·§ã ã· ã·¾ã· ã
- Lecture 34 - Kanji ga kakemasu.ã æ¼çã- ã ã· ã ã· ã·¾ã· ã
- Lecture 35 - ImÅ·to wa ningyÅ· o hoshigatte imasu.ã ã· ã ã· ã·¨ã ã·-ã ã·«ã ã· ã ã· ã ã· ã ã·ã»ã· ã· ã·
- Lecture 36 - Watashi wa Aisukuri-mu ga daisuki desu.ã ç§ã·-ã ã çã ãã ¹ã -ã ¢ã ¼ã ã ã· ã ã· ã·¾ã·¾ã·ã·ã· ã·
- Lecture 37 - Aisukuri-mu ga ke-ki yori suki desu.ã ã çã ãã ¹ã -ã ¢ã ¼ã ã ã· ã ã· ã ±ã ¼ã -ã ã ã ã ã·¾ã·ã·
- Lecture 38 - Kutsu o kai ni ikimasu.ã ã·ã·ã·ã· ã ã ã· ã· ã·«ã ã· ã·ã·¾ã· ã
- Lecture 39 - Ashita motto atsuku narimasu.ã æ æ ¥ã ã ã·£ã·¨ã ã· ã·ã·ã·ã· ã·ã· ã·¾ã· ã
- Lecture 40 - Rainen TÅ·kyÅ· e iku to omoimasu.ã æ·¥ã¹'ã æ·±ã°-ã ã· ã è|ã·ã· ã·¨ã æ·ã· ã·¾ã· ã
- Lecture 41 - Pen de kaite mo ii desu ka.ã ã ã ³ã ã·§ã æ ,ã· ã·|ã ã ã ã· ã· ã ã·§ã ã ã· i¼
- Lecture 42 - New Expressions
- Lecture 43 - Revision
- Lecture 44 - Kanji I
- Lecture 45 - Kanji II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Applied Statistics and Econometrics

Subject Co-ordinator - Prof. Deep Mukherjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Statistics
- Lecture 2 - Introduction to Econometrics
- Lecture 3 - Organization and Presentation of Data
- Lecture 4 - Summarizing Data through Descriptive Statistics
- Lecture 5 - Discrete Random Variable and Probability Distribution
- Lecture 6 - Continuous Random Variables and Probability Distribution
- Lecture 7 - Normal Distribution
- Lecture 8 - Introduction to Statistical Inference
- Lecture 9 - Estimation - Part I
- Lecture 10 - Estimation - Part II
- Lecture 11 - Hypothesis Testing - Part I
- Lecture 12 - Hypothesis Testing - Part II
- Lecture 13 - Hypothesis Testing - Part III
- Lecture 14 - Hypothesis Testing - Part IV
- Lecture 15 - Relationship between Qualitative Variables
- Lecture 16 - Relationship Between Quantitative Variables
- Lecture 17 - Analysis of Variance
- Lecture 18 - One Way ANOVA
- Lecture 19 - Two Way ANOVA
- Lecture 20 - Analysis of Covariance
- Lecture 21 - Index Numbers - Part I
- Lecture 22 - Index Numbers - Part II
- Lecture 23 - Classical Time Series Analysis - Part I
- Lecture 24 - Classical Time Series Analysis - Part II
- Lecture 25 - Classical Linear Regression Model - Part I
- Lecture 26 - Classical Linear Regression Model - Part II
- Lecture 27 - Classical Linear Regression Model
- Lecture 28 - Hypothesis Testing with CNLRM
- Lecture 29 - More on Hypothesis Testing and Model Specification

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Violations of CLRM Assumptions (Heteroskedasticity)
- Lecture 31 - Violations of CLRM Assumptions (Autocorrelation and Multicollinearity)
- Lecture 32 - Time Series Regression with Stationary Data
- Lecture 33 - Time Series Regression with Non-Stationary Data
- Lecture 34 - Regression with Dummy Explanatory Variable
- Lecture 35 - Dummy Dependent Variable Models - Part I
- Lecture 36 - Dummy Dependent Variable Models - Part II
- Lecture 37 - Simultaneous Equations Model
- Lecture 38 - Panel Data Regression
- Lecture 39 - Program Evaluation
- Lecture 40 - Data Analysis and Regression with R
- Lecture 41 - Regression Involving Dummy Variables in R
- Lecture 42 - Time Series Analysis in R

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Literature and Coping Skills

Subject Co-ordinator - Prof. Ajit K Mishra

Co-ordinating Institute - IITBHU - Varanasi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Existential Concerns - I
- Lecture 2 - Existential Concerns - II
- Lecture 3 - Emotional wellbeing - I
- Lecture 4 - Emotional wellbeing - II
- Lecture 5 - Personality - I
- Lecture 6 - Personality - II
- Lecture 7 - Simulation and higher order thinking
- Lecture 8 - Empathy and emotional intelligence
- Lecture 9 - Poetry therapy - I
- Lecture 10 - Poetry therapy - II
- Lecture 11 - Verbal imagery and healing - I
- Lecture 12 - Verbal imagery and healing - II
- Lecture 13 - Rhetoric and prosody - I
- Lecture 14 - Rhetoric and prosody - II
- Lecture 15 - Rhetoric and prosody - III
- Lecture 16 - Rhetoric and prosody - IV
- Lecture 17 - The psychology of fear and anxiety - I
- Lecture 18 - The psychology of fear and anxiety - II
- Lecture 19 - John Donne, â Death be not Proud
- Lecture 20 - Robert Frost, The Road not Taken
- Lecture 21 - Feeling Weird, Losing Touch - I
- Lecture 22 - Feeling Weird, Losing Touch - II
- Lecture 23 - Alfred Lord Tennyson, Break, Break, Break
- Lecture 24 - John Keats, Ode on Melancholy
- Lecture 25 - Unclaimed Experiences - I
- Lecture 26 - Unclaimed Experiences - II
- Lecture 27 - Maya Angelou, Still I Rise
- Lecture 28 - Elizabeth Murphy, The Night That Changed Everything
- Lecture 29 - Love, Heartbreak, and Healing - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Love, Heartbreak, and Healing - II
- Lecture 31 - Robert Browning, The Last Ride Together
- Lecture 32 - Derek Walcott, The Fist
- Lecture 33 - The Culture of Escape: Elusion or Illusion? - I
- Lecture 34 - The Culture of Escape: Elusion or Illusion? - II
- Lecture 35 - Charles Baudelaire, Be Drunk
- Lecture 36 - Charles Bukowski, The Suicide Kid
- Lecture 37 - Mimetic Desire and the Possessed Body - I
- Lecture 38 - Mimetic Desire and the Possessed Body - II
- Lecture 39 - Carol Ann Duffy, The Diet
- Lecture 40 - Marty McConnell, Instructions for a Body

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Indian Economy: Some Contemporary Perspectives

Subject Co-ordinator - Prof. Wasim Ahmad

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Indian Economy - Economic Planning - 1  
Lecture 2 - Indian Economy - Economic Planning - 2  
Lecture 3 - Indian Economy - Economic Planning - 3  
Lecture 4 - Indian Economy - Economic Planning - 4  
Lecture 5 - Indian Economy - Economic Planning - 5  
Lecture 6 - Indian Economy - Economic Planning - 6  
Lecture 7 - Indian Economy - Economic Planning - 7  
Lecture 8 - Indian Economy - Economic Planning - 8  
Lecture 9 - Indian Economy - Agriculture Policy - 1  
Lecture 10 - Indian Economy - Agriculture Policy - 2  
Lecture 11 - Indian Economy - Agriculture Policy - 3  
Lecture 12 - Indian Economy - Agriculture Policy - 4  
Lecture 13 - Indian Economy - Industrial Policy - 1  
Lecture 14 - Indian Economy - Industrial Policy - 2  
Lecture 15 - Indian Economy - Industrial Policy - 3  
Lecture 16 - Indian Economy - Industrial Policy - 4  
Lecture 17 - Indian Economy - Service Sector Policy - 1  
Lecture 18 - Indian Economy - Service Sector Policy - 2  
Lecture 19 - Indian Economy - Financial Sector - 1  
Lecture 20 - Indian Economy - Financial Sector - 2  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26 - Indian Economy - Indian Banking Crisis - 2  
Lecture 27 - Indian Economy - Indian Banking Crisis - 3  
Lecture 28 - Indian Economy - Financial Inclusion  
Lecture 29 - Indian Economy - Monetary Policy - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Indian Economy - Monetary Policy - 2
- Lecture 31 - Indian Economy - Monetary Policy - 3
- Lecture 32 - Indian Economy - Monetary Policy - 4
- Lecture 33 - Indian Economy - Monetary Policy - 5
- Lecture 34 - Indian Economy - Fiscal Policy - 1
- Lecture 35 - Indian Economy - Fiscal Policy - 2
- Lecture 36 - Indian Economy - India and WTO - 1
- Lecture 37 - Indian Economy - India and WTO - 2
- Lecture 38 - Indian Economy - India and WTO - 3
- Lecture 39 - Indian Economy - India's Economic Outlook (2020-21)
- Lecture 40 - Indian Economy - Union Budget (2021-22)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Japani Bhasha - Saral Swaroop

Subject Co-ordinator - Prof. Vatsala Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Japanese scripts
- Lecture 2 - Watashi wa Tanaka desu
- Lecture 3 - Dochira kara desu ka?
- Lecture 4 - Pen wa watashi no desu
- Lecture 5 - Watashi mo gakusei desu
- Lecture 6 - Nan sai desu ka?
- Lecture 7 - Ikura desu ka?
- Lecture 8 - Irasshaimase
- Lecture 9 - Nan-ji desu ka?
- Lecture 10 - Kyou wa getsuyoubi desu
- Lecture 11 - Doko desu ka?
- Lecture 12 - Tanjoubi wa itsu desu ka?
- Lecture 13 - Nan-ji ni okimasu ka?
- Lecture 14 - Tokyo e ikimasu
- Lecture 15 - Expressions
- Lecture 16 - Itsu Nihon ni kimashita ka?
- Lecture 17 - Hon wa asoko ni arimasu
- Lecture 18 - Yuubinkyoku wa hon-ya no tonari ni arimasu
- Lecture 19 - Nan nin imasu ka?
- Lecture 20
- Lecture 21 - Ashita kurabu e ikimasen ka?
- Lecture 22 - Kocha wa oishii desu
- Lecture 23 - Iroiro na hito ni aimashita
- Lecture 24 - Tanaka san onegaishimasu
- Lecture 25 - Tanaka san irashshaimasu ka?
- Lecture 26 - Tokyo wa ookikute kirei na machi desu
- Lecture 27 - Pa-ti wa tanoshikatta desu
- Lecture 28 - Raigetsu Amerika e ikimasu
- Lecture 29 - Verbs 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Verbs 2
- Lecture 31 - Imouto ni kamera o agemashita
- Lecture 32 - Sensei ni pen o sashiagemashita
- Lecture 33 - Tomodachi wa hana o kuremashita
- Lecture 34 - Hawaii e ikitakunai desu
- Lecture 35 - Nanika tabetai desu ka?
- Lecture 36 - Dokoemo ikitakunai desu
- Lecture 37 - Chotto matte kudasai
- Lecture 38 - Mata irashite kudasai
- Lecture 39 - Omiyage o tsutsumanaide kudasai
- Lecture 40 - Watashi wa aisukurimu ga suki desu
- Lecture 41 - Nihongo no jishou ga hoshii desu
- Lecture 42 - Rainen kuni e kaeru tsumori desu
- Lecture 43 - Hikouki to shinkansen to dochira no houga hayai desu ka?
- Lecture 44 - Kurasu no naka de dare ga ichiban kashikoi desu ka?
- Lecture 45 - Kore wa tanaka san no jishou da to omoimasu
- Lecture 46 - Kasa wa eigo de nan to iimasu ka?
- Lecture 47 - Watashi ha Nihongo ga yomemasen
- Lecture 48 - Watashi wa kanji o kaku koto ga dekimasu
- Lecture 49 - Sonna koto iwanaide kudasai
- Lecture 50 - Watashiwa kuruma o unten suru toki ongaku o kikimasu
- Lecture 51 - Kanji o kaku koto ga dekimasu
- Lecture 52 - Shousetsu o yomu tame ni toshoukan e ikimasu
- Lecture 53 - Shashin o totte mo ii desu ka?
- Lecture 54 - Mainichi kaisha ni ikanakereba narimasen
- Lecture 55 - Tanaka san wa yoku hatarakimasu

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Japanese Language and Culture-II

Subject Co-ordinator - Prof. Vatsala Misra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Kore wa watashi no hon desu (This is my book)
- Lecture 2 - Ima nan ji desu ka? (What is the time now?)
- Lecture 3 - Hon wa tsukue no ue ni arimasu (The book is on the table)
- Lecture 4 - Ashita kurabu e ikimasen ka? (Will you please come to the club tomorrow?)
- Lecture 5 - Kodoma-tachi wa ima asonde imasu (Children are playing now)
- Lecture 6 - Kodomotachi wa asonde kara benkyou shimasu (Children will study after playing)
- Lecture 7 - Douzo meshiagatte kudasai (Please eat it)
- Lecture 8 - Tabete mite kudasai (Please eat and see)
- Lecture 9 - Koko de tabenaide kudasai (Please do not eat here)
- Lecture 10 - Hitori de ikimasu ka? (Will you go alone?)
- Lecture 11 - Irasshaimase ! (Welcome !)
- Lecture 12 - Shiken wa dou deshita ka? (How was the exam?)
- Lecture 13 - Tomodachi wa tanjoubi ni hana o kuremashita (My friend gave me flowers on my birthday)
- Lecture 14 - Tomodachi wa ke-ki o tsukutte kuremashita (My friend made a cake and gave it to me)
- Lecture 15 - Kimura to moushimasu (I am Kimura)
- Lecture 16 - O-genki desu ka ? (How are you ?)
- Lecture 17 - Kare wa 'happyou wa ashita desu' to iimashita (He said, 'the presentation is tomorrow)
- Lecture 18 - Tanaka to iu hito ni aimashita (I met a person called Tanaka)
- Lecture 19 - Tomodachi ga kuru to omoimasu (I think my friend will come)
- Lecture 20 - Watashi wa hitori de ikemasu (I can go alone)
- Lecture 21 - Ikka-getsu de dekimasu (I can do it in one mouth)
- Lecture 22 - Kare wa Indo no shuukan no koto o yoku shitte imasu (He know a lot about Indian customs)
- Lecture 23 - Aisatsu (Greetings)
- Lecture 24 - Aisatsu (Greetings)
- Lecture 25 - Chokore-to yori aisukuri-mu ga suki desu (I like ice cream more than chocolate)
- Lecture 26 - Dochira ga suki desu ka ? (Which do you like ?)
- Lecture 27 - Mira san asobi ni irashite kudasai (Mira san please visit us)
- Lecture 28 - Houmon (Visiting)
- Lecture 29 - Pen de kaite mo ii desu ka ? (Can I write with a pen?)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Konakute mo ii desu ka ? (Is is alright if I do not come ?)
- Lecture 31 - Nani mo tabetakunai desu (I do not want to eat anything)
- Lecture 32 - Watashi wa eiwa jiten ga hoshii desu (I want an English-Japanese dictionary)
- Lecture 33 - Rainen kekkon suru tsumori desu (I intend to get married next year)
- Lecture 34 - Soto wa kuraku narimashita (It has become dark outside)
- Lecture 35 - Kyuujitai and Shinjitai
- Lecture 36 - Nihon e itta koto ga arimasu (I have been to Japan)
- Lecture 37 - Minikui ahiru no ko - I (Ugly duckling - I)
- Lecture 38 - Minikui ahiru no ko - II (Ugly duckling - II)
- Lecture 39 - Working in Japan
- Lecture 40 - Haru ni naru to sakura ga saku (When it is spring cherry blossoms will bloom)
- Lecture 41 - Mira wa konai kamoshirenai (Mira may not come)
- Lecture 42 - Okane ga attara uchi o kaimasu (If I have money I will buy a house)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Indian Art: Materials, Techniques and Artistic Practices

Subject Co-ordinator - Prof. Rajarshi Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 60

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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NPTEL Video Course - Humanities and Social Sciences - NOC:à¤¤à¥•à¤°à¤¤à¥•à¤¤ à¤¹à¤¤¤à¤¤ à¤¤|à¥ à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥•à¤¤¤à¥•à¤¤¤à¥•

Subject Co-ordinator - Prof. Shri Prakash Shukla

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - à¤¤ à¤¤,à¤¤à¥ à¤¤ à¤¹à¤¤¤à¤¤ à¤¤¤à¤¤¤à¥' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤ à¤¤ à¤¤¤à¤¤à¤¤à¥•à¤¤¤à¤¤,à¥•à¤¤¤à¥•
- Lecture 2 - à¤¤ à¤¤,à¤¤à¥ à¤¤ à¤¹à¤¤¤à¤¤ à¤¤¤à¤¤¤à¥' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤ à¤¤¤à¤¤¤à¤¤à¥•à¤¤¤à¤¤ à¤¤à¥ à¤¤ à¤¤à¥ à¤¤ à¤¤¤à¥•
- Lecture 3 - à¤¤,à¤¤|à¤¤ à¤¤¤à¤¤¤à¥' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥ à¤¤¤à¤¤ à¤¤¤à¥•à¤¤¤à¥•
- Lecture 4 - à¤¤,à¤¤|à¤¤ à¤¤¤à¤¤¤à¥' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥ à¤¤¤à¤¤ à¤¤¤à¥•à¤¤¤à¥•
- Lecture 5 - à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥|à¤¤¤à¤¤¤à¤¤¤à¥' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥•à¤¤¤à¤¤,à¥•à¤¤¤à¥•
- Lecture 6 - à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥|à¤¤¤à¤¤¤à¤¤¤à¥' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥ à¤¤¤à¤¤ à¤¤¤à¥•à¤¤¤à¥•
- Lecture 7 - à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥ ' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥•à¤¤¤à¤¤,à¥•à¤¤¤à¥•
- Lecture 8 - à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥ ' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥•à¤¤¤à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥•à¤¤¤à¥•à¤¤¤à¥•
- Lecture 9 - à¤¤¤à¤¤¤à¤¤¤à¥•à¤¤¤à¥ ' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥ à¤¤¤à¤¤ à¤¤¤à¥•à¤¤¤à¥•
- Lecture 10 - à¤¤¤à¤¤¤à¤¤¤à¥•à¤¤¤à¥ ' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥ à¤¤¤à¤¤ à¤¤¤à¥•à¤¤¤à¥•
- Lecture 11 - à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥,à¥ ' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥•à¤¤¤à¤¤,à¥•à¤¤¤à¥•
- Lecture 12 - à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥,à¥ ' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥•à¤¤¤à¤¤ à¤¤¤à¥•à¤¤¤à¥•
- Lecture 13 - à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤ à¤¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¥ à¤¤ à¤¤ ' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥ à¤¤¤à¤¤ à¤¤¤à¥•à¤¤¤à¥•
- Lecture 14 - à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤ à¤¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¥ à¤¤ à¤¤ ' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥•à¤¤¤à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥•à¤¤¤à¥•à¤¤¤à¥•
- Lecture 15 - à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥ ' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥ à¤¤¤à¤¤ à¤¤¤à¥•à¤¤¤à¥•
- Lecture 16 - à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥ ' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥ à¤¤¤à¤¤ à¤¤¤à¥•à¤¤¤à¥•
- Lecture 17 - à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤ à¤¤¤à¥ à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥ ' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥ à¤¤¤à¤¤ à¤¤¤à¥•à¤¤¤à¥•
- Lecture 18 - à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤ à¤¤¤à¥ à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥ ' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥ à¤¤¤à¤¤ à¤¤¤à¥•à¤¤¤à¥•
- Lecture 19 - à¤¤ à¤¤ à¤¤ à¤¤¤à¥ ' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥•à¤¤¤à¤¤,à¥•à¤¤¤à¥•
- Lecture 20 - à¤¤ à¤¤ à¤¤ à¤¤¤à¥ ' à¤¤ à¤¹à¤¤¤à¤¤à¤¤à¥ à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥à¤¤¤à¥•à¤¤¤à¤¤ à¤¤¤à¤¤ à¤¤¤à¤¤¤à¤¤¤à¥•à¤¤¤à¥•à¤¤¤à¥•

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Computer Aided Decision Systems - Industrial Practi

Subject Co-ordinator - Prof. Deepu Philip, Prof. Amandeep Singh Oberoi

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Decision Support Systems (DSS)
- Lecture 2 - Characteristics and Capabilities of DSS
- Lecture 3 - Misconception and Components of DSS
- Lecture 4 - Decision Process
- Lecture 5 - Overview of Database Management Systems
- Lecture 6 - Introduction to Modelbase Management Systems
- Lecture 7 - Introduction to User Interface System
- Lecture 8 - Principles of Graphical User Interface
- Lecture 9 - Introduction to Database
- Lecture 10 - Reasons behind using DBMS
- Lecture 11 - Concepts and Architecture of Database Systems
- Lecture 12 - Entity Relationship
- Lecture 13 - Entity Relationship Diagrams
- Lecture 14 - Translation of ER Diagram to DB
- Lecture 15 - Database Normalization
- Lecture 16 - More SQL Commands
- Lecture 17 - Big Data: An Overview
- Lecture 18 - Big Data Analytics Team
- Lecture 19 - Big Data Analytics Lifecycle - Phase 1
- Lecture 20 - Big Data Analytics Lifecycle - Phase 2
- Lecture 21 - Big Data Analytics Lifecycle - Phase 3 and 4
- Lecture 22 - Big Data Analytics Lifecycle - Phase 5 and 6
- Lecture 23 - Big Data Analytics Tools and Software - Part 1
- Lecture 24 - Big Data Analytics Tools and Software - Part 2
- Lecture 25 - Big Data Analytics Tools and Software - Part 3
- Lecture 26 - Big Data Analytics Tools and Software - Part 4
- Lecture 27 - Big Data Analytics Lifecycle - Case Study
- Lecture 28 - Introduction to Industrial Internet of Things (IIoT)
- Lecture 29 - Structure of BDA in IIoT

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - BDA in IIoT, Gas Pipeline Case Study
- Lecture 31 - BDA in IIoT, RR Engine Case Study
- Lecture 32 - DSS in CAD/CAM
- Lecture 33 - Assembly Tree
- Lecture 34 - BDA in Computer Aided Design
- Lecture 35 - Product Data Exchange - Part 1
- Lecture 36 - Product Data Exchange - Part 2
- Lecture 37 - DSS in CAM - Part 1
- Lecture 38 - DSS in CAM - Part 2
- Lecture 39 - DSS in Additive Manufacturing
- Lecture 40 - Usability and User Interface Design
- Lecture 41 - Usability Problems and Usability Design Process
- Lecture 42 - Usability Principles
- Lecture 43 - HTML as a User Interface Language - 1
- Lecture 44 - HTML as a User Interface Language - 2
- Lecture 45 - Introduction to PHP
- Lecture 46 - Basic Components of PHP
- Lecture 47 - More on PHP: Hypertext PreProcessor (PHP)
- Lecture 48 - MySQL and PHP - The Backend of Decision Support Systems
- Lecture 49 - Forms and PHP - Design of Interactive and Dynamic Applications
- Lecture 50 - An Introduction to Networking
- Lecture 51 - Data Visualization - Part 1
- Lecture 52 - Data Visualization - Part 2
- Lecture 53 - Summarizing the Course



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introductory Rural Sociology: Continuity and Change

Subject Co-ordinator - Prof. Ashish Saxena

Co-ordinating Institute - University of Allahabad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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Lecture 6  
Lecture 7  
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Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Threads of Visual Exploration: Textiles and Allied

Subject Co-ordinator - Prof. Rajarshi Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 39  
Lecture 40

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Moral Thinking: An Introduction to Values and Ethics

Subject Co-ordinator - Prof. Vineet Sahu

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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Lecture 23

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Psychology Of Bilingualism and Multilingualism

Subject Co-ordinator - Prof. Ark Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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Lecture 37  
Lecture 38  
Lecture 39

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Sociology and Sanitation: An Introduction

Subject Co-ordinator - Prof. Ashish Saxena

Co-ordinating Institute - University of Allahabad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Sanitation Practices in a Historical Perspective

Lecture 2 - Sociology in Sanitation: Definition, Scope and Strategies

Lecture 3 - Perspectives on Sociology of Sanitation

Lecture 4 - Research Methodology in Sociology of Sanitation

Lecture 5 - Social Science Concepts Applicable to Sanitation Practices

Lecture 6 - Forms of Sanitation and their Social Implications

Lecture 7 - Social Movements and Societal Sanitation

Lecture 8 - Ramifications of Cultural Practices : Caste and Sanitation in Rural and Urban India

Lecture 9 - Interventions of Public and Private Agencies on Sanitation in India: An Overview

Lecture 10 - Toilet as a Tool of Change: Exemplifying Sulabh International Social Service Organization

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Technology Transfer through Joint Venture

Subject Co-ordinator - Prof. Indrajit Dube

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Forms of Strategic Alliance
- Lecture 2 - Negotiations and Contractual Aspect
- Lecture 3 - Risks and Opportunities
- Lecture 4 - Regulatory Issues
- Lecture 5 - Implication on Stakeholders
- Lecture 6 - Joint Venture [JV] Options
- Lecture 7 - Types of Joint Venture [JV]
- Lecture 8 - Issues Frequently Arise During JV Negotiation
- Lecture 9 - Key Compliance
- Lecture 10 - Governing Laws in Cross-Border Transaction
- Lecture 11 - Formation of Joint Venture Agreement
- Lecture 12 - Governance Issues in Joint Venture
- Lecture 13 - Business Plan in Joint Venture
- Lecture 14 - Shareholder Agreement in Joint Venture
- Lecture 15 - Specific Issues of Share Transfer in Joint Venture
- Lecture 16 - Preparation for SPV
- Lecture 17 - Formation of SPV
- Lecture 18 - Disclosure to be made by SPV
- Lecture 19 - Risk Management and SPV
- Lecture 20 - Offset and SPV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Legal Compliance for Incorporating Startup

Subject Co-ordinator - Prof. Indrajit Dube

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Why we need a business form for startup
- Lecture 2 - How to choose appropriate business form for startup
- Lecture 3 - Comparative Analysis of Incorporation Requirement
- Lecture 4 - Comparative Analysis of Compliance Cost
- Lecture 5 - Other Formalities to Comply
- Lecture 6 - Law relating to Partnership and Deed
- Lecture 7 - Law relating to LL.P
- Lecture 8 - How to Incorporate LL.P
- Lecture 9 - Law relating to Co-operative
- Lecture 10 - How to Incorporate Co-operative
- Lecture 11 - Law Relating to One Person Company
- Lecture 12 - Law Relating to Pvt. Ltd. Company
- Lecture 13 - Law Relating to Pub. Ltd. Compnay
- Lecture 14 - Law Relating to Non-Profit Company
- Lecture 15 - How to Incorporate these Companies
- Lecture 16 - How to Capitalize the Business
- Lecture 17 - Raising fund through Private Equity and Venture Capital
- Lecture 18 - Raising fund from Financial Institution
- Lecture 19 - Types of Instruments for raising the fund
- Lecture 20 - Issue of the Instruments

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Soft Skill Development

Subject Co-ordinator - Prof. Priyadarshi Patnaik, Prof. V.N. Giri, Prof. D. Suar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 36 - Managing Time

Lecture 1 - Understanding the Communicative Environment Â I

Lecture 2 - Understanding the Communicative Environment Â II

Lecture 3 - What to listen for and why

Lecture 4 - When to speak and how

Lecture 5 - Starting and Sustaining a Conversation

Lecture 6 - What to Present and How - Part I

Lecture 7 - What to Present and How - Part II

Lecture 8 - Multimedia Presentation

Lecture 9 - Communication Styles

Lecture 10 - Speaking in Groups

Lecture 11 - The World of Visual Culture I

Lecture 12 - Visual Perception

Lecture 13 - The Aural

Lecture 14 - The Body and the Way It Communicates

Lecture 15 - The Face, Its Expressions and What It Says

Lecture 16 - Building Relationships

Lecture 17 - Understanding Group Dynamics - I

Lecture 18 - Understanding Group Dynamics - II

Lecture 19 - Groups, Conflicts and their Resolution

Lecture 20 - Social Network, Media and Extending Our Identity

Lecture 21 - How Emotionally Mature Are You

Lecture 22 - Improving Your Emotional Intelligence

Lecture 23 - Empathy

Lecture 24 - Intrapersonal Communication

Lecture 25 - Change Tolerance

Lecture 26 - Creativity

Lecture 27 - Creativity

Lecture 28 - Creativity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Creativity at Workplace
- Lecture 30 - Creativity, Critical Thinking and Problem Solving
- Lecture 31 - Motivating Oneself
- Lecture 32 - The Art of Persuasion - I
- Lecture 33 - The Art of Persuasion - II
- Lecture 34 - From Persuasion to Negotiation
- Lecture 35 - Leadership and Motivating Others
- Lecture 37 - Managing Stress
- Lecture 38 - Resilience
- Lecture 39 - Work - Life Balance
- Lecture 40 - Applying Soft Skills to Workplace

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Symbolic Logic

Subject Co-ordinator - Prof. Chhanda Chakraborti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Propositions, Arguments, Components, Basic Characteristics

Lecture 3 - Recognizing arguments, Diagramming logic flow

Lecture 4 - Types of arguments, Deductive, Inductive, different norms to assess arguments

Lecture 5 - Concepts of Validity Soundness, Consistency

Lecture 6 - History of Symbolic Language

Lecture 7 - Propositional Logic

Lecture 8 - Connectives, Scope of Connectives

Lecture 9 - Truth-functional Connectives, Propositional Variables, Propositional Constants

Lecture 10 - Symbolization with Connectives

Lecture 11 - Propositional Logic

Lecture 12 - Using Truth Table

Lecture 13 - Using Truth Table

Lecture 14 - Shorter Truth Table

Lecture 15 - Using Truth Table

Lecture 16 - Introduction to Truth Trees

Lecture 17 - Truth Tree Rules and their Application

Lecture 18 - More on Truth-Tree Recovery of Partial Truth - Values

Lecture 19 - Using the Truth Trees

Lecture 20 - More on Truth Trees

Lecture 21 - Formal Proof of Validity

Lecture 22 - Valid Argument Forms

Lecture 23 - How to Apply the Rules of Inference in a Proof

Lecture 24 - Understanding the Rules

Lecture 25 - Proofs with All Rules

Lecture 26 - Completeness

Lecture 27 - Indirect Proof

Lecture 28 - Conditional Proof

Lecture 29 - More on Conditional Proof

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - More on Derivations
- Lecture 31 - Limitation of Propositional Logic
- Lecture 32 - Basic 4 Types of Categorical Propositions
- Lecture 33 - Understanding Logical Relations in Standard Form Categorical Propositions
- Lecture 34 - Translating Non-Standard Propositions into Standard Form Categorical Propositions
- Lecture 35 - Validity and Invalidity of Syllogisms
- Lecture 36 - First Order Predicate Logic
- Lecture 37 - Quantifiers
- Lecture 38 - Scope of a Quantifier Edit Lesson
- Lecture 39 - Multiple Quantifiers
- Lecture 40 - Understanding Overlapping Quantifiers Sharing Predicates and Scope

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction on Intellectual Property to Engineers

Subject Co-ordinator - Prof. Tapas Kumar Bandyopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic of Intellectual Property
- Lecture 2 - Introduction to Law
- Lecture 3 - Theories of IP
- Lecture 4 - Different Forms of IP
- Lecture 5 - Different Forms of IP and Applicability of Theory
- Lecture 6 - Patent Basic
- Lecture 7 - Patent Ability Criteria
- Lecture 8 - Non-Patentable Invention
- Lecture 9 - Prier-Art Search
- Lecture 10 - Patent Filing Procedure
- Lecture 11 - Patent Prosecution
- Lecture 12 - Patent Prosecution (Continued...)
- Lecture 13 - International Patent
- Lecture 14 - Patent Infringement
- Lecture 15 - Patent Management
- Lecture 16 - Utility Model Protection
- Lecture 17 - Copyright Basic
- Lecture 18 - Copy Right Registration
- Lecture 19 - Copyright Infringement and Fair Use
- Lecture 20 - Copyright in Digital Media
- Lecture 21 - Industrial Design Basic
- Lecture 22 - Industrial Design Registration
- Lecture 23 - Utility Patent Vs Industrial Design
- Lecture 24 - Trademark Basic
- Lecture 25 - Trademark Registration
- Lecture 26 - Trademark and Internet
- Lecture 27 - Certification Mark and Collective Mark
- Lecture 28 - Geographical Indication
- Lecture 29 - Economics of GI Edit Lesson

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Trademark Vs GI Trademark Management
- Lecture 31 - IC Layout Design and Basic
- Lecture 32 - IC Layout Design Registration
- Lecture 33 - Trade- Secret and Basic
- Lecture 34 - Trade-Secret Protection
- Lecture 35 - Patent Vs Trade-Secret
- Lecture 36 - Plant Variety Protection
- Lecture 37 - Bio-diversity
- Lecture 38 - Comparative Analysis
- Lecture 39 - IP Management
- Lecture 40 - Case - Study on IP Management

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Globalization and Culture

Subject Co-ordinator - Prof. Anjali Gera Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Globalization Definition
- Lecture 2 - Global Flows and New Media and Technologies
- Lecture 3 - Globalization and Nation
- Lecture 4 - Rise of Global Capitalism
- Lecture 5 - Cultural Imperialism
- Lecture 6 - Global Monocultures
- Lecture 7 - Birth of Asian Kool
- Lecture 8 - Bhangra Reinvention
- Lecture 9 - Disorienting Bhangra
- Lecture 10 - The Body of Dance
- Lecture 11 - World Music I - Tabla
- Lecture 12 - World Music II - Qawwali
- Lecture 13 - World Music III - Baul
- Lecture 14 - Is Chutney the New Rage
- Lecture 15 - Bollywood Song and Dance
- Lecture 16 - Planet Bollywood
- Lecture 17 - Bollywood at Large
- Lecture 18 - Bollywood Assemblages - Part I
- Lecture 19 - Bollywood Assemblages - Part II
- Lecture 20 - Bollywood's Soft Power
- Lecture 21 - Travels of Dastan
- Lecture 22 - Scripting the Nation
- Lecture 23 - Cracking the Nation
- Lecture 24 - Narrating and Interrogating the Nation
- Lecture 25 - Cosmopolitans the Borderless World
- Lecture 26 - Orientalism
- Lecture 27 - Yoga, Meditation, Gurus
- Lecture 28 - Beatles, Ravi Shankar and Sitar
- Lecture 29 - Orientalizing India

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Neorientalism
- Lecture 31 - The Birth of Indo-Chic
- Lecture 32 - Henna, Bindi, Saris and Bangles
- Lecture 33 - The Taste of Curry
- Lecture 34 - Global News
- Lecture 35 - News as Infortainment
- Lecture 36 - Global Media Cultures
- Lecture 37 - Cultural Imperialism
- Lecture 38 - Contraflows in Global Media
- Lecture 39 - Contraflows in News and Entertainment

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Qualitative Research Methods

Subject Co-ordinator - Prof. Aradhna Malik

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - The Qualitative Researcher
- Lecture 3 - Quantitative vs. Qualitative Research
- Lecture 4 - History of Qualitative Research
- Lecture 5 - The Process of Qualitative Research
- Lecture 6 - Dominant Paradigms of Qualitative Research
- Lecture 7 - Interpretivist Thinking
- Lecture 8 - Verstehen
- Lecture 9 - Constructivism
- Lecture 10 - Properties of Constructions
- Lecture 11 - Constructivism-Sub Paradigms
- Lecture 12 - Criticisms of Interpretivism and Constructivism
- Lecture 13 - Critical Theory
- Lecture 14 - Characteristics of Critical Theory
- Lecture 15 - Critiques of Critical Theory
- Lecture 16 - Introduction to Qualitative Inquiry
- Lecture 17 - Qualitative Research Design
- Lecture 18 - Qualitative Research Design (Continued...)
- Lecture 19 - Ethnography
- Lecture 20 - Autoethnography
- Lecture 21 - Case Studies
- Lecture 22 - Case Studies (Continued...)
- Lecture 23 - Analyzing Interpretive Practice
- Lecture 24 - Analyzing Interpretive Practice (Continued...)
- Lecture 25 - Grounded Theory
- Lecture 26 - Grounded Theory (Continued...)
- Lecture 27 - Participatory Action Research
- Lecture 28 - Participatory Action Research (Continued...)
- Lecture 29 - Observation

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- Lecture 30 - Interviewing
- Lecture 31 - Interviewing (Continued...)
- Lecture 32 - Interpretation of Documents and Material Culture
- Lecture 33 - Autoethnography, Personal Narrative and Reflexivity
- Lecture 34 - Analyzing Visual Data
- Lecture 35 - Analyzing Talk and Text
- Lecture 36 - Data Management and Analysis Methods
- Lecture 37 - Data Management and Analysis Methods (Continued...)
- Lecture 38 - Software and Qualitative Research
- Lecture 39 - The Problem of Criteria
- Lecture 40 - Interpretation
- Lecture 41 - Writing
- Lecture 42 - Writing (Continued...)
- Lecture 43 - Understanding Social Programs through Evaluation
- Lecture 44 - Understanding Social Programs through Evaluation (Continued...)
- Lecture 45 - Influencing the Policy Progress with Qualitative Research
- Lecture 46 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Emotional Intelligence

Subject Co-ordinator - Prof. Rabindra Kumar Pradhan

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to EI and Related Concepts
- Lecture 2 - Introduction to EI and Related Concepts (Continued...)
- Lecture 3 - Introduction to EI and Related Concepts (Continued...)
- Lecture 4 - Introduction to EI and Related Concepts (Continued...)
- Lecture 5 - Introduction to Intelligence
- Lecture 6 - Meaning, Nature, Scope, Types of Intelligence
- Lecture 7 - Measurement of Intelligence
- Lecture 8 - Applications
- Lecture 9 - Discovery of Emotional Intelligence
- Lecture 10 - Meaning, Nature Theory
- Lecture 11 - Measurement of EI
- Lecture 12 - Difference Between EQ and IQ
- Lecture 13 - EQ Assessment
- Lecture 14 - EQ and Empathy
- Lecture 15 - EQ and Resilience
- Lecture 16 - EQ and Health and Wellbeing
- Lecture 17 - EQ Map
- Lecture 18 - EQ Map (Continued...)
- Lecture 19 - EQ Map (Continued...)
- Lecture 20 - EQ Map (Continued...)
- Lecture 21 - Emotional Intelligence in Education
- Lecture 22 - Evaluation of EQ for Students
- Lecture 23 - EI New Vision for Learning
- Lecture 24 - EQ Skills for Students Success
- Lecture 25 - EI in Health and Well Being
- Lecture 26 - EI in Health and Well Being (Continued...)
- Lecture 27 - EI and Cultural Adjustment
- Lecture 28 - EI at Work
- Lecture 29 - Emotional Intelligence and Happiness Positive Psychology

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Emotional Intelligence and Happiness Positive Psychology (Continued...)
- Lecture 31 - Emotional Intelligence and Happiness Positive Psychology (Continued...)
- Lecture 32 - Emotional Intelligence and Happiness Positive Psychology (Continued...)
- Lecture 33 - Emotional Intelligence and Leadership
- Lecture 34 - Emotional Intelligence an Leadership (Continued...)
- Lecture 35 - Emotional Intelligence an Leadership (Continued...)
- Lecture 36 - Emotional Intelligence an Leadership (Continued...)
- Lecture 37 - Culture and Emotion
- Lecture 38 - Role of EI
- Lecture 39 - Cultural Intelligence
- Lecture 40 - Emotional Intelligence for Cross Cultural Adaptability

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Speaking Effectively

Subject Co-ordinator - Prof. Anjali Gera Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, The Art of Speaking
- Lecture 2 - Encoding Meaning Using Verbal and Nonverbal Symbols
- Lecture 3 - Encoding Meaning Using Verbal Symbols
- Lecture 4 - The Power of words
- Lecture 5 - Cross Cultural Factors in Communication Verbal and Nonverbal
- Lecture 6
- Lecture 7
- Lecture 8
- Lecture 9
- Lecture 10
- Lecture 11 - Phonetics
- Lecture 12 - Sounds of English Vowels
- Lecture 13 - Sounds of English Diphthongs and Consonants
- Lecture 14 - Stress and Rhythm Intonation
- Lecture 15 - Role plays and activities
- Lecture 16 - Speaking Voice
- Lecture 17 - Speaking Delivery
- Lecture 18 - How to Improve Voice
- Lecture 19 - How to Improve Delivery
- Lecture 20 - Sample Speeches
- Lecture 21
- Lecture 22
- Lecture 23
- Lecture 24
- Lecture 25
- Lecture 26
- Lecture 27
- Lecture 28
- Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Great Experiments in Psychology

Subject Co-ordinator - Prof. Rajlakshmi Guha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - History and Origin of Psychology

Lecture 2 - Establishing Psychology as a Science

Lecture 3 - Establishing Psychology as a Science (Continued...)

Lecture 4 - A New Psychology

Lecture 5 - Structuralism and Beyond

Lecture 6 - Herman Ebbinghaus on Memory

Lecture 7 - Reconstruction of an Automobile Destruction - An Example of the Interactin between Language and M

Lecture 8 - Emotionality and Perceptual Defence

Lecture 9 - Festinger's Cognitive Dissonance Theory

Lecture 10 - Milgram's Study on Obedience

Lecture 11 - Case Studies and Experiments in Clinical and Health Psychology

Lecture 12 - Obsessive Compulsive Disorder

Lecture 13 - A Case of Multiple Personality

Lecture 14 - The Story of Dibs

Lecture 15 - On Being Sane in Insane Places

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Human Resource Development

Subject Co-ordinator - Prof. K. B. L. Srivastava

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to HRD  
Lecture 2 - Introduction to HRD (Continued...)  
Lecture 3 - Introduction to HRD (Continued...)  
Lecture 4 - Introduction to HRD (Continued...)  
Lecture 5 - Introduction to HRD (Continued...)  
Lecture 6 - The Context of HRD  
Lecture 7 - The Context of HRD (Continued...)  
Lecture 8 - The Context of HRD (Continued...)  
Lecture 9 - The Context of HRD (Continued...)  
Lecture 10 - The Context of HRD (Continued...)  
Lecture 11 - HRD Process - I  
Lecture 12 - HRD Process - I (Continued...)  
Lecture 13 - HRD Process - I (Continued...)  
Lecture 14 - HRD Process - I (Continued...)  
Lecture 15 - HRD Process - I (Continued...)  
Lecture 16 - HRD Process - II  
Lecture 17 - HRD Process - II (Continued...)  
Lecture 18 - HRD Process - II (Continued...)  
Lecture 19 - HRD Process - II (Continued...)  
Lecture 20 - HRD Process - II (Continued...)  
Lecture 21 - Coaching  
Lecture 22 - Coaching (Continued...)  
Lecture 23 - Coaching (Continued...)  
Lecture 24 - Coaching (Continued...)  
Lecture 25 - Coaching (Continued...)  
Lecture 26 - Mentoring  
Lecture 27 - Mentoring (Continued...)  
Lecture 28 - Mentoring (Continued...)  
Lecture 29 - Mentoring (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Mentoring (Continued...)
- Lecture 31 - Employee Counseling and Wellbeing
- Lecture 32 - Employee Counseling and Wellbeing (Continued...)
- Lecture 33 - Employee Counseling and Wellbeing (Continued...)
- Lecture 34 - Employee Counseling and Wellbeing (Continued...)
- Lecture 35 - Employee Counseling and Wellbeing (Continued...)
- Lecture 36 - Competency Mapping Approach to HRD
- Lecture 37 - Competency Mapping Approach to HRD (Continued...)
- Lecture 38 - Competency Mapping Approach to HRD (Continued...)
- Lecture 39 - Competency Mapping Approach to HRD (Continued...)
- Lecture 40 - Competency Mapping Approach to HRD (Continued...)
- Lecture 41 - Career Planning and Development
- Lecture 42 - Career Planning and Development (Continued...)
- Lecture 43 - Career Planning and Development (Continued...)
- Lecture 44 - Career Planning and Development (Continued...)
- Lecture 45 - Career Planning and Development (Continued...)
- Lecture 46 - Intellectual Capital Management
- Lecture 47 - Intellectual Capital Management (Continued...)
- Lecture 48 - Intellectual Capital Management (Continued...)
- Lecture 49 - Intellectual Capital Management (Continued...)
- Lecture 50 - Intellectual Capital Management (Continued...)
- Lecture 51 - HRD, Organizational Learning, and Learning Organization
- Lecture 52 - HRD, Organizational Learning, and Learning Organization (Continued...)
- Lecture 53 - HRD, Organizational Learning, and Learning Organization (Continued...)
- Lecture 54 - HRD, Organizational Learning, and Learning Organization (Continued...)
- Lecture 55 - HRD, Organizational Learning, and Learning Organization (Continued...)
- Lecture 56 - Diversity, HRD Ethics, and Future of HRD
- Lecture 57 - Diversity, HRD Ethics, and Future of HRD (Continued...)
- Lecture 58 - Diversity, HRD Ethics, and Future of HRD (Continued...)
- Lecture 59 - Diversity, HRD Ethics, and Future of HRD (Continued...)
- Lecture 60 - Diversity, HRD Ethics, and Future of HRD (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC: Educational Leadership

Subject Co-ordinator - Prof. Atasi Mohanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Educational Management and Leadership
- Lecture 2 - Key Challenges for Educational Leaders
- Lecture 3 - Key Challenges for Educational Leaders (Continued...)
- Lecture 4 - Key Challenges for Educational Leaders (Continued...)
- Lecture 5 - Key Challenges for Educational Leaders (Continued...)
- Lecture 6 - Professional Development and The Reflective Practitioner
- Lecture 7 - Professional Development and The Reflective Practitioner (Continued...)
- Lecture 8 - Professional Development and The Reflective Practitioner (Continued...)
- Lecture 9 - Professional Development and The Reflective Practitioner (Continued...)
- Lecture 10 - Professional Development and The Reflective Practitioner (Continued...)
- Lecture 11 - Professional Ethics and Values in Teaching
- Lecture 12 - Professional Ethics and Values in Teaching (Continued...)
- Lecture 13 - Professional Ethics and Values in Teaching (Continued...)
- Lecture 14 - Emotional Intelligence and Educational Leadership
- Lecture 15 - Emotional Intelligence and Educational Leadership (Continued...)
- Lecture 16 - Emotional Intelligence and Educational Leadership (Continued...)
- Lecture 17 - Emotional Intelligence and Educational Leadership (Continued...)
- Lecture 18 - Managing Diversity and Inclusion
- Lecture 19 - Managing Diversity and Inclusion (Continued...)
- Lecture 20 - Managing Diversity and Inclusion (Continued...)
- Lecture 21 - Managing Diversity and Inclusion (Continued...)
- Lecture 22 - Managing Diversity and Inclusion (Continued...)
- Lecture 23 - Educational Research and Pedagogy
- Lecture 24 - Educational Research and Pedagogy (Continued...)
- Lecture 25 - Educational Research and Pedagogy (Continued...)
- Lecture 26 - Educational Research and Pedagogy (Continued...)
- Lecture 27 - Educational Research and Pedagogy (Continued...)
- Lecture 28 - Innovative Pedagogy and Technology for Learning
- Lecture 29 - Innovative Pedagogy and Technology for Learning (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Innovative Pedagogy and Technology for Learning (Continued...)
- Lecture 31 - Innovative Pedagogy and Technology for Learning (Continued...)
- Lecture 32 - Innovative Pedagogy and Technology for Learning (Continued...)
- Lecture 33 - Innovative Pedagogy and Technology for Learning (Continued...)
- Lecture 34 - Innovative Pedagogy and Technology for Learning (Continued...)
- Lecture 35 - Turnaround Leadership and Educational Entrepreneurship
- Lecture 36 - Turnaround Leadership and Educational Entrepreneurship (Continued...)
- Lecture 37 - Turnaround Leadership and Educational Entrepreneurship (Continued...)
- Lecture 38 - Turnaround Leadership and Educational Entrepreneurship (Continued...)
- Lecture 39 - New Normal Education
- Lecture 40 - New Normal Education (Continued...)
- Lecture 41 - New Normal Education (Continued...)
- Lecture 42 - New Normal Education (Continued...)
- Lecture 43 - New Normal Education (Continued...)
- Lecture 44 - Adult learning/Andragogy
- Lecture 45 - Adult learning/Andragogy (Continued...)
- Lecture 46 - Adult learning/Andragogy (Continued...)
- Lecture 47 - Adult learning/Andragogy (Continued...)
- Lecture 48 - Adult learning/Andragogy (Continued...)
- Lecture 49 - National Education Policy 2020
- Lecture 50 - National Education Policy 2020 (Continued...)
- Lecture 51 - National Education Policy 2020 (Continued...)
- Lecture 52 - National Education Policy 2020 (Continued...)
- Lecture 53 - National Education Policy 2020 (Continued...)
- Lecture 54 - Education and UNESCO Sustainable Development Goals
- Lecture 55 - Education and UNESCO Sustainable Development Goals (Continued...)
- Lecture 56 - Education and UNESCO Sustainable Development Goals (Continued...)
- Lecture 57 - Education and UNESCO Sustainable Development Goals (Continued...)
- Lecture 58 - Education and UNESCO Sustainable Development Goals (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Strategic Performance Management

Subject Co-ordinator - Prof. Kbl Srivastava

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Performance management
- Lecture 2 - Aim and purpose of performance management
- Lecture 3 - Characteristics of an effective PM system
- Lecture 4 - Performance Management Process
- Lecture 5 - Role of PM in employee development and identification of Key performance areas
- Lecture 6 - Understanding performance planning
- Lecture 7 - Strategic Planning and performance
- Lecture 8 - Strategic planning and performance - 2
- Lecture 9 - Strategic planning and performance - 3
- Lecture 10 - Strategy and performance alignment
- Lecture 11 - Performance dimensions
- Lecture 12 - Behavior, result and trait approach system
- Lecture 13 - Measuring behavior and results
- Lecture 14 - Measurement system
- Lecture 15 - Collecting information in performance management
- Lecture 16 - Implementing PM System
- Lecture 17 - Implementing PMS (2)
- Lecture 18 - Self appraisal
- Lecture 19 - Managing team performance
- Lecture 20 - 360 degree appraisal
- Lecture 21 - Performance Management Skill
- Lecture 22 - Performance Management and Employee Development
- Lecture 23 - Coaching for performance improvement
- Lecture 24 - Coaching process, analysis and techniques
- Lecture 25 - Coaching skills for managers and evaluation
- Lecture 26 - Performance Review
- Lecture 27 - Performance Review (Continued...)
- Lecture 28 - Performance review Discussion
- Lecture 29 - Performance Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Use of performance management data for HR decision making
- Lecture 31 - Potential Appraisal 1
- Lecture 32 - Potential Appraisal 2
- Lecture 33 - Reward system 1
- Lecture 34 - Reward system 2
- Lecture 35 - Performance Management and Legal System
- Lecture 36 - PMS in Indian Organisations
- Lecture 37 - Culture and Performance Management
- Lecture 38 - Technology and Performance Management
- Lecture 39 - PMS in Select Indian Companies
- Lecture 40 - Future of Performance Management

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Basic Spoken Sanskrit

Subject Co-ordinator - Prof. Anuradha Choudry

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - The Sounds of Sanskrit
- Lecture 3 - Sentence Construction and its underlying logic
- Lecture 4 - Introduction of Self and Others
- Lecture 5 - Basic Verbs and Some Conjugations
- Lecture 6 - Introduction to the Genitive (6th) Case
- Lecture 7 - Counting and Reading the Time
- Lecture 8 - Plural of Pronouns and Nouns
- Lecture 9 - Conjugation of Basic Verbs in the Plural
- Lecture 10 - Introduction to the Locative (7th) Case
- Lecture 11 - Days of the Week, Months, Future Tense
- Lecture 12 - Past Tense and More Verbs
- Lecture 13 - Introduction to the Accusative (2nd) Case
- Lecture 14 - Continuation of the Accusative (2nd) Case
- Lecture 15 - Introduction to the Instrumental (3rd) Case
- Lecture 16 - Continuation of the Instrumental (3rd) Case
- Lecture 17 - Introduction to the Ablative (5th) Case
- Lecture 18 - Introduction to the Dative (4th) Case
- Lecture 19 - Introduction to the Vocative (8th) Case
- Lecture 20 - Overview and Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Water, Society and Sustainability

Subject Co-ordinator - Prof. Jenia Mukherjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Setting the Context

Lecture 2 - Beyond Hydrology

Lecture 3 - Socio Hydrology

Lecture 4 - Political Ecology of Water

Lecture 5 - Hydrosocial

Lecture 6 - Critical Physical Geography (CPG)

Lecture 7 - The South Asian Context

Lecture 8 - Water Harvesting and Water Use Techniques in Ancient India - 1

Lecture 9 - Water Harvesting and Water Use Techniques in Ancient India - 2

Lecture 10 - Water Harvesting and Water Use Techniques in Ancient India - 3

Lecture 11 - Water Technology in Medieval India - 1

Lecture 12 - Water Technology in Medieval India - 2

Lecture 13 - Colonial Hydrology

Lecture 14 - Dams and Development in Contemporary India

Lecture 15 - The Farakka Barrage Project

Lecture 16 - The Farakka Barrage Project

Lecture 17 - Urban Waters

Lecture 18 - Peri-urban Water Justice in the Global South

Lecture 19 - Transforming Trajectories of Blue Infrastructures of Kolkata

Lecture 20 - Discussion and Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Employment Communication A Lab based course

Subject Co-ordinator - Prof. Seema Singh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Employment Communication - A Lab based Course

Lecture 2 - Communication - An Introduction

Lecture 3 - Communication Skills at the Workplace

Lecture 4 - Verbal Communication - Introduction

Lecture 5 - Verbal Communication (Continued...)

Lecture 6 - Non-verbal Communication - Introduction

Lecture 7 - Non-verbal Communication - Conclusion

Lecture 8 - Inter Cultural Communication - Introduction

Lecture 9 - Inter Cultural Communication - Conclusion

Lecture 10 - Practice Session 0

Lecture 11 - Body Language - Introduction

Lecture 12 - Body Language - Conclusion

Lecture 13 - Listening Skills - Introduction

Lecture 14 - Listening Skills - Conclusion

Lecture 15 - Practice Session 1

Lecture 16 - Body Language

Lecture 17 - Introduction to the Employment Process

Lecture 18 - Listening Skills

Lecture 19 - Introduction to CV Writing

Lecture 20 - Samples of Good CVs and Cover Letter

Lecture 21 - The Cover Letter

Lecture 22 - CV Writing Lab Session - I

Lecture 23 - CV Writing Lab Session - II

Lecture 24 - Fundamentals of Group Discussions (GDs)

Lecture 25 - Strategies for Success in GDs

Lecture 26 - Group Discussions Lab - Practice Session I

Lecture 27 - Group Discussions Lab - Practice Session II

Lecture 28 - Group Discussions Lab - Practice Session III

Lecture 29 - Group Discussions Lab - Practice Session IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interviewing for Employment
- Lecture 31 - Preparing for the Personal Interview
- Lecture 32 - PI Practice Session - I
- Lecture 33 - PI Practice Session - II
- Lecture 34 - PI Practice Session - III
- Lecture 35 - PI Practice Session - IV
- Lecture 36 - Tackling Questions during Personal Interviews (PIs)
- Lecture 37 - Success in Personal Interviews (PIs)
- Lecture 38 - Life Skills Lab and Student Speak
- Lecture 39 - Life Skills
- Lecture 40 - Course Wrap Up

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Intermediate Level of Spoken Sanskrit

Subject Co-ordinator - Prof. Anuradha Choudry

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the devanĀgarĀ script
- Lecture 2 - Introduction to the devanĀgarĀ script
- Lecture 3 - Revision and practice of vibhakti - declension forms
- Lecture 4 - Revision and practice of vibhakti - declension forms
- Lecture 5 - Revision and practice of vibhakti - declension forms
- Lecture 6 - Revision and practice of vibhakti - declension forms
- Lecture 7 - Introduction to the first and second person pronouns in the plural forms - Part 1
- Lecture 8 - Revision and practice of the first and second person pronouns in the plural - Part 2
- Lecture 9 - Introduction of the first person pronoun in the dual form - Part 1
- Lecture 10 - Introduction of the first person pronoun in the dual form - Part 2
- Lecture 11 - Introduction of the second person pronoun in the dual form - Part 1
- Lecture 12 - Introduction of the second person pronoun in the dual form - Part 2
- Lecture 13 - Third person pronouns and nouns (m/f) in the plural - Part 1
- Lecture 14 - Third person pronouns and nouns (m/f) in the plural - Part 2
- Lecture 15 - Third person pronouns and nouns (m/f) in the plural - Part 3
- Lecture 16 - Third person pronouns and nouns (m/n/f) in the plural - Part 4
- Lecture 17 - Third person pronouns and nouns (m/n/f) in the plural - Part 5
- Lecture 18 - Revision and Exercises
- Lecture 19 - Third person pronouns and nouns (m/n/f) in the dual - Part 1
- Lecture 20 - Third person pronouns and nouns (m/n/f) in the dual - Part 2
- Lecture 21 - Third person pronouns and nouns (m/n/f) in the dual - Part 3
- Lecture 22 - Third person pronouns and nouns (m/n/f) in the dual - Part 4
- Lecture 23 - Third person pronouns and nouns (m/n/f) in the dual - Part 5
- Lecture 24 - Revision of the third person pronouns and nouns (m/n) in the dual - Part 1
- Lecture 25 - Revision of the third person pronouns and nouns (f) in the dual - Part 2
- Lecture 26 - Introduction to the verb conjugations in the kriyĀtipatti-lĀ<sup>1</sup> ā<sup>1</sup> (the conditional)
- Lecture 27 - Introduction to the verb conjugations in the vidhi-liĀ<sup>1</sup> (the optative)
- Lecture 28 - Introduction to the conjugation of ā asā (to be) from the adĀdigaĀ<sup>1</sup> a (2nd group) in the var
- Lecture 29 - Introduction to the conjugation of the verb ā dĀĀ (to give) from the juhotyĀdigaĀ<sup>1</sup> a (3rd g

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to the conjugation of the verb â divâ (to shine, to sport) and â vidâ (to know)
- Lecture 31 - Introduction to the conjugation of the verb â Å ruâ (to hear) from the svÄ•digaá¹ a (5th group)
- Lecture 32 - Introduction to the conjugation of the verb from the ká¹ (to do) from the tanÄ•digaá¹ a (8th group)
- Lecture 33 - Introduction to the conjugation of the verb 'mil' (to meet) from the tudÄ•digaá¹ a (6th group)
- Lecture 34 - Introduction to the conjugation of the verb 'bhuj' (to protect) from the rudhÄ•digaá¹ a (7th group)
- Lecture 35 - Introduction to the conjugation of the verb â jÃ±Ä•â (to know) from the kryÄ•digaá¹ a (9th group)
- Lecture 36 - Introduction of nouns (m) ending with â uâ and â iâ in the three vacanas
- Lecture 37 - Introduction of nouns (n) ending with â uâ and â iâ in the three vacanas
- Lecture 38 - Introduction of nouns (f) ending with â uâ and â iâ in the three vacanas
- Lecture 39 - Introduction of nouns (m) ending with â inâ and of nouns (n/f) ending with â nâ in the three vacanas
- Lecture 40 - Introduction of nouns (m/n/f) ending with â tâ in the three vacanas
- Lecture 41 - Introduction of nouns (m/f/n) ending with â á¹ â in the three vacanas
- Lecture 42 - Introduction to the svarasandhi
- Lecture 43 - Introduction to the visargasandhi
- Lecture 44 - Introduction to the vyaÃ±janasandhi
- Lecture 45 - Summary and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Entrepreneurship and IP strategy

Subject Co-ordinator - Prof. Gouri Gargate

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - What is an entrepreneurship ?

Lecture 3 - What do you understand by IP ?

Lecture 4 - Whether entrepreneurship and IP related? What is role of IP strategy in entrepreneurship?

Lecture 5 - Case study I - IT industry

Lecture 6 - Innovation, invention and creativity

Lecture 7 - Types of innovation

Lecture 8 - Innovation, market and IP

Lecture 9 - Open innovation and IP

Lecture 10 - Case Study II - Biotechnology

Lecture 11 - Trademark - Definition

Lecture 12 - Trademark - Types

Lecture 13 - Trademark - Registration

Lecture 14 - Trademark infringement

Lecture 15 - Case study III - Textile industry

Lecture 16 - Patent - introduction

Lecture 17 - Patent infringement

Lecture 18 - Patent strategies - I

Lecture 19 - Patent strategies - II

Lecture 20 - Capsule version

Lecture 21 - Copyright - Definition and subject matter

Lecture 22 - Copyright and related rights

Lecture 23 - Copyright registration and entrepreneurship

Lecture 24 - Copyright infringement

Lecture 25 - Case study IV - Film industry

Lecture 26 - Industrial Design- Definition, concept

Lecture 27 - Industrial Designs Act - Key features

Lecture 28 - Industrial Design-Business

Lecture 29 - Industrial Design infringement

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Case study V - Automobile industry
- Lecture 31 - IP strategy for start-up and MSME
- Lecture 32 - IP transaction - introduction
- Lecture 33 - IP valuation, bank loan, insurance
- Lecture 34 - Success story and business model of a few start-ups
- Lecture 35 - Case Study VI - Agriculture
- Lecture 36 - Incubators, research parks
- Lecture 37 - Various Government policies
- Lecture 38 - Various Government policies
- Lecture 39 - Capsule revision
- Lecture 40 - Am I ready to venture my start up? (Course applicability)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Urbanization and Environment

Subject Co-ordinator - Prof. Jenia Mukherjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Setting the Context

Lecture 2 - The Anthropocene

Lecture 3 - The Nine Planetary Boundaries Framework

Lecture 4 - The Capitalocene

Lecture 5 - The Urbanocene

Lecture 6 - COVID 19, Urban Informality and Environment

Lecture 7 - Sanitary Cities: Urban, Environment and Modernity in the West

Lecture 8 - Networked Cities: Path-dependent Consequences

Lecture 9 - From Sanitary to Sustainable Cities

Lecture 10 - How sustainable? Critical analysis of contemporary urban models

Lecture 11 - Historical Pasts

Lecture 12 - Colonial Urbanization

Lecture 13 - Limits and Legacies of Colonial Urbanization

Lecture 14 - The Post-independence Scenario: Planned Cities and Renewal Missions

Lecture 15 - Smart Cities

Lecture 16 - Smart Cities: Critique and Contestations

Lecture 17 - Fantasy Cities? Understanding Limits of Smart, Eco and Green Doctrines

Lecture 18 - Fantasy Cities? Understanding Limits of Smart, Eco and Green Doctrines Case (Continued...)

Lecture 19 - Fantasy Cities? Understanding Limits of Smart, Eco and Green Doctrines Case (Continued...)

Lecture 20 - Urban Environmental History: The US Part I: Context and Themes

Lecture 21 - Urban Environmental History: The US Part II: More Thematic Variations and Global

Lecture 22 - Urban Environmental History: Europe Part I: Context and Themes

Lecture 23 - Urban Environmental History: Europe Part II: Recent Advances

Lecture 24 - Urban Environmental History: South Asia [SAUEH] Part I.A: The Prelude: Inception

Lecture 25 - Urban Environmental History: South Asia [SAUEH] Part I.B: (More) Nuanced Narratives

Lecture 26 - Urban Environmental History: South Asia [SAUEH] Part II: Trends and Trajectories

Lecture 27 - Urban Environmental History: South Asia [SAUEH] Part II: Trends and Trajectories (Continued...)

Lecture 28 - Urban Political Ecology Part I: Emergence and Development

Lecture 29 - Urban Political Ecology Part II: (More) Recent Advances

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Urban Political Ecology Part III: Internal Debates and New Political Possibilities
- Lecture 31 - Urban Political Ecology: The Indian Context Part I: Themes and Concepts
- Lecture 32 - Urban Political Ecology: The Indian Context Part II: (More) Recent Advances
- Lecture 33 - Historical Urban Political Ecology (HUPE): Blue Infrastructures of Kolkata
- Lecture 34 - Urban Environmentalisms
- Lecture 35 - Urban Environmentalisms: Case Study 1: The Adi Ganga Bachao Andolan
- Lecture 36 - Urban Environmentalisms: Case Study 2: Protests to Protect the EKW
- Lecture 37 - Translocal Learning for Water Justice: Peri-urban Pathways in India, Tanzania and ...
- Lecture 38 - Informing Urban Disaster Studies using Comparative Urban Environmentalism
- Lecture 39 - Urban Environmental Heritage: Insights from Bengalâs Mini-Europe
- Lecture 40 - The Way Forward



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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NPTEL Video Course - Humanities and Social Sciences - NOC:Advanced Level of Spoken Sanskrit

Subject Co-ordinator - Prof. Anuradha Choudry

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview and Revision of Sentence formation

Lecture 2 - Understanding the concepts of àà àà¼àà°àà àà@àà¥. and àààààààà-àà àà¥.àààààà¼àà

Lecture 3 - Revision of Masculine nouns (àà²àà¥.àà àà²ààààà àà¥.àà -àà,àà¥.àà-àà²àà¥.àààààà¼àà ) and some verbs (àà

Lecture 4 - Revision of Masculine nouns (àà²àà¥.àà²àà¥.àà²ààààà àà¥.àà -àà,àà¥.àà-àà²àà¥.àààààà¼àà ) and some verb

Lecture 5 - Revision of Feminine nouns (àà,àà¥.àààààà¥.àà°àà¥ àà²ààààà àà¥.àà -àà,àà¥.àà-àà²àà¥.àààààà¼àà ) and some

Lecture 6 - Neuter nouns (àà²àà²àà¥.àà àà,àà àà²ààààà àà¥.àà -àà,àà¥.àà-àà²àà¥.àààààà¼àà ) and some verb forms (àà

Lecture 7 - Revision of ààààà°àà¥.ààààà@àà¼àà²àà¼, àà@àà¼àà²àà¥ ààààà¥.ààààà°àà,àà¥ ààààà¥.àà°àà¼àààààà¼, vibration

Lecture 8 - Revision of àà àà²ààà,àà°àà¥.àà àà¼àà and their applications

Lecture 9 - Revision of àà,àà¥.ààààà°àà,àà²àà¥.àààààààà with àà,àà¥ ààààà¥.àà°àà¼àààààà¼

Lecture 10 - Revision of ààààà¥.àà-àà àà¥.àà àà²àà,àà²àà¥.àààààààà with àà,àà¥ ààààà¥.àà°àà¼àààààà¼ and practice -

Lecture 11 - Revision of ààààà¥.àà-àà àà¥.àà àà²àà,àà²àà¥.àààààààà with àà,àà¥ ààààà¥.àà°àà¼àààààà¼ and practice -

Lecture 12 - Revision of àààààààà,àà°àà¥.àà àà,àà²àà¥.àààààààà with àà²ààààà-àà@àà¼àà and practice

Lecture 13 - Understanding the 10 àà ààààà¼àà - Part 1

Lecture 14 - Understanding the 10 àà ààààà¼àà - Part 2

Lecture 15 - Understanding the ààààà¥| àà²àà àà¼àà°àà¼àà in àà²àà°àà,àà¥.àà@àà¥ àà²àààààà and in àà ààààà¥.àà@àà

Lecture 16 - Overview of àà,àà¥.àà-àà²àà¥.àààààà¼àà (Nouns), àààààààà àà²àà¥.àààààà¼àà (Verbs), àà ààààà¥.àà-àà-àà

Lecture 17 - Introduction and practice of ààààà¼àà àà¥.àà-àà@àà¥. - àà àà°àà¥.ààààà¥ ààààà¼àà àà¥.àà-àà@àà¥., àà àà

Lecture 18 - ààààà¥ ààààà¥.àààààààà²ààààà°àà¥ àà²ààààààààà¥.: Elaboration of the concept of ààààà¥ ààààà¥.àààààààà

Lecture 19 - ààààà¥ ààààà¥.àààààààà²ààààà°àà¥ àà²ààààààààà¥.: Elaboration of the concept of ààààà¥ ààààà¥.àààààààà

Lecture 20 - ààààà¥ ààààà¥.àààààààà²ààààà°àà¥ àà²ààààààààà¥.: Elaboration of the concept of ààààà¥ ààààà¥.àààààààà

Lecture 21 - ààààà¥ ààààà¥.àààààààà²ààààà°àà¥ àà²ààààààààà¥.: Elaboration of the concept of ààààà¥ ààààà¥.àààààààà

Lecture 22

Lecture 23 - Practice of àà,àà@àà¼àà,àà /compound word

Lecture 24 - Introduction and Practice of àà ààààà¥.àà-àà²àà¥.àà°àà àà°ààààà@àà¥. / Indeclinables

Lecture 25 - Introduction to the concept of àà àà²àà¥.àààààà-àà with practice

Lecture 26 - The concept of àà àà²àà¥.àààààà-àà with practice

Lecture 27 - Course summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Education for Sustainable Development

Subject Co-ordinator - Prof. Atasi Mohanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Sustainable Development Goals
- Lecture 3 - Sustainable Development Goals (Continued...)
- Lecture 4 - Sustainable Development Goals (Continued...)
- Lecture 5 - Education for Sustainable Development
- Lecture 6 - Education for Sustainable Development (Continued...)
- Lecture 7 - Education for Sustainable Development (Continued...)
- Lecture 8 - Education for Sustainable Development (Continued...)
- Lecture 9 - Education for Sustainable Development (Continued...)
- Lecture 10 - Education for Sustainable Development (Continued...)
- Lecture 11 - ESD and Global Citizenship
- Lecture 12 - ESD and Global Citizenship (Continued...)
- Lecture 13 - ESD and Global Citizenship (Continued...)
- Lecture 14 - ESD for Technical and Vocational Education / Training
- Lecture 15 - ESD for Technical and Vocational Education / Training (Continued...)
- Lecture 16 - ESD for Technical and Vocational Education / Training (Continued...)
- Lecture 17 - ESD for Technical and Vocational Education / Training (Continued...)
- Lecture 18 - ESD for Sustainable Healthcare
- Lecture 19 - ESD for Sustainable Healthcare (Continued...)
- Lecture 20 - ESD for Sustainable Healthcare (Continued...)
- Lecture 21 - ESD for Sustainable Healthcare (Continued...)
- Lecture 22 - ESD for Sustainable Healthcare (Continued...)
- Lecture 23 - ESD for Sustainable Healthcare (Continued...)
- Lecture 24 - ESD for Food Security
- Lecture 25 - ESD for Food Security (Continued...)
- Lecture 26 - ESD for Food Security (Continued...)
- Lecture 27 - ESD for Food Security (Continued...)
- Lecture 28 - ESD for Food Security (Continued...)
- Lecture 29 - Sustainable and Clean Energy

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- Lecture 30 - Sustainable and Clean Energy (Continued...)
- Lecture 31 - Sustainable and Clean Energy (Continued...)
- Lecture 32 - Sustainable and Clean Energy (Continued...)
- Lecture 33 - Sustainable and Clean Energy (Continued...)
- Lecture 34 - Sustainable and Clean Energy (Continued...)
- Lecture 35 - Sustainable Education
- Lecture 36 - Sustainable Education (Continued...)
- Lecture 37 - Sustainable Education (Continued...)
- Lecture 38 - Sustainable Education (Continued...)
- Lecture 39 - Sustainable Education (Continued...)
- Lecture 40 - Sustainable Education (Continued...)
- Lecture 41 - Sustainable Education (Continued...)
- Lecture 42 - Sustainable Education (Continued...)
- Lecture 43 - Sustainable Education (Continued...)
- Lecture 44 - Sustainable Education (Continued...)
- Lecture 45 - Sustainable Education (Continued...)
- Lecture 46 - Sustainable Leadership
- Lecture 47 - Sustainable Leadership (Continued...)
- Lecture 48 - Sustainable Leadership (Continued...)
- Lecture 49 - Sustainable Leadership (Continued...)
- Lecture 50 - Sustainable Leadership (Continued...)
- Lecture 51 - Sustainable Leadership (Continued...)
- Lecture 52 - Sustainable Leadership (Continued...)
- Lecture 53 - Sustainable Leadership (Continued...)
- Lecture 54 - Sustainable Cities and Communities
- Lecture 55 - Sustainable Cities and Communities (Continued...)
- Lecture 56 - Sustainable Consumption and Production
- Lecture 57 - Sustainable Consumption and Production (Continued...)
- Lecture 58 - ESD for Global Partnership
- Lecture 59 - ESD for Global Partnership (Continued...)
- Lecture 60 - Sustainable Happiness
- Lecture 61 - Sustainable Happiness (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Elements of Literature and Creative Communication

Subject Co-ordinator - Prof. H.S. Komalesha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Elements of Literature and Creative communication
- Lecture 2 - Literature and its relevance
- Lecture 3 - A Multidimensional Engagement with Literature
- Lecture 4 - How to read and appreciate Literature?
- Lecture 5 - Literature - Learner's Perspective
- Lecture 6 - Ways of Reading .1
- Lecture 7 - Forms and Genres of Literature
- Lecture 8 - Feminist Literary Criticism
- Lecture 9 - Marxist Literary Criticism
- Lecture 10 - Postcolonial Literary Criticism
- Lecture 11 - Tracing the Roots of Poetry
- Lecture 12 - Origins of Poetry
- Lecture 13 - Poetry and its Tributaries - 1
- Lecture 14 - Poetry and its Tributaries - 2
- Lecture 15 - Reflecting on poetry and its forms (Quiz)
- Lecture 16 - Elements of Poetry - 1
- Lecture 17 - Elements of Poetry - 2
- Lecture 18 - English Poetry: An Overview. Old English to Elizabethan
- Lecture 19 - English Poetry: An Overview. Elizabethan to Metaphysical
- Lecture 20 - English Poetry: An Overview. 17th century onwards
- Lecture 21 - Indian English Poetry: The Beginnings
- Lecture 22 - Arun Kolatkar and the Bombay Circle of Poets
- Lecture 23 - Kamala Das
- Lecture 24 - Confessional Poetry of Kamala Das
- Lecture 25 - AK Ramanujan
- Lecture 26 - Contemporary World poetry
- Lecture 27 - Hafez: The Poet for Life
- Lecture 28 - Date with European Poetry
- Lecture 29 - Second date with European Poetry

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - American poetry
- Lecture 31 - Introduction to Fiction
- Lecture 32 - Elements of Fiction - 1
- Lecture 33 - Elements of Fiction - 2
- Lecture 34 - Fiction and its Branches - 1
- Lecture 35 - Fiction and its Branches - 2
- Lecture 36 - Tools of the Trade: Narrative Techniques in Fiction
- Lecture 37 - Tools of the Trade: Narrative Techniques in Fiction
- Lecture 38 - Animal Farm - 1
- Lecture 39 - Animal Farm - 2
- Lecture 40 - Animal Farm: A Critical Exploration
- Lecture 41 - Introducing Short Fiction
- Lecture 42 - Origin and Development of Short Fiction
- Lecture 43 - Borges and the Book of Sand
- Lecture 44 - Two Stories and Three Cheers
- Lecture 45 - Quiz on Short Fiction
- Lecture 46 - Introduction to Drama
- Lecture 47 - Elements of Drama
- Lecture 48 - Drama and its types
- Lecture 49 - Comedy: Drama and its Types
- Lecture 50 - Dramatic Devices: Tricks and Tactics that make Theatre Tick
- Lecture 51 - Aristotle and the Dramatic Art
- Lecture 52 - A Snapshot of Western Drama
- Lecture 53 - Modern Drama
- Lecture 54 - A Doll's House
- Lecture 55 - A Critical Dismantling of Dolls House
- Lecture 56 - Indian Drama
- Lecture 57 - Modern Indian Drama
- Lecture 58 - Hayavadana
- Lecture 59 - Hayavadana: a critical perspective
- Lecture 60 - A Quiz

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Training and Development

Subject Co-ordinator - Prof. Susmita Mukhopadhyay, Prof. Sangeeta Sahney, Prof. S.Srinivasan

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Employees Training and Development
- Lecture 2 - Employee and Employer Relationship
- Lecture 3 - Employment Contract
- Lecture 4 - Employee as a Human Capital
- Lecture 5 - Employees Training and Organizational Excellence
- Lecture 6 - Strategic Training
- Lecture 7 - Strategic Training and Its Process
- Lecture 8 - Strategic Training Model
- Lecture 9 - Learning, Training and Development from Change Model Perspective
- Lecture 10 - Training as a Function of Human Resources Management
- Lecture 11 - Concept and Importance of Training Need Assessment
- Lecture 12 - Steps and Process of Training Need Assessment
- Lecture 13 - When to Conduct TNA
- Lecture 14 - Techniques Used in Need Assessment
- Lecture 15 - Competency in Need Assessment
- Lecture 16 - Concept, Types and Importance of Learning
- Lecture 17 - Learning Theories
- Lecture 18 - Transfer of Training
- Lecture 19 - Factors Affecting Transfer of Training
- Lecture 20 - Theories of Transfer of Training
- Lecture 21 - Concept and Importance of Programme and Training Programme
- Lecture 22 - Training Programme Design
- Lecture 23 - Steps/Process of Programme Design
- Lecture 24 - Basic Consideration for Programme Design
- Lecture 25 - Documentation in Designing Training Program
- Lecture 26 - Defining Evaluation
- Lecture 27 - Training Evaluation
- Lecture 28 - Training evaluation process
- Lecture 29 - Tools and Techniques of Training Evaluation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Training Evaluation Design
- Lecture 31 - Training Methods
- Lecture 32 - Presentation Methods
- Lecture 33 - Hands-on-training methods
- Lecture 34 - Group Building Methods
- Lecture 35 - Implication of Traditional Training Methods
- Lecture 36 - Technology Based Training: Concept, Types and Importance
- Lecture 37 - Computer Based Training
- Lecture 38 - Social Media
- Lecture 39 - Learning Management System (LMS)
- Lecture 40 - Choosing a New Technology for Training
- Lecture 41 - Employees Development
- Lecture 42 - Career Development and Training
- Lecture 43 - Development Planning System
- Lecture 44 - Approaches to Employee Development
- Lecture 45 - Interpersonal Relationship, Succession Planning
- Lecture 46 - Social Responsibility
- Lecture 47 - Legal Aspects of Social Responsibility
- Lecture 48 - Managing Diversity in Training
- Lecture 49 - Career Challenges
- Lecture 50 - Meeting the Needs of Older Workers
- Lecture 51 - Future of Training and Development
- Lecture 52 - Future Trends of Trainers's Skills and Competencies
- Lecture 53 - Emphasis for Future Training and Development
- Lecture 54 - Trends of New Technology Used in Training
- Lecture 55 - Training Partnership and Outsourcing
- Lecture 56 - Train the Trainers
- Lecture 57 - Concept of Disruption
- Lecture 58 - Disruption in Creativity and Innovation
- Lecture 59 - Implication of Digital Disruption in Training and Learning
- Lecture 60 - Managing Disruptive Trainees
- Lecture 61 - Managing Disruptive Trainees (Continued...)
- Lecture 62 - Managing Disruption in Organizations through Training c
- Lecture 63 - Some Examples/Cases
- Lecture 64 - Some Examples/Cases (Continued...)
- Lecture 65 - Some Examples/Cases (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Sociology and Resource Management

Subject Co-ordinator - Prof. Amrita Sen, Prof. Archana Patnaik

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Categorizing Resources Governed under Different Property Regimes
- Lecture 2 - Common Pool Resource Management
- Lecture 3 - Tragedy of The Commons
- Lecture 4 - Institutional Analysis and Development (IAD) Framework
- Lecture 5 - Institutional Analysis and Development (IAD) Framework (Continued...)
- Lecture 6 - Common Pool Resource Management
- Lecture 7 - Community Control of Natural Resources and Man-Made Resource
- Lecture 8 - Debates on Intellectual Property Rights
- Lecture 9 - The internet, Opensource and the commons
- Lecture 10 - Agricultural biotechnology, opensource and commons
- Lecture 11 - Natural resources and urban ecological commons in the city
- Lecture 12 - Urban Common and social ownership
- Lecture 13 - Ecological Commons and Sustainable City Planning
- Lecture 14 - Rethinking environmental justice in cities
- Lecture 15 - Urban Commons and Political Ecology
- Lecture 16 - Rights-based approaches to natural resources
- Lecture 17 - Reformistic legislations on resource management
- Lecture 18 - Case studies from specific rights-based resource management policies
- Lecture 19 - Critiques of decentralisation and participatory resource management
- Lecture 20 - Problems of Access and Distribution in Resource Management of Water

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Urban Sociology

Subject Co-ordinator - Prof. Archana Patnaik, Prof. Amrita Sen

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview

Lecture 2 - Sociological Theories of Urbanization and Key Concepts

Lecture 3 - Globalization, technology and the Growth of Cities

Lecture 4 - Urban Infrastructure and Governance

Lecture 5 - Urbanization in the Global South: Approaches of Understanding

Lecture 6 - Indian context and informality: Cities and slums

Lecture 7 - Urban Development and Sustainability in India

Lecture 8 - Major Policies of urban India

Lecture 9 - Gentrification, migration, inequality and urban social stratification in India.

Lecture 10 - Recent developments and emerging theories

Lecture 11 - Smart cities - global perspective and Indian perspective

Lecture 12 - Social Interactions in Publicspaces

Lecture 13 - Community, SmartCitizenship and the Digital Divide

Lecture 14 - Urban Commons

Lecture 15 - Urban Greens

Lecture 16 - Community and Identity

Lecture 17 - Gender Race and the City - Part I

Lecture 18 - Gender Race and the City - Part II

Lecture 19 - Natural and (Un)Natural Disaster in the City

Lecture 20 - Urban Subcultures

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Management of Fixed Income Securities

Subject Co-ordinator - Prof. Jitendra Mahakud

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Fixed Income Securities
- Lecture 2 - Risks in Fixed Income Securities Investments
- Lecture 3 - Bond Valuation - I
- Lecture 4 - Bond Valuation - II
- Lecture 5 - Bond Price Relations
- Lecture 6 - Bond Returns - I
- Lecture 7 - Bond Returns - II
- Lecture 8 - Bond Returns - III
- Lecture 9 - Bond Returns - IV
- Lecture 10 - Level of Interest Rate Determination - I
- Lecture 11 - Level of Interest Rate Determination - II
- Lecture 12 - Level of Interest Rate Determination - III
- Lecture 13 - The Term Structure of Interest Rates - I
- Lecture 14 - The Term Structure of Interest Rates - II
- Lecture 15 - The Term Structure of Interest Rates - III
- Lecture 16 - The Term Structure of Interest Rates - IV
- Lecture 17 - The Term Structure of Interest Rates - V
- Lecture 18 - The Term Structure of Interest Rates - VI
- Lecture 19 - The Term Structure of Interest Rates - VII
- Lecture 20 - The Term Structure of Interest Rates - VIII
- Lecture 21 - Determination of Theoretical Spot Rate and Forward Yield Curves
- Lecture 22 - Interest Rate Risk
- Lecture 23 - Bond Duration
- Lecture 24 - Bond Convexity
- Lecture 25 - Default Risk
- Lecture 26 - Short-Term Government Bond Markets
- Lecture 27 - Long-Term Government Bond Markets
- Lecture 28 - Issuance and Trading Mechanism of Government Securities
- Lecture 29 - Short-Term Corporate Bond Markets

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Medium and Long-term Corporate Bond Markets
- Lecture 31 - Issuance and Trading Mechanism of Corporate Securities
- Lecture 32 - Municipal Bonds - I
- Lecture 33 - Municipal Bonds - II
- Lecture 34 - Debt Securities of Commercial Banks
- Lecture 35 - International Bonds
- Lecture 36 - Bonds with Embedded Options
- Lecture 37 - Binomial Valuation of Callable Bonds - I
- Lecture 38 - Binomial Valuation of Callable Bonds - II
- Lecture 39 - Binomial Valuation of Puttable and Sinking-Fund Bonds
- Lecture 40 - Binomial Valuation of Convertible Bonds
- Lecture 41 - Estimation of Binomial Trees - I
- Lecture 42 - Estimation of Binomial Trees - II
- Lecture 43 - Estimation of Binomial Trees - III
- Lecture 44 - Estimation of Binomial Trees - IV
- Lecture 45 - Estimation of Binomial Trees - V
- Lecture 46 - Bond Investment Strategies - I
- Lecture 47 - Bond Investment Strategies - II
- Lecture 48 - Bond Investment Strategies - III
- Lecture 49 - Bond Investment Strategies - IV
- Lecture 50 - Bond Investment Strategies - V
- Lecture 51 - Mortgage Backed Securities - I
- Lecture 52 - Mortgage Backed Securities - II
- Lecture 53 - Mortgage Backed Securities - III
- Lecture 54 - Mortgage Backed Securities - IV
- Lecture 55 - Mortgage Backed Securities - V
- Lecture 56 - Fixed Income Securities Derivatives - I
- Lecture 57 - Fixed Income Securities Derivatives - II
- Lecture 58 - Fixed Income Securities Derivatives - III
- Lecture 59 - Fixed Income Securities Derivatives - IV
- Lecture 60 - Fixed Income Securities Derivatives - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Petroleum Economics and Management

Subject Co-ordinator - Prof. Anwasha Aditya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Relevance and Syllabus
- Lecture 2 - Role of Oil
- Lecture 3 - Energy and Sustainability
- Lecture 4 - North-South conflict, Way to future
- Lecture 5 - Introduction
- Lecture 6 - Analysis of demand
- Lecture 7 - Determinants of demand
- Lecture 8 - Analysis of supply
- Lecture 9 - Equilibrium
- Lecture 10 - Elasticity
- Lecture 11 - Revenue and price elasticity of demand
- Lecture 12 - Petroleum rents and petroleum taxes
- Lecture 13 - Welfare analysis
- Lecture 14 - Government Intervention - I
- Lecture 15 - Government Intervention - II
- Lecture 16 - Introduction
- Lecture 17 - Movement of oil price
- Lecture 18 - Sector wise use of oil
- Lecture 19 - Oil Price Movements 2010-15/16
- Lecture 20 - Oil Price since 2018
- Lecture 21 - Oil price in the recent times
- Lecture 22 - Structure of OPEC
- Lecture 23 - Cartel
- Lecture 24 - Role of OPEC in explaining oil price
- Lecture 25 - Role of Saudi Arabia
- Lecture 26 - Petroleum as a depleting resource
- Lecture 27 - Can depletion explain price development ?
- Lecture 28 - Cost performance of global oil industry and Oil Spills
- Lecture 29 - Structural change and resource discovery

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Theory of Production: A brief overview
- Lecture 31 - Production Possibility Frontier
- Lecture 32 - Labour Demand
- Lecture 33 - Theoretical model - I
- Lecture 34 - Theoretical Framework - II
- Lecture 35 - Country Experiences
- Lecture 36 - Market structure
- Lecture 37 - Oligopoly and Market structure
- Lecture 38 - Introduction to Game Theory - I
- Lecture 39 - Introduction to Game Theory - II
- Lecture 40 - Nash Equilibrium
- Lecture 41 - Competition versus collusion
- Lecture 42 - Collusive Oligopoly: Price Leadership
- Lecture 43 - Price Leadership Dominant Firm Model - I
- Lecture 44 - Price Leadership Dominant Firm Model - II
- Lecture 45 - Cartel
- Lecture 46 - Intertemporal Allocation and Utility
- Lecture 47 - Optimum Choice of a Consumer: Problem of Utility Maximisation
- Lecture 48 - Optimal Division of Natural Resources
- Lecture 49 - Hotelling's rule
- Lecture 50 - Intertemporally Optimal Prices: Some observations
- Lecture 51 - Model of Economic Growth - I
- Lecture 52 - Model of Economic Growth - II
- Lecture 53 - Discovery of Natural Resources
- Lecture 54 - Model of Economic growth with uncertainty
- Lecture 55 - Exchange Rate and its Determination
- Lecture 56 - Oil Price Shock
- Lecture 57 - BoP Crisis of the Indian Economy in 1991
- Lecture 58 - Crisis and efficiency of exchange rate policies
- Lecture 59 - Concluding Remarks - I
- Lecture 60 - Concluding Remarks - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:The Science of Happiness and Wellbeing

Subject Co-ordinator - Prof. Priyadarshi Patnaik, Prof. Manas K Mandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction: Why Happiness Matters and How We Will Go About Exploring It
- Lecture 2 - Can We Define Happiness?
- Lecture 3 - Happiness and Wellbeing : Do Cultures and Environments Call the Shots!
- Lecture 4 - Doing Happiness' - Philosophical and existential questions, and responses
- Lecture 5 - Happiness - antecedents and implications
- Lecture 6 - Basic Issues
- Lecture 7 - Myths and Misconceptions
- Lecture 8 - Happiness - the unanswered questions
- Lecture 9 - Evolution of Happiness
- Lecture 10 - Belief and Gene
- Lecture 11 - Empathy
- Lecture 12 - Happiness and Morality
- Lecture 13 - Exploring the self and the other
- Lecture 14 - Pro-sociality and happiness - Generosity, give and take
- Lecture 15 - Pro-sociality and happiness - Virtues and strengths
- Lecture 16 - Relationship - Connected and happy
- Lecture 17 - Networking and its relevance for happiness and wellbeing
- Lecture 18 - Money and Happiness
- Lecture 19 - How does optimism affect happiness?
- Lecture 20 - Sharing and Belonging
- Lecture 21 - Happiness and body language
- Lecture 22 - Failure and Resilience
- Lecture 23 - Innovation and Happiness
- Lecture 24 - Conflicts and Stress
- Lecture 25 - Stress and Coping
- Lecture 26 - Reconnecting happiness: beyond pandemic
- Lecture 27 - Meditation and Mindfulness: An Overview
- Lecture 28 - Meditation and Mindfulness: Practice Toolkit
- Lecture 29 - Creativity, Intuition and Flow

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Can we really not be creative and happy?
- Lecture 31 - Emotional intelligence
- Lecture 32 - Happiness at work
- Lecture 33 - Nudging and Decision-making
- Lecture 34 - Can we measure happiness? The case of cities and states
- Lecture 35 - Happiness and leadership habits
- Lecture 36 - Measurement of Happiness
- Lecture 37 - Consumerism, happiness and wellbeing
- Lecture 38 - Technology and happiness
- Lecture 39 - Doing research on happiness: Connecting dots
- Lecture 40 - Summing up: Social innovation and project ideas for social transformation

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Environmental Science

Subject Co-ordinator - Dr. Samik Chowdhury, Dr. Sudha Goel

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Major Environmental Concerns and Pollution
- Lecture 2 - Population Growth Models
- Lecture 3 - Resource Consumption and Pollution
- Lecture 4 - Measuring Environmental Impacts - the IPAT Model and Ecological Footprint
- Lecture 5 - Measuring - Earth Overshoot Day, Energy Performance Index and Lifecycle Assessment
- Lecture 6 - Principles of Sustainable Development
- Lecture 7 - Principles of Sustainable Development (Sustainable Development Goals)
- Lecture 8 - Principles of Sustainable Development (Achieving SDGs and Sustainability Indices)
- Lecture 9 - Principles of Sustainable Development (Case Study I: Sustainable Urbanization)
- Lecture 10 - Principles of Sustainable Development (Case Study II: Green Buildings)
- Lecture 11 - Air Pollution (Definition, Causes, Sources and Types)
- Lecture 12 - Air Pollution (Influence of Meteorology)
- Lecture 13 - Air Pollution (Local Effects and Mitigation Measures)
- Lecture 14 - Air Pollution (Regional Issues and Mitigation Measures)
- Lecture 15 - Air Pollution (Global Issues and Mitigation Measures, Indoor Air Quality)
- Lecture 16 - Climate Change (Definition and Evidence)
- Lecture 17 - Climate Change (Causes and Determinants)
- Lecture 18 - Climate Change (Projections and Related Impacts)
- Lecture 19 - Climate Change (Mitigation Options)
- Lecture 20 - Climate Change (Adaption and Policy Responses)
- Lecture 21 - Renewable Energy - I (Overview)
- Lecture 22 - Renewable Energy - I (Solar Energy - I)
- Lecture 23 - Renewable Energy - I (Solar Energy - II)
- Lecture 24 - Renewable Energy - I (Solar Energy - III)
- Lecture 25 - Renewable Energy - I (Wind Energy)
- Lecture 26 - Renewable Energy - II (Geothermal Energy)
- Lecture 27 - Renewable Energy - II (Ocean Energy - I)
- Lecture 28 - Renewable Energy - II (Ocean Energy - II)
- Lecture 29 - Renewable Energy - II (Hydropower)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Renewable Energy - II (Bioenergy)
- Lecture 31 - Circular Economy (Introduction to the Concept)
- Lecture 32 - Circular Economy (Circular Economy Strategies - I)
- Lecture 33 - Circular Economy (Circular Economy Strategies - II)
- Lecture 34 - Circular Economy (Circular Business Models)
- Lecture 35 - Circular Economy (Industrial Symbiosis)
- Lecture 36 - Hydrologic cycle, sources of water and water pollution
- Lecture 37 - Water Quality Parameters - General
- Lecture 38 - Water Quality Parameters - Oxygendemanding wastes and Microbial
- Lecture 39 - Nitrogen species in rivers and the DO Sag Curve
- Lecture 40 - NGT, WQI and reuse and recycling of wastewater
- Lecture 41 - Importance and Integrated Solid Waste Management
- Lecture 42 - Sources of MSW, MSW Generation Rates and Composition
- Lecture 43 - MSW Composition and Collection
- Lecture 44 - MSW Treatment and Disposal
- Lecture 45 - E-Waste Management
- Lecture 46 - Sound, noise and its characteristics
- Lecture 47 - Audiometry
- Lecture 48 - Effects of noise
- Lecture 49 - Noise rating systems and modeling
- Lecture 50 - Noise control and regulations
- Lecture 51 - Fundamentals of Ecology - I
- Lecture 52 - Fundamentals of Ecology - II
- Lecture 53 - Fundamentals of Ecology - III
- Lecture 54 - Soil Pollution - I
- Lecture 55 - Soil Pollution - II
- Lecture 56 - The Environmental Movement and its global and local impacts
- Lecture 57 - Environmental Law and Rules in India
- Lecture 58 - Important legal judgments pertaining to the Environment
- Lecture 59 - NGT and its important judgments
- Lecture 60 - Rapid Environmental Impact Assessment - A case study of the River Ib Barrage

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Psychology of Learning

Subject Co-ordinator - Dr. Atasi Mohanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Psychology of Learning  
Lecture 2 - Psychology of Learning (Continued...)  
Lecture 3 - Psychology of Learning (Continued...)  
Lecture 4 - Psychology of Learning (Continued...)  
Lecture 5 - Psychology of Learning (Continued...)  
Lecture 6 - Major Theories of Learning  
Lecture 7 - Major Theories of Learning (Continued...)  
Lecture 8 - Major Theories of Learning (Continued...)  
Lecture 9 - Major Theories of Learning (Continued...)  
Lecture 10 - Major Theories of Learning (Continued...)  
Lecture 11 - Memory and Cognition  
Lecture 12 - Memory and Cognition (Continued...)  
Lecture 13 - Memory and Cognition (Continued...)  
Lecture 14 - Memory and Cognition (Continued...)  
Lecture 15 - Memory and Cognition (Continued...)  
Lecture 16 - Thinking and Cognition  
Lecture 17 - Thinking and Cognition (Continued...)  
Lecture 18 - Thinking and Cognition (Continued...)  
Lecture 19 - Thinking and Cognition (Continued...)  
Lecture 20 - Thinking and Cognition (Continued...)  
Lecture 21 - Motivation of Learning  
Lecture 22 - Motivation of Learning (Continued...)  
Lecture 23 - Motivation of Learning (Continued...)  
Lecture 24 - Motivation of Learning (Continued...)  
Lecture 25 - Motivation of Learning (Continued...)  
Lecture 26 - Emotional Intelligence and Learning  
Lecture 27 - Emotional Intelligence and Learning (Continued...)  
Lecture 28 - Emotional Intelligence and Learning (Continued...)  
Lecture 29 - Emotional Intelligence and Learning (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Emotional Intelligence and Learning (Continued...)
- Lecture 31 - Learning and Instruction
- Lecture 32 - Learning and Instruction (Continued...)
- Lecture 33 - Learning and Instruction (Continued...)
- Lecture 34 - Learning and Instruction (Continued...)
- Lecture 35 - Learning and Instruction (Continued...)
- Lecture 36 - Learning and Pedagogy
- Lecture 37 - Learning and Pedagogy (Continued...)
- Lecture 38 - Learning and Pedagogy (Continued...)
- Lecture 39 - Learning and Pedagogy (Continued...)
- Lecture 40 - Learning and Pedagogy (Continued...)
- Lecture 41 - Psychology of E-Learning
- Lecture 42 - Psychology of E-Learning (Continued...)
- Lecture 43 - Psychology of E-Learning (Continued...)
- Lecture 44 - Psychology of E-Learning (Continued...)
- Lecture 45 - Psychology of E-Learning (Continued...)
- Lecture 46 - Effective Learning: Assessment and Feedback
- Lecture 47 - Effective Learning: Assessment and Feedback (Continued...)
- Lecture 48 - Effective Learning: Assessment and Feedback (Continued...)
- Lecture 49 - Effective Learning: Assessment and Feedback (Continued...)
- Lecture 50 - Effective Learning: Assessment and Feedback (Continued...)
- Lecture 51 - Learning for Sustainability
- Lecture 52 - Learning for Sustainability (Continued...)
- Lecture 53 - Learning for Sustainability (Continued...)
- Lecture 54 - Learning for Sustainability (Continued...)
- Lecture 55 - Learning for Sustainability (Continued...)
- Lecture 56 - Learning for Sustainability
- Lecture 57 - Learning for Sustainability (Continued...)
- Lecture 58 - Learning for Sustainability (Continued...)
- Lecture 59 - Learning for Sustainability (Continued...)
- Lecture 60 - Learning for Sustainability (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Language and Linguistics

Subject Co-ordinator - Dr. Dripta Piplai (Mondal), Dr. Bornini Lahiri

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - How do we define language?
- Lecture 2 - What is knowledge of language?
- Lecture 3 - How is Human communication unique?
- Lecture 4 - Universal properties of language
- Lecture 5 - What do we do in Linguistics?
- Lecture 6 - Transdisciplinary Approach to Linguistics
- Lecture 7 - Rules of Language
- Lecture 8 - Competence and Performance, Langue and Parole
- Lecture 9 - Universal Grammar
- Lecture 10 - Faculty of Language
- Lecture 11 - Introduction to Phonetics
- Lecture 12 - More about Phonetics
- Lecture 13 - Introduction to IPA
- Lecture 14 - Introduction to Phonology
- Lecture 15 - More about Phonology
- Lecture 16 - Introducing Morphology
- Lecture 17 - Morpheme, Morph and Allomorph
- Lecture 18 - Types of Morpheme
- Lecture 19 - Morphological Processes
- Lecture 20 - More about Morphological Process
- Lecture 21 - Morphological Typology
- Lecture 22 - Introducing Syntax
- Lecture 23 - Syntactic Categories and Subcategories
- Lecture 24 - Constituents and Phrase Structures Rules
- Lecture 25 - More about Trees
- Lecture 26 - Different parts of a tree
- Lecture 27 - From Transformation to GB Theory
- Lecture 28 - Introducing Minimalism
- Lecture 29 - Introducing Semantics

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- Lecture 30 - Lexical Semantics
- Lecture 31 - Introducing Pragmatics
- Lecture 32 - Language and Script
- Lecture 33 - Defining Computational Linguistics
- Lecture 34 - An Introduction to Corpus Linguistics
- Lecture 35 - Introducing Linguistic Typology
- Lecture 36 - More about Linguistic Typology
- Lecture 37 - Typology through Indian Languages
- Lecture 38 - Language Families of India
- Lecture 39 - More about Language Families of India
- Lecture 40 - India as a Linguistic Area
- Lecture 41 - Introducing Sociolinguistics
- Lecture 42 - Language Maintenance and Language Shift
- Lecture 43 - Multilingualism and Varieties of Language
- Lecture 44 - Language, Dialect and Standardization
- Lecture 45 - Standard Language Ideology
- Lecture 46 - Language Variation
- Lecture 47 - Language Change
- Lecture 48 - Language and Identity
- Lecture 49 - Language Endangerment
- Lecture 50 - Different Aspects of Language Endangerment
- Lecture 51 - Language Documentation
- Lecture 52 - Language Documentation and Revitalization
- Lecture 53 - A Discussion on Field Linguistics
- Lecture 54 - Language Teaching
- Lecture 55 - More about Language Teaching
- Lecture 56 - Sociolinguistics and language teaching
- Lecture 57 - Language Policy
- Lecture 58 - Endangered Languages and its Revitization through Classrooms
- Lecture 59 - Summing up
- Lecture 60 - Summing up

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Philosophy and Critical Thinking

Subject Co-ordinator - Prof. Gyan Prakash

Co-ordinating Institute - IIT-ISM Dhanbad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Branches of Philosophy
- Lecture 3 - Philosophy and other Subjects
- Lecture 4 - History of Western Philosophy
- Lecture 5 - Pre Socrates-Philosopher
- Lecture 6 - Pre Socrates-Philosopher
- Lecture 7 - Socrates
- Lecture 8 - Plato
- Lecture 9 - Aristotle
- Lecture 10 - Rene Descartes
- Lecture 11 - Rene Descartes
- Lecture 12 - Rene Descartes
- Lecture 13 - Benedict Spinoza
- Lecture 14 - Benedict Spinoza
- Lecture 15 - John Lock
- Lecture 16 - John Lock
- Lecture 17 - Hume
- Lecture 18 - Hume
- Lecture 19 - Critical argument against empiricism
- Lecture 20 - Ethics
- Lecture 21 - Branches of Ethics
- Lecture 22 - Virtue Ethics
- Lecture 23 - Hedonism
- Lecture 24 - Utilitarianism
- Lecture 25 - Mill on happiness
- Lecture 26 - Immanuel Kant
- Lecture 27 - Immanuel Kant
- Lecture 28 - Immanuel Kant
- Lecture 29 - Indian Philosophy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Indian Philosophy
- Lecture 31 - Indian Philosophy
- Lecture 32 - Indian Philosophy
- Lecture 33 - Indian Philosophy
- Lecture 34 - Sankara's philosophy
- Lecture 35 - Sankara's philosophy
- Lecture 36 - Sankara's philosophy
- Lecture 37 - Sankara's philosophy
- Lecture 38 - Sankara's philosophy
- Lecture 39 - Ramanuja's Philosophy
- Lecture 40 - Ramanuja's Philosophy
- Lecture 41 - Ramanuja's Philosophy
- Lecture 42 - Ramanuja's Philosophy
- Lecture 43 - Vedanta Philosophy
- Lecture 44 - Buddhist Philosophy
- Lecture 45 - Buddhist Philosophy
- Lecture 46 - Buddhist Philosophy
- Lecture 47 - Buddhist Philosophy
- Lecture 48 - Buddhist Philosophy
- Lecture 49 - Samkhya Philosophy
- Lecture 50 - Samkhya Philosophy
- Lecture 51 - Samkhya Philosophy
- Lecture 52 - Samkhya Philosophy
- Lecture 53 - Samkhya Philosophy
- Lecture 54 - The Jaina Philosophy
- Lecture 55 - The Jaina Philosophy
- Lecture 56 - The Jaina Philosophy
- Lecture 57 - The Jaina Philosophy
- Lecture 58 - The Jaina Philosophy

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Aspects of Western Philosophy

Subject Co-ordinator - Dr. Sreekumar Nellickappilly

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Greek Philosophy

Lecture 2 - Sophists, Socrates; philosophy of man; relativism and subjectivism; the idea of good

Lecture 3 - Platos idealism

Lecture 4 - Plato

Lecture 5 - Aristotles criticism of Platonic idealism and the concepts of Form and Matter

Lecture 6 - Aristotles theory of causation; potentiality and actuality

Lecture 7 - Medieval philosophy

Lecture 8 - Modern Philosophy

Lecture 9 - Descartes

Lecture 10 - Descartes

Lecture 11 - Spinoza

Lecture 12 - Spinozas pantheism-God and nature

Lecture 13 - Leibniz

Lecture 14 - The empiricism of John Locke

Lecture 15 - John Locke

Lecture 16 - Berkeley

Lecture 17 - Berkeleys critique of abstract ideas, esse est percipi,  
the problem of solipsism; God and self

Lecture 18 - Hume

Lecture 19 - The external world and the self, personal identity, rejection of metaphysics,  
scepticism, reason and the passions.

Lecture 20 - Critical Philosophy

Lecture 21 - Kant

Lecture 22 - The Ideas of Reason-soul, God and world as a whole; antinomies; rejection of  
speculative metaphysics.

Lecture 23 - Kants ethics; freedom and immortality, problems with Kant.

Lecture 24 - Hegel

Lecture 25 - Absolute idealism; consciousness, self consciousness and reason.

Lecture 26 - Karl Marx

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 27 - Nietzsche
- Lecture 28 - Linguistic turn in British philosophy
- Lecture 29 - Wittgenstein
- Lecture 30 - Later Wittgensteins conception of language games and forms of life; meaning and use.
- Lecture 31 - Logical positivism; against metaphysics and a scientific conception of philosophy; the limitation of logical positivism
- Lecture 32 - Husserl
- Lecture 33 - Phenomenological reduction, eidetic reduction and transcendental reduction; transcendental subjectivity; the pure subject.
- Lecture 34 - Heidegger
- Lecture 35 - Authentic and inauthentic existence; Truth as disclosure
- Lecture 36 - Existentialism
- Lecture 37 - Sartres conception of human existence; man is condemned to be free; rejection of essentialism
- Lecture 38 - The concept of being-in-itself, being-for-itself and being-for-others
- Lecture 39 - Postmodernism
- Lecture 40 - Deconstruction, feminism, discourse theory etc.

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Contemporary Literature

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Drama
- Lecture 2 - Harold Pinter
- Lecture 3 - The Dumb Waiter
- Lecture 4 - The Dumb Waiter (Continued...)
- Lecture 5 - Six Degrees of Separation
- Lecture 6 - Six Degrees of Separation
- Lecture 7 - Six Degrees of Separation
- Lecture 8 - Six Degrees of Separation
- Lecture 9 - Six Degrees of Separation
- Lecture 10 - Tom Stoppard - Dogg's Hamlet, Cahoot's Macbeth
- Lecture 11 - Tom Stoppard - Dogg's Hamlet, Cahoot's Macbeth
- Lecture 12 - Tom Stoppard - Dogg's Hamlet, Cahoot's Macbeth
- Lecture 13 - Tom Stoppard - Dogg's Hamlet, Cahoot's Macbeth
- Lecture 14 - Tom Stoppard - Dogg's Hamlet, Cahoot's Macbeth
- Lecture 15 - Tom Stoppard - Dogg's Hamlet, Cahoot's Macbeth
- Lecture 16 - Arthur Miller Clara
- Lecture 17 - Arthur Miller Clara
- Lecture 18 - Arthur Miller Clara
- Lecture 19 - Albert Camus The Fall
- Lecture 20 - Albert Camus The Fall
- Lecture 21 - Albert Camus The Fall
- Lecture 22 - Girish Karnad - Nagamandala
- Lecture 23 - Girish Karnad - Nagamandala
- Lecture 24 - Girish Karnad - Nagamandala
- Lecture 25 - Short Story - Salman Rushdie's
- Lecture 26 - Short Story2 - Hanif Kureishi's
- Lecture 27 - Modernism Post
- Lecture 28 - Kazuo Ishiguro - Remains of the Day
- Lecture 29 - Kazuo Ishiguro - Remains of the Day

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- Lecture 30 - Kazuo Ishiguro - Remains of the Day
- Lecture 31 - Kazuo Ishiguro - Remains of the Day
- Lecture 32 - Michael Ondaatje - The English Patient
- Lecture 33 - Michael Ondaatje - The English Patient
- Lecture 34 - Michael Ondaatje - The English Patient
- Lecture 35 - Asian-American Writing
- Lecture 36 - Amy Tan's - The Joy Luck Club
- Lecture 37 - Amy Tan's - The Joy Luck Club
- Lecture 38 - Amy Tan's - The Joy Luck Club
- Lecture 39 - Poetry
- Lecture 40 - Poetry

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - History of Economic Theory

Subject Co-ordinator - Prof. S.S. SivaKumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - The Socio-Economic Role of Scarcity and Uncertainty

Lecture 2 - The Process of Construction of Knowledge

Lecture 3 - The Roles of Faith and Experience

Lecture 4 - From Orphism to the Milesians in ancient Greece

Lecture 5 - Pythagoras and Heraclitus

Lecture 6 - From Parmenides to the atomists

Lecture 7 - From the ancient Greece to the emergence of Feudalism

Lecture 8 - Feudalism and the growth of the Church

Lecture 9 - The age of Faith

Lecture 10 - The beginnings of modernity

Lecture 11 - Scholasticism and St.Thomas

Lecture 12 - Transformation of Europe towards modernity

Lecture 13 - Birth of political economy

Lecture 14 - The debate over mercantilism

Lecture 15 - A postscript to mercantilism

Lecture 16 - "Natural Order" and the market

Lecture 17 - Smith

Lecture 18 - Smith

Lecture 19 - Ricardo-Malthus debate

Lecture 20 - Ricardian economics and more

Lecture 21 - Equilibrium of the market

Lecture 22 - More on Equilibrium

Lecture 23 - Socialists and Marx

Lecture 24 - The economics of Marx

Lecture 25 - Marx as an ideologue of revolution

Lecture 26 - Arrival of modern universals in Economics

Lecture 27 - Economic Theory at the time arrival of Keynes

Lecture 28 - The centrality of the idea of efficiency in the study of market

Lecture 29 - Keynesian Revolution

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- Lecture 30 - Keynesian economics
- Lecture 31 - Economics of Institutions
- Lecture 32 - Transaction cost and Economic Anthropology approaches
- Lecture 33 - Evolutionary Economics
- Lecture 34 - From Schumpeter to neo Schumpeterian evolutionism
- Lecture 35 - The social construction of knowledge
- Lecture 36 - The social construction of knowledge

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Indian Philosophy

Subject Co-ordinator - Dr. Satya Sundar Sethy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Indian Philosophy
- Lecture 2 - A Brief Discussion on the Vedas & the Upanishads
- Lecture 3 - The CĀ•rvĀ•ka School - I
- Lecture 4 - The CĀ•rvĀ•ka School - II
- Lecture 5 - The SĀ•ā<sup>1</sup> khya School - I
- Lecture 6 - The SĀ•ā<sup>1</sup> khya School - II
- Lecture 7 - The SĀ•ā<sup>1</sup> khya School - III
- Lecture 8 - The SĀ•ā<sup>1</sup> khya School - IV
- Lecture 9 - The SĀ•ā<sup>1</sup> khya School - V
- Lecture 10 - The SĀ•ā<sup>1</sup> khya School - VI
- Lecture 11 - The Yoga School - I
- Lecture 12 - The Yoga School - II
- Lecture 13 - The Yoga School - III
- Lecture 14 - The Yoga School - IV
- Lecture 15 - The NyĀ•ya School - I
- Lecture 16 - The NyĀ•ya School - II
- Lecture 17 - The NyĀ•ya School - III
- Lecture 18 - The NyĀ•ya School - IV
- Lecture 19 - The NyĀ•ya School - V
- Lecture 20 - The NyĀ•ya School - VI
- Lecture 21 - The NyĀ•ya School - VII
- Lecture 22 - The NyĀ•ya School - VIII
- Lecture 23 - The NyĀ•ya School - IX
- Lecture 24 - Buddhism - I
- Lecture 25 - Buddhism - II
- Lecture 26 - Buddhism - III
- Lecture 27 - Buddhism - IV
- Lecture 28 - Buddhism - V
- Lecture 29 - Jainism - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Jainism - II
- Lecture 31 - Jainism - III
- Lecture 32 - The Vaiṣṭhika School - I
- Lecture 33 - The Vaiṣṭhika School - II
- Lecture 34 - The Vaiṣṭhika School - III
- Lecture 35 - The Vaiṣṭhika School - IV
- Lecture 36 - The Vaiṣṭhika School - V
- Lecture 37 - The Vaiṣṭhika School - VI
- Lecture 38 - The Mimāṃsā School - I
- Lecture 39 - The Mimāṃsā School - II
- Lecture 40 - The Mimāṃsā School - III
- Lecture 41 - The Mimāṃsā School - IV
- Lecture 42 - The Mimāṃsā School - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Better Spoken English

Subject Co-ordinator - Prof. Shreesh Chaudhary

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Student Presentations - I
- Lecture 3 - Feedback on Presentations - I
- Lecture 4 - Stage Manners
- Lecture 5 - Tempo of Speech
- Lecture 6 - Some Reasons for Mishearing
- Lecture 7 - Topics for Presentations - II
- Lecture 8 - Message
- Lecture 9 - Tables, Charts, Graphs
- Lecture 10 - Power Point Slides
- Lecture 11 - Criteria for Evaluation
- Lecture 12 - Student Presentations - II
- Lecture 13 - Feedback on Presentation - II
- Lecture 14 - Topics for Presentation - III
- Lecture 15 - On "Saying Please!"
- Lecture 16 - English Rhythm - I
- Lecture 17 - English Rhythm - II
- Lecture 18 - Phrasal Pause in English - I
- Lecture 19 - Phrasal Pause in English - II
- Lecture 20 - Units of Time, Weight, Distance
- Lecture 21 - Stress in English - I
- Lecture 22 - Stress in English - II
- Lecture 23 - Stress in English - III
- Lecture 24 - Stress in English - IV
- Lecture 25 - Stress in English - V
- Lecture 26 - Stress in English - VI
- Lecture 27 - Student Presentations - III
- Lecture 28 - Student Presentations - III
- Lecture 29 - Student Presentations - III (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Feedback on Presentations - III
- Lecture 31 - Some Non-standard Sounds
- Lecture 32 - Some â Difficultâ • Sounds in English
- Lecture 33 - Some â Vowelâ • Sounds in English
- Lecture 34 - Some â Consonantsâ • in English
- Lecture 35 - Student Presentations - IV
- Lecture 36 - Student Presentations - IV
- Lecture 37 - Student Presentations - IV (Continued...)
- Lecture 38 - Final Tips

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Introduction to Film Studies

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview  
Lecture 2 - Cinema & Semiotics  
Lecture 3 - Cinema & Semiotics (Continued...)  
Lecture 4 - Plot in Cinema  
Lecture 5 - Plot in Cinema (Continued...)  
Lecture 6 - Character as a plot element  
Lecture 7 - Editing in Cinema  
Lecture 8 - Realism in Cinema  
Lecture 9 - Colour  
Lecture 10 - Intertextuality  
Lecture 11 - Intertextuality (Continued...)  
Lecture 12 - Intertextuality (Continued...)  
Lecture 13 - Cinema & Modernism  
Lecture 14 - Cinema and Modernism (Continued...)  
Lecture 15 - The French Masters  
Lecture 16 - The French Masters (Continued...)  
Lecture 17 - The French Masters (Continued...)  
Lecture 18 - Canonical Text  
Lecture 19 - Canonical Text (Continued...)  
Lecture 20 - Canonical Text (Continued...)  
Lecture 21 - The Academy Awards  
Lecture 22 - Classic Hollywood  
Lecture 23 - Classic Hollywood (Continued...)  
Lecture 24 - Classic Hollywood (Continued...)  
Lecture 25 - Case study  
Lecture 26 - Stars as Icons  
Lecture 27 - Cinema and the Counterculture Movement  
Lecture 28 - Italian cinema  
Lecture 29 - Japanese Cinema

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- Lecture 30 - Auteur Theory in the USA
- Lecture 31 - Auteur Theory in the USA (Continued...)
- Lecture 32 - New Hollywood
- Lecture 33 - New Hollywood (Continued...)
- Lecture 34 - New Hollywood (Continued...)
- Lecture 35 - New Hollywood (Continued...)
- Lecture 36 - Cinema and Genres
- Lecture 37 - Cinema and Genres (Continued...)
- Lecture 38 - Postmodernism and Cinema
- Lecture 39 - Postmodernism & Cinema (Continued...)
- Lecture 40 - The Western

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Introduction to Modern Linguistics

Subject Co-ordinator - Prof. Rajesh Kumar, Prof. Shreesh Chaudhary

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Design Features of Language - 1  
Lecture 3 - Design Features of Language - 2  
Lecture 4 - Design Features of Language - 3  
Lecture 5 - Design Features of Language - 4  
Lecture 6 - Design Features of Language - 5  
Lecture 7 - Production of Speech Sounds  
Lecture 8 - Organs of Articulation  
Lecture 9 - Functions of Vocal Cords  
Lecture 10 - Production of Speech Sounds, Cardinal Vowels  
Lecture 11 - English Vowels  
Lecture 12 - Diphthong  
Lecture 13 - Production of Consonants  
Lecture 14 - Consonants  
Lecture 15 - Consonants-2  
Lecture 16 - Review  
Lecture 17 - What is Phonology  
Lecture 18 - Phonemes & Allophones  
Lecture 19 - Phonological Phenomena  
Lecture 20 - Syllable Template  
Lecture 21 - Syllable  
Lecture 22 - Syllable - Based Generalization  
Lecture 23 - Syllable - Based Generalization  
Lecture 24 - Morphology  
Lecture 25 - Units of Word Formation  
Lecture 26 - Affixation  
Lecture 27 - Syntax  
Lecture 28 - Syntax  
Lecture 29 - Syntax

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Syntax
- Lecture 31 - Syntax
- Lecture 32 - Syntax
- Lecture 33 - Syntax
- Lecture 34 - Syntax
- Lecture 35 - Syntax
- Lecture 36 - Syntax
- Lecture 37 - Syntax
- Lecture 38 - Word Formation-3
- Lecture 39 - Discourse
- Lecture 40 - Discourse..
- Lecture 41 - Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Principles and Parameters in Natural Language

Subject Co-ordinator - Prof. Rajesh Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of the Course
- Lecture 2 - What is linguistics? What is Language?
- Lecture 3 - Language and Arbitrariness, Language and Dialect
- Lecture 4 - E vs I Language, Language as a rule governed system
- Lecture 5 - Language Faculty, Language in Human Mind
- Lecture 6 - How do we learn language?
- Lecture 7 - Language Acquisition
- Lecture 8 - Innateness
- Lecture 9 - Structure of Language at the Level of Sounds
- Lecture 10 - Sounds (Vocal Apparatus)
- Lecture 11 - Places and Manners of Articulation
- Lecture 12 - Word Formation/Phonotactic Rules
- Lecture 13 - Rules of Word Formation (Singular-Plural)
- Lecture 14 - Sentence
- Lecture 15 - Making of a Sentence (Components)
- Lecture 16 - Grammaticality and Acceptability
- Lecture 17 - Subject and Verb in a Sentence
- Lecture 18 - Sentence
- Lecture 19 - Phrase Structure
- Lecture 20 - X-Bar Theory
- Lecture 21 - Specifier and Complement
- Lecture 22 - Complements and Adjuncts
- Lecture 23 - VP Components
- Lecture 24 - Categorical Selections, Selectional Restrictions on verbs
- Lecture 25 - Thematic Relations
- Lecture 26 - Case
- Lecture 27 - Morphological and Abstract Case
- Lecture 28 - Structural Case
- Lecture 29 - Exceptional Case Marking

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Movement
- Lecture 31 - Motivations for Movement
- Lecture 32 - Questions and Movement
- Lecture 33 - Guest Lecture
- Lecture 34 - Passives and NP Movement
- Lecture 35 - NP Movement and Raising
- Lecture 36 - Binding Theory and NP Interpretations
- Lecture 37 - Principles of Binding Theory
- Lecture 38 - Constraints on Movements
- Lecture 39 - Structure of Language and Negation
- Lecture 40 - Negation and Negative Polarity Items
- Lecture 41 - Structure, Language, Cognition and Pragmatics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Literary Criticism and Literary Theory

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Lecture 1 - Introduction & Course Overview - Lecture 1 - Part A  
Lecture 2 - Introduction & Course Overview - Lecture 1 - Part B  
Lecture 3 - Key terms and Concepts - 1 - Lecture 2  
Lecture 4 - Key terms and Concepts - 2 - Lecture 3  
Lecture 5 - Key terms and Concepts - 3 - Lecture 4  
Lecture 6 - Classical Theory - Lecture 5 - Part C  
Lecture 7 - Classical Theory - Lecture 5 - Part A  
Lecture 8 - Classical Theory - Lecture 5 - Part B  
Lecture 9 - Classical Theory - Lecture 6 - Part A  
Lecture 10 - Neoclassicism - Lecture 6 - Part B  
Lecture 11 - Romanticism - Early Romanticism - Lecture 7 - Part A  
Lecture 12 - Romanticism - Romanticism - Lecture 7 - Part C  
Lecture 13 - Romanticism - Romanticism - Lecture 7 - Part D  
Lecture 14 - Romanticism - Early Romanticism - Lecture 7 Part B  
Lecture 15 - Late 19th Century - Lecture 9 - Late 19th century  
Lecture 16 - Lecture 10 A - Marxism  
Lecture 17 - Lecture 10 B - Marxism  
Lecture 18 - Twentieth Century Criticism - Lecture 11 A - Formalism  
Lecture 19 - Twentieth Century Criticism - Lecture 11 B - New criticism  
Lecture 20 - Psychoanalysis and Psychoanalytic Criticism - PART A  
Lecture 21 - Psychoanalysis and Psychoanalytic Criticism - PART B  
Lecture 22 - Psychoanalysis and Psychoanalytic Criticism - PART C  
Lecture 23 - Structuralism - Lecture 12 Part A structuralism  
Lecture 24 - Structuralism - Lecture 12 Part B structuralism  
Lecture 25 - Archetypal Criticism - Lecture 13 - Archetypal Criticism  
Lecture 26 - Post Structuralism - Part A  
Lecture 27 - Post Structuralism - Part B  
Lecture 28 - Post Colonialism - Part A  
Lecture 29 - New Historicism and Cultural Materialism - Part A  
Lecture 30 - New Historicism and Cultural Materialism - Part B  
Lecture 31 - Reader Response criticism  
Lecture 32 - Semiotics theory - PART A  
Lecture 33 - Semiotics theory - PART B

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 34 - Film studies - Part A
- Lecture 35 - Film studies - Part B
- Lecture 36 - Postmodernism - Part A
- Lecture 37 - Postmodernism - Part B
- Lecture 38 - Ecocriticism - Part A
- Lecture 39 - Ecocriticism - Part B
- Lecture 40 - Post theory - Part A
- Lecture 41 - Post theory - Part B

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Language and Mind

Subject Co-ordinator - Prof. Rajesh Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - On Language - What is language
- Lecture 2 - On Language - How do we learn language
- Lecture 3 - On Language - Learning language
- Lecture 4 - On Language - Acquiring language
- Lecture 5 - On Language - Language evolution
- Lecture 6 - Language in Mind - Language and language learning
- Lecture 7 - Language in Mind - Language in mind
- Lecture 8 - Language in Mind - Grammar
- Lecture 9 - Language in Mind - Language and human mind
- Lecture 10 - Language in Mind - Mechanism of sound production
- Lecture 11 - Patterns in Sounds and Words - Consonants
- Lecture 12 - Patterns in Sounds and Words - Features of sounds
- Lecture 13 - Patterns in Sounds and Words - Words
- Lecture 14 - Patterns in Sounds and Words - Words II
- Lecture 15 - Patterns in Sounds and Words - Words III
- Lecture 16 - Words and Sentences - Words IV
- Lecture 17 - Words and Sentences - Words V
- Lecture 18 - Words and Sentences - Structure of a sentence
- Lecture 19 - Words and Sentences - Nature of sentences and phrases
- Lecture 20 - Words and Sentences - Syntax
- Lecture 21 - Grammar - Structure of sentence (agreement)
- Lecture 22 - Grammar - Sentence (categories and phrase)
- Lecture 23 - Grammar - Sentence (phrase structure)
- Lecture 24 - Grammar - Sentence (X bar and IP)
- Lecture 25 - Grammar - Sentence (inflectional phrase)
- Lecture 26 - Advanced Grammar - Sentence (compliment and adjunct)
- Lecture 27 - Advanced Grammar - Sentence (restrictions)
- Lecture 28 - Advanced Grammar - Sentence (semantic relations)
- Lecture 29 - Advanced Grammar - Sentence (case)
- Lecture 30 - Advanced Grammar - Sentence (movement)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 31 - Levels of Representation and Principles of Grammar - CP and displacement
- Lecture 32 - Levels of Representation and Principles of Grammar - Sentence (CP in subject and object position)
- Lecture 33 - Levels of Representation and Principles of Grammar - Sentence (passivization and NP movement)
- Lecture 34 - Levels of Representation and Principles of Grammar - Sentence (referential expressions)
- Lecture 35 - Levels of Representation and Principles of Grammar - Sentence (binding)
- Lecture 36 - Language and Cognition - Sentence Dependencies
- Lecture 37 - Language and Cognition - Language and cognition
- Lecture 38 - Language and Cognition - Language, cognition and computers
- Lecture 39 - Language and Cognition - Language and computers
- Lecture 40 - Language and Cognition - Language and mind

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Film Appreciation

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Key Concepts  
Lecture 3 - Key Concepts  
Lecture 4 - Lecture  
Lecture 5 - Lecture  
Lecture 6 - Lecture  
Lecture 7 - Lecture  
Lecture 8 - Lecture  
Lecture 9 - Lecture  
Lecture 10 - Lecture  
Lecture 11 - Lecture  
Lecture 12 - Action Cinema  
Lecture 13 - Lecture  
Lecture 14 - Melodrama  
Lecture 15 - Formalism in Cinema  
Lecture 16 - The Language of Cinema  
Lecture 17 - Devdas  
Lecture 18 - City Cinema  
Lecture 19 - The Semiotics of Cinema  
Lecture 20 - Raging Bull  
Lecture 21 - Robert Bresson  
Lecture 22 - Studio Cinema  
Lecture 23 - Studio Cinema  
Lecture 24 - New Hollywood Cinema  
Lecture 25 - New Hollywood Cinema  
Lecture 26 - History of Hindi Cinema  
Lecture 27 - History of Hindi Cinema  
Lecture 28 - History of Hindi Cinema  
Lecture 29 - Ideology in Cinema

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Character in Cinema
- Lecture 31 - Mythological Cinema in India
- Lecture 32 - The Cinema of Satyajit Ray
- Lecture 33 - Hindi Film Music
- Lecture 34 - The Hollywood musicals
- Lecture 35 - African cinema
- Lecture 36 - Iranian cinema
- Lecture 37 - Canadian Cinema
- Lecture 38 - Eastern European Cinema
- Lecture 39 - European Cinema Hungary, Sweden, Greece
- Lecture 40 - Postmodernism and cinema
- Lecture 41 - Mall towns in cinema
- Lecture 42 - Film sequels, remakes and cult films
- Lecture 43 - Parallel Cinema From India

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Appreciating Carnatic Music

Subject Co-ordinator - Dr. Lakshmi Sreeram

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - The Body of Music

Lecture 2 - Music everywhere finding the classical

Lecture 3 - Classical Music Art Music

Lecture 4 - Music through Melody & Music through Harmony

Lecture 5 - Musical Material A Hard Look

Lecture 6 - Musical material Mo2

Lecture 7 - Carnatic Music as Raga Music

Lecture 8 - Understanding Raga - Part I

Lecture 9 - Understanding Raga - Part II (Raga and Swara)

Lecture 10 - Understanding Raga - Part III A Glimpse into Gamaka (Ornamentation) and Phraseology

Lecture 11 - Swara in the Sanskrit Textual Tradition

Lecture 12 - Sruti in Sanskrit Textual tradition

Lecture 13 - Tambura

Lecture 14 - Gamaka I

Lecture 15 - Gamaka II

Lecture 16 - Gamaka III

Lecture 17 - Gamakas IV

Lecture 18 - Raga and Phraseology

Lecture 19 - Raga - some basic expectations

Lecture 20 - A string of Ragas and a teaser

Lecture 21 - Raga in the textual tradition

Lecture 22 - Classification of Ragas I

Lecture 23 - Classification of Ragas II

Lecture 24 - Mela system of classifying raga-s

Lecture 25 - Generating the 72 mela-s

Lecture 26 - Application of 72 mela

Lecture 27 - Katapayadi Naming the 72 melas

Lecture 28 - Vivadi I

Lecture 29 - Vivadi II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Raga - Circles and Triangles
- Lecture 31 - Laya
- Lecture 32 - Tala an Introduction to the Concept
- Lecture 33 - More on Tala and laya
- Lecture 34 - Aspects of Tala - I
- Lecture 35 - Aspects of Tala - II
- Lecture 36 - Aspects of Tala - III
- Lecture 37 - Aspects of IV
- Lecture 38 - Composition in Carnatic Music
- Lecture 39 - An Introduction
- Lecture 40 - Varnam and laya intricacies
- Lecture 41 - Kriti the premier compositional form in Carnatic music
- Lecture 42 - Kriti some basic features
- Lecture 43 - Precursors to the Kriti
- Lecture 44 - Bhakti and Carnatic Music
- Lecture 45 - Tanjavur and the Carnatic Trinity
- Lecture 46 - Tyagaraja, the Vaggeyakara
- Lecture 47 - Tyagaraja and His Many Moods -I
- Lecture 48 - Tyagaraja and His Many Moods II
- Lecture 49 - Muthuswami Dikshitar an overview
- Lecture 50 - Muthuswami Dikshitar the Sanskrit Scholar and Advaitin
- Lecture 51 - Muthuswami Dikshitar Some Other Aspects of his Work.
- Lecture 52 - Syama Sastri
- Lecture 53 - Tamil Composers before the trinity
- Lecture 54 - Post trinity Composers
- Lecture 55 - Swathi Tirunal - the Versatile Royal Composer
- Lecture 56 - The Romance of Padam and Javali
- Lecture 57 - Tillana
- Lecture 58 - Improvisation in Carnatic Music - Alapana
- Lecture 59 - ALAPANA
- Lecture 60 - Neraval and Swaraprastara
- Lecture 61 - TANAM
- Lecture 62 - An exposition of Balagopala, a kriti in the raga Bhairavi with alapana, neraval and swaraprastara
- Lecture 63 - Accompaniment in Carnatic Music - The Violin
- Lecture 64 - Percussive Accompaniment - the Mridangam
- Lecture 65 - Subsidiary Accompaniment - Interaction Among Accompanists
- Lecture 66 - The Typical carnatic Concert And Ragam Tanam Pallavi - RTP

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Infrastructure Economics

Subject Co-ordinator - Prof.Nalin Bharti

Co-ordinating Institute - IIT - Patna

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Language and Society

Subject Co-ordinator - Prof. Rajesh Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to language and society
- Lecture 2 - Language and India
- Lecture 3 - Language and a language
- Lecture 4 - Language, dialect and variety
- Lecture 5 - Dialect and standard language
- Lecture 6 - How do children learn language?
- Lecture 7 - First language acquisition
- Lecture 8 - Critical period and SLA
- Lecture 9 - Sounds and words
- Lecture 10 - Sentence
- Lecture 11 - India as a linguistic area
- Lecture 12 - Language variation
- Lecture 13 - Language and culture
- Lecture 14 - Language and power- politics
- Lecture 15 - Indian english
- Lecture 16 - Fluidity and continuum
- Lecture 17 - Language in education
- Lecture 18 - Language and scholastic achievement
- Lecture 19 - Language and language teaching
- Lecture 20 - Concluding remarks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Issues in Bioethics

Subject Co-ordinator - Dr. Sreekumar Nellickappilly

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1 - Unit 1 - Overview of Bioethics  
Lecture 2 - Module 1 - Unit 2 - Historical Evolution of Bioethics-I  
Lecture 3 - Module 1 - Unit 3 - Historical Evolution of Bioethics-II  
Lecture 4 - Module 1 - Unit 4 - Historical Evolution of Bioethics-III  
Lecture 5 - Module 1 - Unit 5 - Bioethics Today  
Lecture 6 - Module 2 - Unit 1 - Ethical theories and Bioethical Issues  
Lecture 7 - Module 2 - Unit 2 - Other ethical theories  
Lecture 8 - Module 2 - Unit 3 - Hedonistic Approaches in Ethical Theories  
Lecture 9 - Module 2 - Unit 4 - Deontological Approach  
Lecture 10 - Module 2 - Unit 5 - Principle-Based Theories  
Lecture 11 - Module 3 - Unit 1 - Challenges to the Person of the Individual  
Lecture 12 - Module 3 - Unit 2 - Challenges to Dignity and the Human Rights Approach in Bioethics  
Lecture 13 - Module 3 - Unit 3 - Problems in Resource Allocation  
Lecture 14 - Module 3 - Unit 4 - End of Life Issues  
Lecture 15 - Module 3 - Unit 5 - Ethics of Care, Gender Concerns and Feminist Perspectives  
Lecture 16 - Module 4 - Unit 1 - Technological Advancements and Bioethical concerns  
Lecture 17 - Module 4 - UNIT 2 - The challenges posed by Genetic Engineering and Gener Therapy Not Started  
Lecture 18 - Module 4 - Unit 3 - The challenges posed by Epidemic Threats  
Lecture 19 - Module 4 - Unit 4 - Religious Traditions and Contemporary Bioethics  
Lecture 20 - Module 4 - Unit 5 - Towards a Phronetic Bioethics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Technical English for Engineers

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Introduction to the Course
- Lecture 2 - Parts of Speech - Nouns
- Lecture 3 - Parts of Speech - Preposition and Noun Phrases
- Lecture 4 - Countable and Uncountable Nouns
- Lecture 5 - Reading (Identifying main ideas) and Listening
- Lecture 6 - What is a Sentence
- Lecture 7 - What is a Sentence (Continued...)
- Lecture 8 - Subject Verb Agreement
- Lecture 9 - Articles
- Lecture 10 - Verbs
- Lecture 11 - Comparatives
- Lecture 12 - Modals and Voices
- Lecture 13 - Passive Voice (Continued...)
- Lecture 14 - Tenses
- Lecture 15 - Tenses (Continued...)
- Lecture 16 - Effective Speaking
- Lecture 17 - Formal Presentation
- Lecture 18 - Punctuation
- Lecture 19 - Punctuation (Continued...)
- Lecture 20 - Reading - SQW3R Method and Note-taking
- Lecture 21 - Phrasal Verbs
- Lecture 22 - Collocation
- Lecture 23 - Word Formation
- Lecture 24 - Understanding the text organization
- Lecture 25 - Writing Emails
- Lecture 26 - Academic Writing and Linking Words
- Lecture 27 - Paragraph Writing
- Lecture 28 - Describing/Explaining Processes
- Lecture 29 - Essay Writing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Essay Writing and Formal Letters
- Lecture 31 - Letter Writing and Usage
- Lecture 32 - Understanding the Mechanics of Publishable Essays
- Lecture 33 - Writing Publishable Essays and Usage
- Lecture 34 - Report
- Lecture 35 - Everyday Usage
- Lecture 36 - Writing a Statement of Purpose
- Lecture 37 - CV/Resume and Cover Letters
- Lecture 38 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Health Research Fundamentals

Subject Co-ordinator - Dr. P GaneshKumar, Dr. P. Manickam, Dr. Prabhdeep Kaur, Dr. Tarun Bhatnagar, Dr. R Ram

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Health Research
- Lecture 2 - Formulating research question, hypothesis and objectives
- Lecture 3 - Literature review
- Lecture 4 - Measurement of disease frequency
- Lecture 5 - Descriptive study designs
- Lecture 6 - Analytical study designs
- Lecture 7 - Experimental study designs
- Lecture 8 - Validity of epidemiological studies
- Lecture 9 - Qualitative research methods
- Lecture 10 - Measurement of study variables
- Lecture 11 - Sampling methods
- Lecture 12 - Calculating sample size and power
- Lecture 13 - Selection of study population
- Lecture 14 - Study plan and project management
- Lecture 15 - Designing data collection tools
- Lecture 16 - Principles of data collection
- Lecture 17 - Data management
- Lecture 18 - Overview of data analysis
- Lecture 19 - Ethical framework for health research
- Lecture 20 - Conducting clinical trials
- Lecture 21 - Preparing a concept paper for research projects
- Lecture 22 - Elements of a protocol for research studies

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:American Literature and Culture

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1 - Introduction to the course on American Literature and Culture  
Lecture 2 - Lecture 2 - Henry James  
Lecture 3 - Lecture 3 - Henry James  
Lecture 4 - Lecture 4 - Henry James  
Lecture 5 - Lecture 5 - Henry James  
Lecture 6 - Lecture 6 - Henry James  
Lecture 7 - Lecture 7 - Henry James  
Lecture 8 - Lecture 8a - Henry James  
Lecture 9 - Lecture 8b - Henry James  
Lecture 10 - Lecture 9a - Theodore Dreiser  
Lecture 11 - Lecture 9b - Theodore Dreiser  
Lecture 12 - Lecture 10a - Theodore Dreiser  
Lecture 13 - Lecture 10b - Theodore Dreiser  
Lecture 14 - Lecture 10c - Theodore Dreiser  
Lecture 15 - Lecture 11 - Herman Melville  
Lecture 16 - Lecture 12 - Herman Melville  
Lecture 17 - Lecture 12a - Herman Melville  
Lecture 18 - Lecture 13a - Short Story  
Lecture 19 - Lecture 13b - Flannery O'Connor  
Lecture 20 - Lecture 14 - Flannery O'Connor  
Lecture 21 - Lecture 15 - Ernest Hemingway  
Lecture 22 - Lecture 16 - Ernest Hemingway  
Lecture 23 - Lecture 17 - Ernest Hemingway  
Lecture 24 - Lecture 18 - Ernest Hemingway  
Lecture 25 - Lecture 19 - Ernest Hemingway  
Lecture 26 - Lecture 20 - F. Scott Fitzgerald  
Lecture 27 - Lecture 21 - Romanticism  
Lecture 28 - Lecture 22 - Edgar Allen Poe  
Lecture 29 - Lecture 23 - American Drama

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Lecture 30 - Lecture 24 - Lillian Hellman  
Lecture 31 - Lecture 25 - Lillian Hellman  
Lecture 32 - Lecture 26 - Lillian Hellman  
Lecture 33 - Lecture 27 - Lillian Hellman  
Lecture 34 - Lecture 28 - Arthur Miller  
Lecture 35 - Lecture 29 - Arthur Miller  
Lecture 36 - Lecture 30 - Arthur Miller  
Lecture 37 - Lecture 31 - Arthur Miller  
Lecture 38 - Lecture 32 - Eugene O'Neill  
Lecture 39 - Lecture 33 - Eugene O'Neill  
Lecture 40 - Lecture 34 - Edith Wharton  
Lecture 41 - Lecture 35 - Edith Wharton  
Lecture 42 - Lecture 36 - Edith Wharton  
Lecture 43 - Lecture 37 - Edith Wharton  
Lecture 44 - Lecture 38 - Christopher Hitchens  
Lecture 45 - Lecture 39 - Hart Crane



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Economics of IPR

Subject Co-ordinator - Prof.Nalin Bharti

Co-ordinating Institute - IIT - Patna

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to IPR - Historical Overview from GATT to WTO

Lecture 2 - Why IPR Matters

Lecture 3 - Application of IPR in the Global World

Lecture 4 - Economic Perspective on IPR

Lecture 5 - Types of IPR Its introduction and objectives

Lecture 6 - Globalization of IPR

Lecture 7 - Economics of Copyright

Lecture 8 - Economics of Patent

Lecture 9 - Economics of Trademarks

Lecture 10 - Economics of Trade Secrets

Lecture 11 - Economics of Industrial Design

Lecture 12 - Issues in Contemporary Patent

Lecture 13 - Critical Issues in Copyright and Related Rights

Lecture 14 - Issues in Traditional Knowledge

Lecture 15 - Plant Varieties Protection and Biotechnology

Lecture 16 - Commercialization of Intellectual Property and Unfair Competition

Lecture 17 - Disputes related to Patent in WTO

Lecture 18 - Disputes related to copyright, etc. in WTO

Lecture 19 - IP and Development

Lecture 20 - Summarizing the course

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Applied Linguistics

Subject Co-ordinator - Prof. Rajesh Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Language
- Lecture 3 - Language in Society
- Lecture 4 - Acquisition
- Lecture 5 - Vocal Apparatus
- Lecture 6 - Places and Manners of Articulation
- Lecture 7 - Word Formation Phonotactic Rules
- Lecture 8 - Rules of Word Formation
- Lecture 9 - Sentences- an introduction
- Lecture 10 - Components of a Sentence
- Lecture 11 - Grammaticality and Acceptability
- Lecture 12 - Subject and Verb in a sentence
- Lecture 13 - Sentence
- Lecture 14 - Application of linguistic structure in social theory
- Lecture 15 - Second Language Acquisition
- Lecture 16 - Language and Multilingualism
- Lecture 17 - Language, Culture and Cognition
- Lecture 18 - Classroom discussion on Language, Culture and Cognition
- Lecture 19 - Language and Gender
- Lecture 20 - Language, Media and Network society
- Lecture 21 - Language Teaching
- Lecture 22 - Language Teaching Methods - I
- Lecture 23 - Language Teaching Methods - II
- Lecture 24 - Materials and Assessment in Teaching Language
- Lecture 25 - Disability and Learning Disorder
- Lecture 26 - Language Development and Specific Difficulties
- Lecture 27 - Dyslexia
- Lecture 28 - Specific Learning Difficulties
- Lecture 29 - Language and Computers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Language, Computers and Applications
- Lecture 31 - Language and Education
- Lecture 32 - Language and Application

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:English Language for Competitive Exams

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Reading Comprehension?
- Lecture 2 - Literature and reading comprehension
- Lecture 3 - Scientific passages and reading comprehension
- Lecture 4 - Analyze a task - 1
- Lecture 5 - Analyze a task - 2
- Lecture 6 - Reading - Comprehending Scientific Passages
- Lecture 7 - Comprehending Literary Passages - 1
- Lecture 8 - Comprehending Literary Passages - 2
- Lecture 9 - Academic writing
- Lecture 10 - Text - Completion
- Lecture 11 - Analogy
- Lecture 12 - Writing
- Lecture 13 - Writing
- Lecture 14 - Listening
- Lecture 15 - Writing
- Lecture 16 - Listening for Specific Information
- Lecture 17 - Reading Comprehension
- Lecture 18 - (Lecture Missing)
- Lecture 19 - Reading Comprehension
- Lecture 20 - Verbal Analogy and Vocabulary
- Lecture 21 - Vocabulary
- Lecture 22 - Vocabulary
- Lecture 23 - Vocabulary
- Lecture 24 - Vocabulary
- Lecture 25 - Vocabulary
- Lecture 26 - Vocabulary
- Lecture 27 - Text Completion
- Lecture 28 - Text Completion (Continued...)
- Lecture 29 - Analogy and Text Completion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Text Completion (Continued...)
- Lecture 31 - Text Completion - Part 4
- Lecture 32 - Names and Vocabulary
- Lecture 33 - Latin Terms in English Vocabulary
- Lecture 34 - Greek Mythology and Vocabulary
- Lecture 35 - Green Names and Foreign Words
- Lecture 36 - Vocabulary Practice Test
- Lecture 37 - Analogy
- Lecture 38 - Foreign Words and Names
- Lecture 39 - Suffixes and Reference Words
- Lecture 40 - Uncommon Words - Part 1
- Lecture 41 - Uncommon Words - Part 2
- Lecture 42 - More Uncommon Words
- Lecture 43 - More Uncommon Words (Continued...)
- Lecture 44 - Vocabulary and Analogy
- Lecture 45 - Vocabulary
- Lecture 46 - Subject-Verb Agreement and Sentence Correction
- Lecture 47 - Sentence Correction
- Lecture 48 - Conditional Clauses, Prepositions and Reported Speech
- Lecture 49 - Clauses
- Lecture 50 - Modifiers, Active Voice and Passive Voice
- Lecture 51 - Gerunds and Infinitives
- Lecture 52 - Coordinators and Conjunctions - Part 1
- Lecture 53 - Coordinators and Conjunctions - Part 2
- Lecture 54 - Grammar
- Lecture 55 - Grammar
- Lecture 56 - Punctuation
- Lecture 57 - Punctuation (Continued...)
- Lecture 58 - Revision - Vocabulary
- Lecture 59 - Revision - Subject verb agreement
- Lecture 60 - Read and Revise

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Ethics

Subject Co-ordinator - Dr. Sreekumar Nellickappilly

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Ethics and Morals
- Lecture 2 - Different Approaches to Ethics
- Lecture 3 - Historical Perspectives
- Lecture 4 - Medieval and Modern Moral Theories
- Lecture 5 - Socratic Framework in Morla Philosophy
- Lecture 6 - Eudaimonism to Divine Command
- Lecture 7 - Divine Command Theory and the Euthyphro Dilemma
- Lecture 8 - Different Types of Ethical Theory
- Lecture 9 - Thomas Hobbes
- Lecture 10 - Contractarianism
- Lecture 11 - Contractarianism and its Moral Implications
- Lecture 12 - Introduction to Deontological Approaches
- Lecture 13 - Kantian Deontologism
- Lecture 14 - Egoism and its Ethical Implications
- Lecture 15 - Motivational and Ethical Hedonism
- Lecture 16 - Utilitarianism and its Moral Position
- Lecture 17 - The Individual and the Whole
- Lecture 18 - Critique of Moral Absolutism
- Lecture 19 - Existentialism and Ethics
- Lecture 20 - Ethics in the Present Age

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:The Renaissance and Shakespeare

Subject Co-ordinator - Prof. Shormishtha Panja

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - The Renaissance An Introduction - Part-1

Lecture 2 - The Renaissance An Introduction - Part-2

Lecture 3 - Shakespeare's Life and Times

Lecture 4 - Shakespeare's, William Shakespeare The Merchant of Venice performance

Lecture 5 - Shakespeare's, William Shakespeare The Merchant of Venice Panel Discussion

Lecture 6 - Othello Part-1

Lecture 7 - Othello Part-2

Lecture 8 - Lecture on A Midsummer Night's Dream

Lecture 9 - A Midsummer Night's Dream Performance

Lecture 10 - A Midsummer Night's Dream Panel Discussion

Lecture 11 - Shakespeare's History Plays

Lecture 12 - Lecture on Macbeth

Lecture 13 - Shakespeare's Romances or The Last Plays

Lecture 14 - Twelfth Night

Lecture 15 - Whose Shakespeares?? Colonial Encounters/Post Colonial Negotiations

Lecture 16 - Global Shakespeare

Lecture 17 - Global Shakespeare (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Literature for Competitive Exams

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Overview of the History of English Literature
- Lecture 2 - An Overview of the History of English Literature (Continued...)
- Lecture 3 - Landmarks of the English literature
- Lecture 4 - The Novel
- Lecture 5 - Landmarks in the English History
- Lecture 6 - The Elizabethan Age
- Lecture 7 - The Elizabethan Period (Part 1)
- Lecture 8 - Key Figures of the Renaissance and the Elizabethan Age
- Lecture 9 - 17 and early 18th century landmark events and literature
- Lecture 10 - Literature and major events in 18 and 19 century
- Lecture 11 - 18 and 19 century European masters
- Lecture 12 - The English Poets
- Lecture 13 - The Romantic Period
- Lecture 14 - The English Romanticism
- Lecture 15 - The English Poets (Continued...)
- Lecture 16 - New Criticism
- Lecture 17 - The American Romanticism
- Lecture 18 - American Literature
- Lecture 19 - Henry James
- Lecture 20 - American literature
- Lecture 21 - The American Novel
- Lecture 22 - American Drama and Poetry
- Lecture 23 - American Drama
- Lecture 24 - American poets and Dramatists
- Lecture 25 - Practice Test (Continued...)
- Lecture 26 - Indian Writing in English
- Lecture 27 - Postcolonialism
- Lecture 28 - Asian American Writing
- Lecture 29 - South Asian Writing in English

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - World Literature
- Lecture 31 - World Literature (Continued...)
- Lecture 32 - Goethe Faust
- Lecture 33 - Goethe Faust (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:History of English Language and Literature

Subject Co-ordinator - Prof. Merin Simi Raj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Locating the Starting Points
- Lecture 3 - Old English period
- Lecture 4 - Middle English Period
- Lecture 5 - The Age of Chaucer
- Lecture 6 - Middle English period after Chaucer
- Lecture 7 - Middle English period after Chaucer
- Lecture 8 - The Development of English Language - Tracing the Origins and Early Influences
- Lecture 9 - The Development of English Language - Old English to Middle English
- Lecture 10 - Introducing the Elizabethan Era - The English Reformation
- Lecture 11 - The Elizabethan Age
- Lecture 12 - Elizabethan Age
- Lecture 13 - The Emergence of Elizabethan 'Romantic' Drama
- Lecture 14 - The University Wits
- Lecture 15 - The University Wits
- Lecture 16 - William Shakespeare
- Lecture 17 - William Shakespeare
- Lecture 18 - Elizabethan Theatre
- Lecture 19 - Elizabethan Poetry and Prose
- Lecture 20 - The Jacobean Age
- Lecture 21 - The Jacobean Age (Continued...)
- Lecture 22 - Jacobean Drama
- Lecture 23 - Did Women Have a Renaissance?
- Lecture 24 - The Caroline Period / The Age of Milton and The Interregnum
- Lecture 25 - The Caroline Period / The Age of Milton and The Interregnum (Continued...)
- Lecture 26 - The Age of Milton
- Lecture 27 - Changes in Language
- Lecture 28 - Early Modern English (Continued...)
- Lecture 29 - The Age of Restoration

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Age of Dryden
- Lecture 31 - The Restoration Drama
- Lecture 32 - The Age of Pope / The Augustan Age
- Lecture 33 - The Age of Pope
- Lecture 34 - The Age of Pope
- Lecture 35 - The Age of Pope Conclusion
- Lecture 36 - Scottish Enlightenment of the 18th Century
- Lecture 37 - The Age of Johnson (1745 - 1798)
- Lecture 38 - The Age of Johnson (Continued...)
- Lecture 39 - The Rise of the Novel
- Lecture 40 - The Rise of the Novel
- Lecture 41 - The Rise of the Novel (Continued...)
- Lecture 42 - The Rise of the Woman Writer in the 18th Century
- Lecture 43 - The Revival of Romance
- Lecture 44 - The Revival of Romance (Continued...)
- Lecture 45 - The Revival of Romance
- Lecture 46 - The Age of Romanticism
- Lecture 47 - The Age of Wordsworth
- Lecture 48 - Age of Wordsworth (Continued...)
- Lecture 49 - Age of Wordsworth (Continued...)
- Lecture 50 - Prose in the age of Romanticism
- Lecture 51 - Drama in the age of Romanticism
- Lecture 52 - Novel in the age of Romanticism
- Lecture 53 - Women writers in the Romantic age
- Lecture 54 - The Age of Tennyson
- Lecture 55 - The Age of Tennyson
- Lecture 56 - The Age of Tennyson
- Lecture 57 - The Age of Tennyson
- Lecture 58 - The Age of Tennyson
- Lecture 59 - Prose in the Victorian Age
- Lecture 60 - Drama in the Victorian Age
- Lecture 61 - Victorian Novel and the Late Victorian Period
- Lecture 62 - Towards Modernism
- Lecture 63 - Modernist Literature
- Lecture 64 - Modernist Poetry
- Lecture 65 - Modernist Prose and Fiction
- Lecture 66 - Post-1945

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Patent Drafting for Beginners

Subject Co-ordinator - Prof. Feroze Ali

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - PDB-What are Inventions?
- Lecture 2 - Background
- Lecture 3 - Field of Invention
- Lecture 4 - Prior Art
- Lecture 5 - Patent Classification
- Lecture 6 - Technical Advance
- Lecture 7 - What are not inventions
- Lecture 8 - Why People Invent
- Lecture 9 - How Inventions Look
- Lecture 10 - Where to Look for Inventions
- Lecture 11 - How to Catch an Invention
- Lecture 12 - Getting a working disclosure
- Lecture 13 - Searching with the disclosure
- Lecture 14 - Outcome of search
- Lecture 15 - What is a Patentability Search
- Lecture 16 - Reasons for Ordering a Patentability Search
- Lecture 17 - When a Patentability Search is Not Required
- Lecture 18 - How to Order a Patentability Search
- Lecture 19 - Limits of Patentability Search
- Lecture 20 - Patentability Search Report
- Lecture 21 - How to pitch an invention
- Lecture 22 - Identifying the inventive concept
- Lecture 23 - Problem Solution Statement
- Lecture 24 - Problem-Solution to Claim
- Lecture 25 - How to Search for a Granted Patent
- Lecture 26 - Provisions relating to claim
- Lecture 27 - Some Exceptions to patentability
- Lecture 28 - Structure of Claims
- Lecture 29 - Preamble

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transition
- Lecture 31 - Body
- Lecture 32 - Form and Punctuation of Claims
- Lecture 33 - Omnibus Claims
- Lecture 34 - Structural and Functional Definitions
- Lecture 35 - Cooperation
- Lecture 36 - Types of Claims
- Lecture 37 - Dependent claims
- Lecture 38 - Apparatus Claims
- Lecture 39 - Methods or Process Claims
- Lecture 40 - Claim Drafting Best Practices
- Lecture 41 - Claims Drafting What to Avoid
- Lecture 42 - How to Download Copy of Patent Specification
- Lecture 43 - Amendment to Claims
- Lecture 44 - Claim Analysis Combo Pen with Marker
- Lecture 45 - Introduction to Specification Drafting
- Lecture 46 - Enabling Disclosure
- Lecture 47 - Best method
- Lecture 48 - Parts of the specification
- Lecture 49 - Background and Summary
- Lecture 50 - Detailed description
- Lecture 51 - Parts of the Application
- Lecture 52 - Evolution of Patent Specifications
- Lecture 53 - Live Session

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Business English Communication

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Reading Comprehension - 1

Lecture 2 - Reading Comprehension - 2

Lecture 3 - Reading Comprehension - 3

Lecture 4 - Reading Comprehension - 4

Lecture 5 - Reading Comprehension - 5

Lecture 6 - Vocabulary - 1

Lecture 7 - Vocabulary - 2

Lecture 8 - Vocabulary - 3

Lecture 9 - Vocabulary - 4

Lecture 10 - Vocabulary - 5

Lecture 11 - Grammar (subject verb agreement)

Lecture 12 - Grammar (Tenses)

Lecture 13 - Grammar (Clauses, Gerund and Infinitives, Coordinating conjunctions )

Lecture 14 - Grammar (Prepositions, Reported Speech, Active Voice and Passive Voice)

Lecture 15 - Grammar (Punctuations and Types of sentences)

Lecture 16 - Writing (Emails and Memos)

Lecture 17 - Writing (Official letters and Presentation scripts)

Lecture 18 - Writing (Different business writing genres)

Lecture 19 - Writing (Business writing and vocabulary for specific situations)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Postmodernism in Literature

Subject Co-ordinator - Prof. Merin Simi Raj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction Part - 1
- Lecture 2 - Introduction Part - 2
- Lecture 3 - Introduction Part - 3
- Lecture 4 - The Genealogy of Postmodernism
- Lecture 5 - The Genealogy of Postmodernism
- Lecture 6 - The Death of the author and it's Postmodern implications
- Lecture 7 - The Death of the author and it's Postmodern implications (Continued...)
- Lecture 8 - The Death of the author and it's Postmodern implications (Continued...)
- Lecture 9 - What is an Author ?
- Lecture 10 - What is an Author ? (Continued...)
- Lecture 11 - Postmodern Theories and Frameworks
- Lecture 12 - Lyotard's Postmodern condition
- Lecture 13 - Lyotard's Postmodern condition
- Lecture 14 - Baudrillard,Hyperreality and Postmodern representations
- Lecture 15 - Baudrillard,Hyperreality and Postmodern representations (Continued...)
- Lecture 16 - Derrida,Deconstruction and Postmodern texts
- Lecture 17 - Derrida,Deconstruction and Postmodern texts (Continued...)
- Lecture 18 - Derrida,Deconstruction and Postmodern texts (Continued...)
- Lecture 19 - Intertextuality,Kristeva and the study of Postmodern Texts
- Lecture 20 - Postmodern Feminism
- Lecture 21 - Formulation of the Postmodern
- Lecture 22 - Minor Literature' and Postmodern Narratives
- Lecture 23 - Critiques of Postmodernism
- Lecture 24 - Critiques of Postmodernism
- Lecture 25 - Feminism and Postmodernism
- Lecture 26 - Situating the Postcolonial in the Postmodern
- Lecture 27 - Homi K.Bhabha
- Lecture 28 - Is the Post-in Postmodernism the Post-in Postcolonial?
- Lecture 29 - Can the Subaltern Speak?

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Reading Postmodern-Postcolonial Fiction
- Lecture 31 - Hyperreality in Delillo's Postmodernist Fiction
- Lecture 32 - The Garden of Forking Paths
- Lecture 33 - The Garden of Forking Paths
- Lecture 34 - Postmodern Fiction by women
- Lecture 35 - Postmodern Fiction by women
- Lecture 36 - Reading Postmodern Fiction
- Lecture 37 - Reading Postmodern Fiction
- Lecture 38 - Postmodern Writings
- Lecture 39 - Postmodern Writings
- Lecture 40 - Postmodern literature today



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Indian Fiction in English

Subject Co-ordinator - Prof. Merin Simi Raj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Indian Fiction in English - Introduction

Lecture 2 - Rushdie and Indian Writing

Lecture 3 - Situating 'fiction' in the history of Indian Writing in English

Lecture 4 - Indian Writing in English

Lecture 5 - Introducing Indian Fiction in English

Lecture 6 - The Critical Tradition of Indian Fiction in English

Lecture 7 - The rise of novel in regional languages

Lecture 8 - Rajmohan's Wife to Kanthapura

Lecture 9 - Kanthapura, Mythmaking and Gandhi

Lecture 10 - Mahatma and Indian novels in English

Lecture 11 - Waiting for the Mahatma - Part I

Lecture 12 - Waiting for the Mahatma - Part II

Lecture 13 - Indian Fiction in English

Lecture 14 - Heat and Dust

Lecture 15 - The Strange Case of Billy Biswas

Lecture 16 - Cry, the Peacock

Lecture 17 - Midnight's children

Lecture 18 - Reading Midnight's Children

Lecture 19 - Salman Rushdie in Indian Fiction in English

Lecture 20 - Midnight's Children

Lecture 21 - Zelaldinus

Lecture 22 - Trotter Nama

Lecture 23 - Shadow Lines

Lecture 24 - Reading the Shadow Lines

Lecture 25 - Caste in Indian English Fiction

Lecture 26 - Caste in Untouchable

Lecture 27 - Reading The God of Small Things - I

Lecture 28 - Reading The God of Small Things - II

Lecture 29 - Other Representations of Caste in IE fiction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - All About H.Hatterr
- Lecture 31 - Rich Like Us
- Lecture 32 - Partition novels
- Lecture 33 - White Tiger
- Lecture 34 - Notes on the New Indian Novel in English
- Lecture 35 - Riot
- Lecture 36 - English, August by Upamanyu Chatterjee
- Lecture 37 - The Hungry Tide by Amitav Ghosh
- Lecture 38 - Remains of the Feast
- Lecture 39 - Writings in English from the Northeast
- Lecture 40 - The writings of Ruskin Bond
- Lecture 41 - Inheritance of Loss by Kiran Desai
- Lecture 42 - Indian Fiction in English - Positioning Literary Studies
- Lecture 43 - New Writings in Contemporary Indian Fiction in English
- Lecture 44 - Graphic Novel in India
- Lecture 45 - The city in Indian English Fiction
- Lecture 46 - Postcoloniality and its Challenges
- Lecture 47 - Commonwealth literature does not exist

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Cultural Studies

Subject Co-ordinator - Prof. Avishek Parui

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Course  
Lecture 2 - Different Interpretations Of Culture (Marxism) Lecture 22 - Judith Butler - Gender Trouble V - Co  
Lecture 3 - Edward Said's Orientalism Lecture 23 - Judith Butler - Gender Trouble VI - Conclusion Lecture 3  
Lecture 4 - Homi Bhabha's The Other Question Lecture 24 - Judith Butler - Gender Trouble VII - Conclusion Le  
Lecture 5 - The Other Question (Continued...)  
Lecture 6 - George Orwell's Shooting An Elephant - Part - I  
Lecture 7 - George Orwell's Shooting An Elephant - Part - II  
Lecture 8 - George Orwell's Shooting An Elephant - Part - III  
Lecture 9 - The Post Modern Condition (Lyotard) - Part I  
Lecture 10 - The Post Modern Condition (Lyotard) - Part II  
Lecture 11 - The Post Modern Condition (Lyotard) - Part III  
Lecture 12 - The Post Modern Condition (Lyotard) - Part IV  
Lecture 13 - Fanon - Black Skin,White Masks - Part - I  
Lecture 14 - Fanon - Black Skin,White Masks - Part - II  
Lecture 15 - Fanon - Black Skin,White Masks - Part - III  
Lecture 16 - Fanon - Black Skin,White Masks - Part - IV  
Lecture 17 - Fanon - Black Skin,White Masks - Part - V  
Lecture 18 - Judith Butler - Gender Trouble I  
Lecture 19 - Judith Butler - Gender Trouble II  
Lecture 20 - Judith Butler - Gender Trouble III  
Lecture 21 - Judith Butler - Gender Trouble IV - Conclusion Lecture 1 - Parody To Politics  
Lecture 22 - Judith Butler - Gender Trouble V - Conclusion Lecture 2 - Parody To Politics  
Lecture 23 - Judith Butler - Gender Trouble VI - Conclusion Lecture 3 - Parody To Politics  
Lecture 24 - Judith Butler - Gender Trouble VII - Conclusion Lecture 4 - Parody To Politics  
Lecture 25 - Culture Studies  
Lecture 26 - Hannah Arendt - The Human Condition 1  
Lecture 27 - Hannah Arendt - The Human Condition 2  
Lecture 28 - Hannah Arendt - The Human Condition 3  
Lecture 29 - Foucault - What Is An Author 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Foucault - What Is An Author 2
- Lecture 31 - Foucault - What Is An Author 3
- Lecture 32 - Foucault - What Is An Author 4
- Lecture 33 - Foucault - What Is An Author 5
- Lecture 34 - Foucault - What Is An Author 6
- Lecture 35 - Ian Hacking - The Social Construction Of What 1
- Lecture 36 - Ian Hacking - The Social Construction Of What 2
- Lecture 37 - Ian Hacking - The Social Construction Of What 3
- Lecture 38 - Ian Hacking - The Social Construction Of What 4
- Lecture 39 - Ian Hacking - The Social Construction Of What 5
- Lecture 40 - Bell Hooks- Understanding Patriarchy 1
- Lecture 41 - Bell Hooks- Understanding Patriarchy 2
- Lecture 42 - Bell Hooks- Understanding Patriarchy 3
- Lecture 43 - Bell Hooks- Understanding Patriarchy 4
- Lecture 44 - Bell Hooks- Understanding Patriarchy 5
- Lecture 45 - Bell Hooks- Understanding Patriarchy 6
- Lecture 46 - Introduction To Cultural Studies - Summary
- Lecture 47 - Dick Hebdige-Subculture The Meaning Of Style 1
- Lecture 48 - Dick Hebdige-Subculture The Meaning Of Style 2
- Lecture 49 - Dick Hebdige-Subculture The Meaning Of Style 3
- Lecture 50 - Dick Hebdige-Subculture The Meaning Of Style 4
- Lecture 51 - Catherine Belsey Critical Practice 1
- Lecture 52 - Catherine Belsey Critical Practice 2
- Lecture 53 - Catherine Belsey Critical Practice 3
- Lecture 54 - Stuart Hall - Questions On Cultural Identity 1
- Lecture 55 - Stuart Hall - Questions On Cultural Identity 2
- Lecture 56 - Slavoj Zizek - Welcome To The Desert Of The Real Ii
- Lecture 57 - Slavoj Zizek - Welcome To The Desert Of The Real Ii
- Lecture 58 - Introduction to Cultural Studies - Summary and Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC: Intellectual Property

Subject Co-ordinator - Prof. Feroze Ali

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Week 1 summary
- Lecture 2 - An Introduction to Intellectual Property
- Lecture 3 - What are Rights?
- Lecture 4 - What is Property in IPR?
- Lecture 5 - Meaning of Intellectual in IPR
- Lecture 6 - Characteristics of IP
- Lecture 7 - Defining IPR
- Lecture 8 - Kinds of IPRs and their Duration
- Lecture 9 - Rights Granted by IP
- Lecture 10 - The Origin of Intellectual Property - Part 1
- Lecture 11 - The Origin of Intellectual Property - Part 2
- Lecture 12 - Growth of Intellectual Property
- Lecture 13 - Learning Intellectual Property
- Lecture 14 - Intangible Economy
- Lecture 15 - The traits Intangibility
- Lecture 16 - Policy Challenges in an Intangible Economy
- Lecture 17 - Novartis Case
- Lecture 18 - Novartis Standard
- Lecture 19 - Definition of Start-up
- Lecture 20 - Subject Matter
- Lecture 21 - Patents in India
- Lecture 22 - To file or not to file a patent
- Lecture 23 - When and how to file a patent
- Lecture 24 - Who can apply for a patent
- Lecture 25 - Requirements of a patent application
- Lecture 26 - Types of patent application
- Lecture 27 - Mercedes Benz TV Commercial Patents
- Lecture 28 - Patent Prosecution
- Lecture 29 - Patent Prosecution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Rights, Assignment and Licenses - Part 1
- Lecture 31 - Rights, Assignment and Licenses - Part 2
- Lecture 32 - Opposition to Patents
- Lecture 33 - Infringement of Patent
- Lecture 34 - Defences to Patent Infringement
- Lecture 35 - Intellectual Property Appellate Board
- Lecture 36 - Declaratory Suits
- Lecture 37 - Limitations of Patent Rights - Compulsory License
- Lecture 38 - Limitations of Patent Rights - Govt Use
- Lecture 39 - Trade Marks
- Lecture 40 - Case Study - Frozen Desserts
- Lecture 41 - Amul Advertisement
- Lecture 42 - Kwality Wallâ s Advertisement
- Lecture 43 - International Arrangements
- Lecture 44 - Trade marks in India
- Lecture 45 - What can be protected?
- Lecture 46 - Registration of Trade Mark
- Lecture 47 - Rights and Defences
- Lecture 48 - Introduction to Copyright
- Lecture 49 - Origin and Evolution of Copyright
- Lecture 50 - Copyright in India
- Lecture 51 - Criteria of Protection
- Lecture 52 - Subject matter
- Lecture 53 - Rights and Infringement
- Lecture 54 - Educational Exceptions
- Lecture 55 - Confidential Information Introduction
- Lecture 56 - Confidential Information Requirements
- Lecture 57 - Geographical Indications
- Lecture 58 - Designs
- Lecture 59 - Enforcement of IP
- Lecture 60 - Infringement
- Lecture 61 - Remedies
- Lecture 62 - Alternate Dispute Resolution
- Lecture 63 - Compulsory Licenses
- Lecture 64 - Managing IP
- Lecture 65 - Case Study Dolby
- Lecture 66 - Case Study Disney
- Lecture 67 - Case Study AstraZeneca
- Lecture 68 - IP and Competition

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Valuing IP
- Lecture 70 - Universities and IP
- Lecture 71 - Publish or Patent
- Lecture 72 - Managing IP at Universities
- Lecture 73 - Indian Universities and Patents
- Lecture 74 - IP in Creative and Entertainment Industries
- Lecture 75 - Piracy in the Film Industry
- Lecture 76 - Government's Role in Fostering IP System
- Lecture 77 - Teaching Intellectual Property
- Lecture 78 - Q and A - Discussion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Short Fiction in Indian Literature

Subject Co-ordinator - Prof. Divya.A

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Plotting the Story world of In the Flood by Thakazhi Sivasankara Pillai
- Lecture 2 - Plotting the Story world of In the Flood by Thakazhi Sivasankara Pillai
- Lecture 3 - Narrative Patterns in In the Flood
- Lecture 4 - Narrative Patterns in In the Flood
- Lecture 5 - Narrative point of View and Setting in In the Flood
- Lecture 6 - Close reading Kamala Das Summer Vacation
- Lecture 7 - Close reading Kamala Das Summer Vacation
- Lecture 8 - Summer Vacation Overview
- Lecture 9 - Plotting Tagore's Story Kabuliwala (1892)
- Lecture 10 - Plotting Tagore's Story Kabuliwala
- Lecture 11 - Plotting the Spatiality of Tagore's Kabuliwala
- Lecture 12 - Plotting the spatiality of Tagore's Kabuliwala
- Lecture 13 - Realism, Gender in Tagore's Kabuliwala
- Lecture 14 - How to write an Effective Paragraph
- Lecture 15 - Plotting downfall in Khuswant Singh's Karma
- Lecture 16 - Plotting downfall in Khuswant Singh's Karma
- Lecture 17 - Narrative aspects in Khuswant Singh's Karma
- Lecture 18 - Khuswant Singh's Karma Overview
- Lecture 19 - Plotting Sundara Ramaswamy's Reflowering
- Lecture 20 - Reading the Plot for themes in Sundara Ramaswamy's Reflowering
- Lecture 21 - Reading the Plot for themes in Sundara Ramaswamy's Reflowering (Continued...)
- Lecture 22 - Narrative Devices in Sundara Ramaswamy's Reflowering
- Lecture 23 - Plotting Sundara Ramaswamy's Reflowering Overview
- Lecture 24 - Short Genre and Premchand's The Chess Players
- Lecture 25 - Short Story Genre and Premchand's The Chess Players
- Lecture 26 - Short Story Structure and Premchand's The Chess Players
- Lecture 27 - The Chess Players Overview
- Lecture 28 - Psychological Climax in Premchand's The Shroud
- Lecture 29 - Psychological Climax in Premchand's The Shroud (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Psychological Climax in Premchand's The Shroud (Continued...)
- Lecture 31 - Premchand's The Shroud
- Lecture 32 - The Shroud Overview
- Lecture 33 - Patriarchal Culture in A Kitchen in the Corner of the House - I
- Lecture 34 - Patriarchal Culture in A Kitchen in the Corner of the House - II
- Lecture 35 - Patriarchal Culture in Ambai's A Kitchen in the Corner of the House - I
- Lecture 36 - Patriarchal Culture in Ambai's A Kitchen in the Corner of the House - II
- Lecture 37 - Patriarchal Culture in Ambai's A Kitchen in the Corner of the House - III
- Lecture 38 - Catharsis in Mulk Raj Anand's The Price of Bananas - I
- Lecture 39 - Catharsis in Mulk Raj Anand's The Price of Bananas - II
- Lecture 40 - Catharsis in Mulk Raj Anand's The Price of Bananas - III
- Lecture 41 - Catharsis in Mulk Raj Anand's The Price of Bananas - Overview
- Lecture 42 - Short Fiction in Indian Literature - vignesh - 12
- Lecture 43 - Hidden Fractures in Ruskin Bond's The Blue Umbrella - II
- Lecture 44 - Hidden Fractures in Ruskin Bond's The Blue Umbrella - III
- Lecture 45 - Hidden Fractures in Ruskin Bond's The Blue Umbrella - Overview
- Lecture 46 - Plotting and Ideology in RK Narayan's A Horse and Two Goats - I
- Lecture 47 - Plotting and Ideology in RK Narayan's A Horse and Two Goats - Overview
- Lecture 48 - Plotting and Ideology in RK Narayan's A Horse and Two Goats - Overview
- Lecture 49 - Childhood anxiety at Play in Anita Desai's Games at Twilight - I
- Lecture 50 - Childhood anxiety at Play in Anita Desai's Games at Twilight - II
- Lecture 51 - Childhood anxiety at Play in Anita Desai's Games at Twilight - III
- Lecture 52 - Childhood anxiety at Play in Anita Desai's Games at Twilight - Overview
- Lecture 53 - Short Fiction In Indian Literature - Overview I
- Lecture 54 - Short Fiction In Indian Literature - Overview II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:The Nineteenth-Century English Novel

Subject Co-ordinator - Prof. Divya.A

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The Nineteenth Century Novel
- Lecture 2 - The Nineteenth Century Novel (Continued...)
- Lecture 3 - The Nineteenth Century Novel (Continued...)
- Lecture 4 - Jane Austen's Persuasion Chapters 1-6
- Lecture 5 - Jane Austen's Persuasion
- Lecture 6 - Persuasion, Chapter 7-12
- Lecture 7 - Austen's Persuasion, Chapter 7-12
- Lecture 8 - Austen's Persuasion, Chapter 7-12 (Continued...)
- Lecture 9 - Persuasion Vol.II, Chapters 13-18
- Lecture 10 - Persuasion Vol.II, Chapters 13-18 (Continued...)
- Lecture 11 - Persuasion Vol.II, Chapters 13-18 (Continued...)
- Lecture 12 - Persuasion Vol.II, Chapters 13-18 (Continued...)
- Lecture 13 - Persuasion, Volume II, Chapters 19-24
- Lecture 14 - Persuasion, Volume II, Chapters 19-24 (Continued...)
- Lecture 15 - Persuasion, Volume II, Chapters 19-24 (Continued...)
- Lecture 16 - Persuasion, Volume II, Chapters 19-24 (Continued...)
- Lecture 17 - Jane Austen Seminar
- Lecture 18 - Dicken's A Tale of Two Cities, Book I
- Lecture 19 - A Tale of Two Cities Book I ; Chapters 4-6
- Lecture 20 - Tale of Two Cities Book I
- Lecture 21 - Dicken's A Tale of Two Cities Book II
- Lecture 22 - Dicken's A Tale of Two Cities Book II
- Lecture 23 - Dicken's A Tale of Two Cities Book II
- Lecture 24 - Dicken's A Tale of Two Cities Book II
- Lecture 25 - Dicken's A Tale of Two Cities Book II
- Lecture 26 - Dicken's A Tale of Two Cities Book II
- Lecture 27 - Dickens' A Tale of Two Cities Book II
- Lecture 28 - Dickens' A Tale of Two Cities Book II
- Lecture 29 - Dickens' A Tale of Two Cities Book II

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dickens' A Tale of Two Cities Book II
- Lecture 31 - Dickens' A Tale of Two Cities
- Lecture 32 - Dickens' A Tale of Two Cities
- Lecture 33 - Dickens' A tale of Two Cities Book II
- Lecture 34 - Dickens' A tale of Two Cities Book II
- Lecture 35 - Dickens' A tale of Two Cities Book III
- Lecture 36 - Dickens' A tale of Two Cities Book III
- Lecture 37 - Dickens' A Tale of Two cities Book III
- Lecture 38 - Dickens' A Tale of Two cities Book III
- Lecture 39 - Dickens' A Tale of Two cities Book III
- Lecture 40 - Dickens' A Tale of Two cities Book III
- Lecture 41 - Dickens' A Tale of Two cities Book III
- Lecture 42 - Dickens' A Tale of Two cities Book III
- Lecture 43 - The Strange Case of Dr. Jekyll and Mr Hyde, Chapter 1
- Lecture 44 - The Strange Case of Dr. Jekyll and Mr Hyde, Chapter 2
- Lecture 45 - The Strange Case of Dr. Jekyll and Mr Hyde, Chapter 3
- Lecture 46 - The Strange Case of Dr. Jekyll and Mr Hyde, Chapter 4
- Lecture 47 - R.L.Stevenson, The Strange Case of Dr. Jekyll and Mr Hyde key Themes and Incident, Chapters 1-4
- Lecture 48 - The Strange Case of Dr. Jekyll and Mr Hyde, Chapter 5
- Lecture 49 - The Strange Case of Dr. Jekyll and Mr Hyde, Chapter 5 (Continued...)
- Lecture 50 - The Strange Case of Dr. Jekyll and Mr Hyde, Chapter 6
- Lecture 51 - The Strange Case of Dr. Jekyll and Mr Hyde, Chapters 8-10
- Lecture 52 - The Strange Case of Dr. Jekyll and Mr Hyde, Chapters 8.
- Lecture 53 - The Strange Case of Dr. Jekyll and Mr Hyde, Chapters 9
- Lecture 54 - The Strange Case of Dr. Jekyll and Mr Hyde, Chapters 10
- Lecture 55 - Themes and Contexts in R.L.Stevenson, The Strange Case of Dr. Jekyll and Mr Hyde
- Lecture 56 - Discussion on Narrative Points of View
- Lecture 57 - Discussion on Gender, Class and History

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Feminist Writings

Subject Co-ordinator - Prof. Avishek Parui

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Understanding Patriarchy - Part 1  
Lecture 2 - Understanding Patriarchy - Part 2  
Lecture 3 - Understanding Patriarchy - Part 3  
Lecture 4 - Understanding Patriarchy - Part 4  
Lecture 5 - Understanding Patriarchy - Part 5  
Lecture 6 - The Fly - Part 1  
Lecture 7 - The Fly - Part 2  
Lecture 8 - The Fly - Part 3  
Lecture 9 - Tickets, Please! - Part 1  
Lecture 10 - Tickets, Please! - Part 2  
Lecture 11 - Tickets, Please! - Part 3  
Lecture 12 - The Cyborg Manifesto - Part 1  
Lecture 13 - The Cyborg Manifesto - Part 2  
Lecture 14 - The Cyborg Manifesto - Part 3  
Lecture 15 - The Cyborg Manifesto - Part 4  
Lecture 16 - The Cyborg Manifesto - Part 5  
Lecture 17 - The Goblin Market - Part 1  
Lecture 18 - The Goblin Market - Part 2  
Lecture 19 - The Goblin Market - Part 3  
Lecture 20 - The Goblin Market - Part 4  
Lecture 21 - The Goblin Market - Part 5  
Lecture 22 - Tulips - Part 1  
Lecture 23 - Tulips - Part 2  
Lecture 24 - The Yellow Wallpaper - Part 1  
Lecture 25 - The Yellow Wallpaper - Part 2  
Lecture 26 - The Yellow Wallpaper - Part 3  
Lecture 27 - The Yellow Wallpaper - Part 4  
Lecture 28 - The Second Sex - Part 1  
Lecture 29 - The Second Sex - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Second Sex - Part 3
- Lecture 31 - The Second Sex - Part 4
- Lecture 32 - The Second Sex - Part 5
- Lecture 33 - The Iraqi Nights
- Lecture 34 - Gender Trouble - Part 1
- Lecture 35 - Gender Trouble - Part 2
- Lecture 36 - Gender Trouble - Part 3
- Lecture 37 - Gender Trouble - Part 4
- Lecture 38 - A Temporary Matter - Part 1
- Lecture 39 - A Temporary Matter - Part 2
- Lecture 40 - A Temporary Matter - Part 3
- Lecture 41 - A Temporary Matter - Part 4
- Lecture 42 - A Temporary Matter - Part 5
- Lecture 43 - Remains of the Feast - Part 1
- Lecture 44 - Remains of the Feast - Part 2
- Lecture 45 - Remains of the Feast - Part 3
- Lecture 46 - Feminist Theory and Criticism
- Lecture 47 - The Narratology of the graphic
- Lecture 48 - Angela Carter
- Lecture 49 - Interactive Session - 1
- Lecture 50 - Interactive Session - 2
- Lecture 51 - Feminist Writings and Feminism Today

## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTTEL Video Course - Humanities and Social Sciences - NOC:Introduction to World Literature

Subject Co-ordinator - Prof. Merin Simi Raj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Reading World Literature

Lecture 2 - Epic of Gilgamesh

Lecture 3 - Beowulf

Lecture 4 - The Lusiads by Luis De Camoes

Lecture 5 - Challenges and Possibilities for World Literature by Kathleen Shields

Lecture 6 - The Garden of Forking Paths by Borges - Part I

Lecture 7 - The Garden of Forking Paths by Borges - Part II

Lecture 8 - A Rose for Emily by William Faulkner - Part I

Lecture 9 - A Rose for Emily by William Faulkner - Part II

Lecture 10 - Sonnet 130 by Shakespeare and Love Sonnet XVI by Neruda

Lecture 11 - Song of Lawino by Okot p' Bitek

Lecture 12 - Tortures by Wislawa Szymborska

Lecture 13 - Spivak, Gayatri Chakravorty The Politics of translation

Lecture 14 - Othello - 1

Lecture 15 - Othello - 2

Lecture 16 - Othello - 3

Lecture 17 - Doll's House

Lecture 18 - Yellow Wallpaper

Lecture 19 - Toba Tek Singh

Lecture 20 - Oroonoko - I

Lecture 21 - Oroonoko - II

Lecture 22 - Poetics Of Aristotle - I

Lecture 23 - Poetics Of Aristotle - II

Lecture 24 - Longinus on the Subline - I

Lecture 25 - Longinus on the Subline - II

Lecture 26 - Errata in MC

Lecture 27 - From Errata to MC

Lecture 28 - The Third and the final Continent - I

Lecture 29 - The Third and the final Continent - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Balthazar's Marvellous Afternoon - I by Marquez
- Lecture 31 - Balthazar's Marvellous Afternoon - II
- Lecture 32 - The Wasteland - I
- Lecture 33 - The Wasteland - II
- Lecture 34 - The Wall by Sartre - I
- Lecture 35 - The Wall by Sartre - II
- Lecture 36 - The Applicant
- Lecture 37 - Everyday Use
- Lecture 38 - Catcher in the Rye - I
- Lecture 39 - Catcher in the Rye - II
- Lecture 40 - Stage'ing Protests
- Lecture 41 - DR Faustus
- Lecture 42 - In A Grove
- Lecture 43 - Metamorphosis - I
- Lecture 44 - Metamorphosis - II
- Lecture 45 - Diary Of a Madman
- Lecture 46 - Solid Objects
- Lecture 47 - Dawn of the New Indian Novel in English
- Lecture 48 - Bartleby The Scrivener
- Lecture 49 - The Great Gatsby - I
- Lecture 50 - The Great Gatsby - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Managing Intellectual Property in Universities

Subject Co-ordinator - Prof. Feroze Ali

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Introduction to Intellectual Property
- Lecture 2 - What are Rights ?
- Lecture 3 - What is Property in IPR ?
- Lecture 4 - Meaning of Intellectual in IPR
- Lecture 5 - Characteristics of IP
- Lecture 6 - Defining IPR
- Lecture 7 - Kinds of IPRs and their Duration
- Lecture 8 - Rights Granted by IP
- Lecture 9 - The Origin of Intellectual Property - Part 1
- Lecture 10 - The Origin of Intellectual Property - Part 2
- Lecture 11 - Growth of Intellectual Property
- Lecture 12 - Learning Intellectual Property
- Lecture 13 - Patents in India
- Lecture 14 - Who can Apply for a Patent
- Lecture 15 - Requirements of a Patent Application
- Lecture 16 - Types of Patent Application
- Lecture 17 - Trade Marks
- Lecture 18 - Trademarks in India
- Lecture 19 - What can be Protected
- Lecture 20 - Introduction to Copyrights
- Lecture 21 - Origin and Evolution of Copyrights
- Lecture 22 - Copyrights in India
- Lecture 23 - Geographical Indications
- Lecture 24 - Designs
- Lecture 25 - The Entrepreneurial University
- Lecture 26 - Universities and IP
- Lecture 27 - Publish or Patent
- Lecture 28 - Managing IP at Universities
- Lecture 29 - Indian Universities and Patents

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- Lecture 30 - Why People Invent
- Lecture 31 - How Inventions Look
- Lecture 32 - Where to Look for Inventions
- Lecture 33 - How to Catch an Invention
- Lecture 34 - Getting a working disclosure
- Lecture 35 - Searching with the disclosure
- Lecture 36 - Outcome of search
- Lecture 37 - What is a Patentability Search
- Lecture 38 - Reasons for Ordering a Patentability Search
- Lecture 39 - When a Patentability Search is Not Required
- Lecture 40 - How to Order a Patentability Search
- Lecture 41 - Limits of Patentability Search
- Lecture 42 - Patentability Search Report
- Lecture 43 - Setting up IP Center - Part 1
- Lecture 44 - Setting up IP Center - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:English Literature of the Romantic Period, 1798-1832

Subject Co-ordinator - Prof. Pramod K Nayar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Publishing, Literacy and Reading - I
- Lecture 2 - Publishing, Literacy and Reading - II Literacy, Reading and the Audience
- Lecture 3 - Empire
- Lecture 4 - Empire - II
- Lecture 5 - Science
- Lecture 6 - European Romanticism Sensibility
- Lecture 7 - Dissent and Revolution
- Lecture 8 - The Debate on Rights
- Lecture 9 - Nature and the Environment
- Lecture 10 - The Self and Imagination
- Lecture 11 - Fiction of the Romantic Period
- Lecture 12 - Jane Austen
- Lecture 13 - Criticism
- Lecture 14 - The Historical Novel
- Lecture 15 - The Gothic Novel
- Lecture 16 - Romantic Poetry 1 - William Blake (1757-1827)
- Lecture 17 - Romantic Poetry 1 - Romanticism and sentiment - Introduction
- Lecture 18 - Romantic Poetry 1 - Sensibility and Passion
- Lecture 19 - Romantic Poetry 2 - William Wordsworth (1770-1850)
- Lecture 20 - English Romantic Poetry 1
- Lecture 21 - Introduction
- Lecture 22 - Wordsworth
- Lecture 23 - Coleridge
- Lecture 24 - Shelley
- Lecture 25 - Keats and Byron
- Lecture 26 - Romantic Poetry 3 - Aesthetics Introduction
- Lecture 27 - Romantic Poetry 3 - Visual arts and the Romantics
- Lecture 28 - Romantic Poetry 3 - Aesthetics Wordsworth
- Lecture 29 - Romantic Poetry 3 - Aesthetics Blake

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Romantic Poetry 3 - Aesthetics Shelley  
Lecture 31 - Romantic Poetry 4 - Politics Introduction Gender and Class  
Lecture 32 - Romantic Poetry 4 - Politics  
Lecture 33 - Romantic Poetry 4 - Politics Abolitionist Poetry  
Lecture 34 - Romantic Poetry 4 - Politics Wordsworth and Shelley  
Lecture 35 - Romantic Poetry 4 - Politics John Clare  
Lecture 36 - Romantic Literature - Empire and Orientalism Introduction 1  
Lecture 37 - Romantic Literature - Empire and Orientalism Introduction 2  
Lecture 38 - Romantic Literature - Empire and Orientalism 3 Prose  
Lecture 39 - Romantic Literature - Empire and Orientalism 4 Byron  
Lecture 40 - Romantic Literature - Empire and Orientalism 5 Felicia Hemans

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Appreciating Linguistics: A Typological Approach

Subject Co-ordinator - Prof. Anindita

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Language and Linguistics
- Lecture 2 - Introductory concepts
- Lecture 3 - Goals of the course
- Lecture 4 - Introduction to Language Typology
- Lecture 5 - Linguistics as a discipline
- Lecture 6 - History of Linguistics
- Lecture 7 - Introduction to Morphology - Part 1
- Lecture 8 - Introduction to Morphology - Part 2
- Lecture 9 - Morphology (Continued...)
- Lecture 10 - Simple Compound and Complex Words
- Lecture 11 - Morphology - Prefixes, Suffixes and Infixes
- Lecture 12 - Introduction to Neologism
- Lecture 13 - Word formation rules and Neologism - Part 1
- Lecture 14 - Word formation rules and Neologism - Part 2
- Lecture 15 - Lexical Typology
- Lecture 16 - Lexical Typology (Continued...)
- Lecture 17 - Lexical Typology
- Lecture 18 - Lexical Typology
- Lecture 19 - Lexical Typology
- Lecture 20 - Typology of Affixes
- Lecture 21 - Morphological Typology
- Lecture 22 - Morphological Typology
- Lecture 23 - Morphological Typology
- Lecture 24 - Morphological Typology
- Lecture 25 - Morphological Typology
- Lecture 26 - Introduction to Phonetics - Part 1
- Lecture 27 - Introduction to Phonetics - Part 2
- Lecture 28 - Introduction to Phonetics and Speech sounds - Part 1
- Lecture 29 - Introduction to Phonetics and Speech sounds - Part 2

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- Lecture 30 - Phonological typology - Part 1
- Lecture 31 - Phonological typology - Part 2
- Lecture 32 - Introduction to Allophones
- Lecture 33 - Introduction to Syntax - Part 1
- Lecture 34 - Introduction to Syntax - Part 2
- Lecture 35 - Syntactic Structures
- Lecture 36 - Prescriptive vs Descriptive approach
- Lecture 37 - Introduction to PS rules
- Lecture 38 - Deep Structure and Surface Structure
- Lecture 39 - Tree diagrams and X - bar structures
- Lecture 40 - Movement and Recursion
- Lecture 41 - Syntactic Typology - Part 1
- Lecture 42 - Syntactic Typology - Part 2
- Lecture 43 - Syntactic Typology - Part 3
- Lecture 44 - Semantic Typology - Part 1
- Lecture 45 - Semantic Typology - Part 2
- Lecture 46 - Semantic Typology - Part 3
- Lecture 47 - Semantic Typology - Part 4
- Lecture 48 - Goals of Language Typology - Part 1
- Lecture 49 - Goals of Language Typology - Part 2
- Lecture 50 - Pragmatics
- Lecture 51 - Pragmatics
- Lecture 52 - Pragmatics
- Lecture 53 - Pragmatic Typology
- Lecture 54 - Typology of language change
- Lecture 55 - History of the development Articles
- Lecture 56 - Language Change
- Lecture 57 - Word Order Typology - Part 1
- Lecture 58 - Word Order Typology - Part 2
- Lecture 59 - Word Order Typology - Part 3
- Lecture 60 - Typology and word change
- Lecture 61 - Typology and word change
- Lecture 62 - Typology and word change
- Lecture 63 - Typology and Universals
- Lecture 64 - Typology and Universals (Continued...)
- Lecture 65 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Inclusion and Technology Design

Subject Co-ordinator - Prof. Bidisha

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Missing Women in Tech

Lecture 3 - Are Technologies Gender Neutral?

Lecture 4 - ICTs and Gender

Lecture 5 - The Political Nature of Technology Design

Lecture 6 - Accessibility Fundamentals

Lecture 7 - Accessibility Fundamentals

Lecture 8 - Accessibility Fundamentals

Lecture 9 - Designing an Assistive Technology Ecosystem

Lecture 10 - Inclusion in Designing ICT for Development Projects

Lecture 11 - ICTs in Agricultural Markets

Lecture 12 - Inclusion in Designing ICT for Development Projects

Lecture 13 - Digital Labour, Platforms and the Future of Work

Lecture 14 - Assignment Video

Lecture 15 - Assignment Examples Video

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Energy Economics and Policy

Subject Co-ordinator - Prof. Shyamasree Dasgupta

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Energy as an Economic Resource - Introduction
- Lecture 2 - Energy as an Economic Resource - Classification of Energy Resource
- Lecture 3 - Energy as an Economic Resource - Measurement of Energy
- Lecture 4 - Energy as an Economic Resource - Energy Accounting
- Lecture 5 - Energy as an Economic Resource - Problem Discussion on Module 1
- Lecture 6 - Energy Demand - Part I - Basic concepts in Economics
- Lecture 7 - Energy Demand - Part I - Descriptive Analysis of Energy Demand
- Lecture 8 - Energy Demand - Part I - Decomposition Analysis and Parametric Approach
- Lecture 9 - Energy Demand - Part II - Demand Side Management
- Lecture 10 - Energy Demand - Part II - Load Management
- Lecture 11 - Energy Demand - Part II - Demand Side Management - Energy Efficiency
- Lecture 12 - Energy Demand - Part II - Rebound Effect
- Lecture 13 - Energy Supply - Part I - Supply Behaviour of a Producer
- Lecture 14 - Energy Supply - Part I - Energy Investment
- Lecture 15 - Energy Supply - Part I - Economics of Non-renewable Resources
- Lecture 16 - Energy Supply - Part II - Economics of Renewable Energy Supply Setting the context
- Lecture 17 - Energy Supply - Part II - Economics of Renewable Energy Supply - Part 1
- Lecture 18 - Energy Supply - Part II - Economics of Renewable Energy Supply - Part 2
- Lecture 19 - Energy Supply - Part II - Economics of Electricity Supply
- Lecture 20 - Energy Market - Perfect Competition as a Market Form
- Lecture 21 - Energy Market - Why Energy Market is not Perfectly Competitive?
- Lecture 22 - Energy Market - Market Failure and Monopoly
- Lecture 23 - Energy Market - Oil Market
- Lecture 24 - Energy Market - Oil Market
- Lecture 25 - Energy Market - Oil Market
- Lecture 26 - Special Topics on Energy - Energy Security
- Lecture 27 - Special Topics on Energy - Energy Access
- Lecture 28 - Special Topics on Energy - Energy, Environment and Climate Change

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:The Victorian Gothic Short Story

Subject Co-ordinator - Prof. Divya.A

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - THE GOTHIC - Literary Genre

Lecture 2 - Charles Dickens 'THE SIGNAL - MAN' - I - Close reading and the anxieties of the age

Lecture 3 - Charles Dickens 'THE SIGNAL - MAN' - II - Close reading and the anxieties of the age

Lecture 4 - Charles Dickens 'THE SIGNAL - MAN' - III - Close reading and the anxieties of the age

Lecture 5 - Charles Dickens 'THE SIGNAL - MAN' - IV - Close Reading and the anxieties of the age

Lecture 6 - Charles Dickens 'THE HAUNTED SIGNAL MAN' Lecture Summary and Character Sketches

Lecture 7 - Rudyard Kipling - My own true ghost story

Lecture 8 - Imperial Gothic - Major Characteristics

Lecture 9 - Rudyard Kipling 'My own true ghost story' - Close reading for implications of the imperial Gothic

Lecture 10 - Rudyard Kipling 'My own true ghost story' - Close reading for implications of the imperial Gothic

Lecture 11 - My Own True Ghost STORY - Lecture Summary and Comparison

Lecture 12 - Arthur Conan Doyle - The Red-Headed League - I

Lecture 13 - Arthur Conan Doyle - The Red-Headed League - II

Lecture 14 - Arthur Conan Doyle - The Red-Headed League - III

Lecture 15 - Arthur Conan Doyle 'The Red-Headed League' - A Conversation

Lecture 16 - Arthur Conan Doyle 'The Red-Headed League' - Summary and Interview of the Author

Lecture 17 - H.G. WELLS 'THE RED ROOM' - Close Reading And Its Implications

Lecture 18 - H.G. WELLS 'THE RED ROOM' - Victorian Gothic

Lecture 19 - H.G. WELLS 'THE RED ROOM' - Close Reading And Its Ideological Implications

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:German-II

Subject Co-ordinator - Prof. Milind Brahme

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Was mochten Sie dieses Semester machen?
- Lecture 2 - Wiederholung
- Lecture 3 - Wir lernen das Perfekt
- Lecture 4 - Wir uben das Perfekt
- Lecture 5 - Was hast du in den Ferien gemacht ?
- Lecture 6 - Farben und Kleidung
- Lecture 7 - Wir lernen Pr ppositionen
- Lecture 8 - Wir  ben Pr ppositionen
- Lecture 9 - Pr ppositionen Akkusativ oder Dativ?
- Lecture 10 - Was bringt mir der Postbote?
- Lecture 11 - Gesundheit
- Lecture 12 - Jeder f r sich
- Lecture 13 - Reflexiv - Akkusativ oder Dativ ?
- Lecture 14 - Lektion 1 und Witze und Faust
- Lecture 15 - Lektion 2, Pr teritum von Modalverben, Ordinalzahlen
- Lecture 16 - Lektion 2; Detour -- Was ist Geschichte ? | Basic Tenses
- Lecture 17 - Was hast du nach der Schule gemacht?
- Lecture 18 - Lektion 3
- Lecture 19 - Komparativ und Superlativ
- Lecture 20 - dass-S tze
- Lecture 21 - Wir wiederholen Komparativ und Superlativ
- Lecture 22 - Imperativ mit 'du' und 'ihr'
- Lecture 23 - Wir machen Lektion 5
- Lecture 24 - Adjektivdeklination
- Lecture 25 - Lektion 6 | Verkehr und Verkehrsmittel
- Lecture 26 - Welche Verkehrsmittel benutzt du ? | Indirekte Frages tze
- Lecture 27 - Lektion 6 -- Aufgaben 4 und 6
- Lecture 28 - Lektion 7 -- Es geht ums Lernen
- Lecture 29 - Was hast du wann gelernt?

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Probleme beim Lernen | Verben mit dem Dativ
- Lecture 31 - Welche Probleme hast du beim Lernen ?
- Lecture 32 - Perfekt von untrennbaren Verben | Wie l se ich meine Probleme beim Lernen ?
- Lecture 33 - Ratschl ge mit sollten | Sprache und Berufe | Wir lesen vor. (Lektion 7)
- Lecture 34 - Exkurs ins Absurde! | Generationenprojekte (Lektion 7)
- Lecture 35 - Generationenprojekte - wir h ren die Texte
- Lecture 36 - Welche Sportart m chtest du ausprobieren? | deshalb, trotzdem
- Lecture 37 - Wiederholung Lektion 7 | Wir machen mit   Lektion 8 weiter.
- Lecture 38 - Wof r entscheiden sich Sandra und Conny ? | Fragewort WO + Pr position
- Lecture 39 - Alles  ber Fragew rter
- Lecture 40 - Eine Stadt entdecken | Wir beginnen Lektion 9
- Lecture 41 - Lektion 9 | Interessante H user und Wohnungen
- Lecture 42 - Lektion 9 | Die lieben Nachbarn
- Lecture 43 - Lektion 9 | H fliche Bitte | wenn und als
- Lecture 44 - Lektion 9 | Wir  ben als und wenn. | S tze und Wortgruppen
- Lecture 45 - Die Deutschen und ihre Haustiere
- Lecture 46 - Wir beginnen Lektion 10 | Der Superlativ
- Lecture 47 - Welche/r/s und Was f r ein/e...
- Lecture 48 - Lektion 10 | etwas, man, niemand, jemand...
- Lecture 49 - Der Relativsatz | Wir machen Lektion 10 zu Ende
- Lecture 50 - Wir machen Lektion 11. | K 2 - Verben und W-Fragen mit Pr positionen
- Lecture 51 - Lektion 12 | Wir sind mit unserem Kurs fertig!

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:German-I

Subject Co-ordinator - Prof. Milind Brahme

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Herzlich willkommen!
- Lecture 2 - Wie ist dein Name ?
- Lecture 3 - Ich trinke gern Kaffee
- Lecture 4 - Wir konjugieren die Verben
- Lecture 5 - A bit of history and ZAHLEN
- Lecture 6 - Verben, W-Fragen, Ja-Nein Fragen, Imperativ
- Lecture 7 - das Alphabet, die Woche, das Jahr
- Lecture 8 - Was sind deine Hobbys ? Formular ausfüllen
- Lecture 9 - Mein Lehrbuch | Meine persönlichen Daten
- Lecture 10 - Mein Arbeitsbuch
- Lecture 11 - Wir beginnen Lektion 3
- Lecture 12 - Wir lesen Lektion 3
- Lecture 13 - Kein | Unregelmäßige Verben | Ein Lied
- Lecture 14 - Wer ist das? | ich-mein; du-dein
- Lecture 15 - Lektion 4 Guten Appetit!
- Lecture 16 - Das Essen | Some revision
- Lecture 17 - mag oder möchte | der Akkusativ
- Lecture 18 - Ein Lesetext | die Uhr
- Lecture 19 - die Uhrzeit | trennbare Verben
- Lecture 20 - Familie und Possessiv
- Lecture 21 - Wir machen Lektion 6 | Ordinalzahlen
- Lecture 22 - Wie feierst du deinen Geburtstag?
- Lecture 23 - der Akkusativ | ein Würfelspiel
- Lecture 24 - das Kaffeehaus | die Kneipe | der Biergarten
- Lecture 25 - Lektion 6
- Lecture 26 - Sprache, Bundesländer, Städte | Wir beginnen Lektion 7
- Lecture 27 - Akkusativ-Dativ | Annika im Büro | Wir machen Kaffee
- Lecture 28 - Lektion 7 -- formeller Brief
- Lecture 29 - Wie lernst du Deutsch ? Wir hören ein deutsches Lied

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Wir lernen die Präpositionen
- Lecture 31 - Hörverständnis | Wir beginnen Lektion 8
- Lecture 32 - Lektion 8 -- Haus-Wohnung-Möbel-Geräte
- Lecture 33 - Extra Lektion on Modal Verbs
- Lecture 34 - Eine E-Mail schreiben | Eine Wohnung beschreiben
- Lecture 35 - Warum ist die Miete so hoch ? | Vorteile und Nachteile
- Lecture 36 - Die neue Wohnung -- Was ist wo ? | Wechselpräpositionen
- Lecture 37 - gefallen, gehören, passen, schmecken
- Lecture 38 - Lektion 9 | Wir lernen das Perfekt
- Lecture 39 - Lektion 9 | Wir üben das Perfekt
- Lecture 40 - Was hast du in den Ferien gemacht ?
- Lecture 41 - Lektion 9 | Die Jobsuche
- Lecture 42 - Lektion 9 | Telefongespräche
- Lecture 43 - Im Kaufhaus | Welche/Diese
- Lecture 44 - Lektion 11 | Körper und Gesundheit
- Lecture 45 - Gesund und munter | Wir machen Lektion 11 zu Ende
- Lecture 46 - Ab in den Urlaub | Wir machen Lektion 12

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Disability Studies: An Introduction

Subject Co-ordinator - Prof. Hemachandran Karah

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Disability Definition

Lecture 2 - Medical Model of Disability

Lecture 3 - Social Model of Disability - Part 1

Lecture 4 - Social Model of Disability - Part 2

Lecture 5 - Stigma

Lecture 6 - Stigma and Disability

Lecture 7 - Ableism - Part 1

Lecture 8 - Ableism - Part 2

Lecture 9 - Disability Activism

Lecture 10 - Models of Disability Activism

Lecture 11 - Dependency

Lecture 12 - Interdependence

Lecture 13 - Blindness

Lecture 14 - Blindness as metaphor

Lecture 15 - Eugenics

Lecture 16 - Disability Pride

Lecture 17 - Disability Resilience

Lecture 18 - Disability Passing

Lecture 19 - Coming out

Lecture 20 - Assistive Technology

Lecture 21 - Disability and Ethnography

Lecture 22 - Schizophrenia

Lecture 23 - Autism and the Indian Family

Lecture 24 - Dyslexia and the Modern University

Lecture 25 - Gender and Disability

Lecture 26 - Gender and Disability

Lecture 27 - Lennard Davis, hemachandran karah, normal, normalcy, disability studies

Lecture 28 - The Normal and its End

Lecture 29 - Literary Disability Studies

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - What is Deaf Culture? An Interview with Dr. Michele Friedner
- Lecture 31 - Disability and Life Writing
- Lecture 32 - Disability and Metaphor
- Lecture 33 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - Introduction to Film Studies (2019)

Subject Co-ordinator - Dr. Aysha Iqbal Viswamohan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Overview - Part 1
- Lecture 2 - Course Overview - Part 2
- Lecture 3 - Cinema and Semiotics - Part 1
- Lecture 4 - Cinema and Semiotics - Part 2
- Lecture 5 - Cinema and Semiotics - Seven (1995) - Part 1
- Lecture 6 - Cinema and Semiotics - Seven (1995) - Part 2
- Lecture 7 - Plot in Cinema - Part 1
- Lecture 8 - Plot in Cinema - Part 2
- Lecture 9 - Plot in Cinema - 7 primary types of plot
- Lecture 10 - Plot in Cinema - Conflict as a Plot Element
- Lecture 11 - Character as a Plot Element - Part 1
- Lecture 12 - Character as a Plot Element - Part 2
- Lecture 13 - Editing in Cinema - (Montage, Jumpcut) - Part 1
- Lecture 14 - Editing in Cinema - (Montage, Jumpcut) - Part 2
- Lecture 15 - Realism in Cinema - Part 1
- Lecture 16 - Realism in Cinema - Part 2
- Lecture 17 - Colour
- Lecture 18 - Colour
- Lecture 19 - Intertextuality - Casablanca (1942) - Part 1
- Lecture 20 - Intertextuality - Casablanca (1942) - Part 2
- Lecture 21 - Intertextuality - Blade Runner (1982) - Part 1
- Lecture 22 - Intertextuality - Blade Runner (1982) - Part 2
- Lecture 23 - Intertextuality - The Matrix (1999) - Part 1
- Lecture 24 - Intertextuality - The Matrix (1999) - Part 2
- Lecture 25 - Cinema and Modernism - Part 1
- Lecture 26 - Cinema and Modernism - Part 2
- Lecture 27 - Cinema and Modernism - Part 3
- Lecture 28 - Guest Lecture by Sudhish Kamath (Film Critic and Film Maker)
- Lecture 29 - The French Masters - Jean Renoir - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The French Masters - Jean Renoir - Part 2
- Lecture 31 - The French Masters - Robert Bresson - Part 1
- Lecture 32 - The French Masters - Robert Bresson - Part 2
- Lecture 33 - The French Masters - Robert Bresson - Part 3
- Lecture 34 - What is a Canon?
- Lecture 35 - Canonical Text - Citizen Kane (1941) - Part 1
- Lecture 36 - Canonical Text - Citizen Kane (1941) - Part 2
- Lecture 37 - Canonical Text - The Godfather (1972/1974) Part 1
- Lecture 38 - Canonical Text - The Godfather (1972/1974) Part 2
- Lecture 39 - Canonical Text - The Godfather (1972/1974) Part 3
- Lecture 40 - Canonical Text - The Godfather (1972/1974) Part 4
- Lecture 41 - The Academy Awards Case Study - My Left Foot (1989) and Daniel Day-Lewis Method Acting - Part 1
- Lecture 42 - The Academy Awards Case Study - My Left Foot (1989) and Daniel Day-Lewis Method Acting - Part 2
- Lecture 43 - Classic Hollywood - HayÅçâ -â çs Code, Studio Years, Major Filmmakers - Part 1
- Lecture 44 - Classic Hollywood - HayÅçâ -â çs Code, Studio Years, Major Filmmakers - Part 2
- Lecture 45 - Classic Hollywood - Major Filmmakers, Melodrama - Part 1
- Lecture 46 - Classic Hollywood - Major Filmmakers, Melodrama - Part 2
- Lecture 47 - Classic Hollywood - Major Filmmakers, Melodrama - Part 3
- Lecture 48 - Classic Hollywood - Major Filmmakers, Melodrama - Part 4
- Lecture 49 - German Expressionism, Film Noir Case Study
- Lecture 50 - German Expressionism, Film Noir Case Study
- Lecture 51 - Stars as Icons, Case Study of the Stardom of James Dean and Fandoms - Part 1
- Lecture 52 - Stars as Icons, Case Study of the Stardom of James Dean and Fandoms - Part 2
- Lecture 53 - Cinema and the Counterculture Movement - Beat Generation, Woodstock Nation, Easy Rider (1968) -
- Lecture 54 - Cinema and the Counterculture Movement - Beat Generation, Woodstock Nation, Easy Rider (1968) -
- Lecture 55 - Italian Cinema - Part 1
- Lecture 56 - Italian Cinema - Part 2
- Lecture 57 - Japanese Cinema - Part 1
- Lecture 58 - Japanese Cinema - Part 2
- Lecture 59 - Auteur Theory in the USA - Part 1
- Lecture 60 - Auteur Theory in the USA - Part 2
- Lecture 61 - Auteur Theory in the USA - Part 3
- Lecture 62 - Auteur Theory in the USA - Part 4
- Lecture 63 - New Hollywood - Part 1
- Lecture 64 - New Hollywood - Part 2
- Lecture 65 - New Hollywood - Part 3
- Lecture 66 - New Hollywood - Part 4
- Lecture 67 - New Hollywood - Part 5
- Lecture 68 - New Hollywood - Part 6

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- Lecture 69 - New Hollywood - Part 7
- Lecture 70 - New Hollywood - Part 8
- Lecture 71 - Cinema and Genres - Part 1
- Lecture 72 - Cinema and Genres - Part 2
- Lecture 73 - Cinema and Genres - Part 3
- Lecture 74 - Cinema and Genres - Part 4
- Lecture 75 - Postmodernism and Cinema - Part 1
- Lecture 76 - Postmodernism and Cinema - Part 2
- Lecture 77 - Postmodernism and Cinema - Part 3
- Lecture 78 - Postmodernism and Cinema - Part 4
- Lecture 79 - The Western - Part 1
- Lecture 80 - The Western - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Literary Criticism (From Plato to Leavis)

Subject Co-ordinator - Prof. Merin Simi Raj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Aristotle's Poetics - Session 1
- Lecture 3 - Aristotle's Poetics - Session 2
- Lecture 4 - Aristotle's Poetics - Session 3
- Lecture 5 - Longinus' Sublimity, Genius, Art
- Lecture 6 - Longinus' On the Sublime - Session 2
- Lecture 7 - Longinus' On the Sublime - Session 3
- Lecture 8 - Scott James' The First Romantic Critic
- Lecture 9 - Philip Sidney's - An Apology for Poetry - Session 1
- Lecture 10 - Philip Sidney's - An Apology for Poetry - Session 2
- Lecture 11 - Philip Sidney's - An Apology for Poetry - Session 3
- Lecture 12 - Philip Sidney's - An Apology for Poetry - Session 4
- Lecture 13 - The Foundations of Western Philosophy
- Lecture 14 - Horace's Ars Poetica
- Lecture 15 - John Dryden's 'Preface to The Fables'
- Lecture 16 - Critical Importance of Aphra Behn
- Lecture 17 - Samuel Johnson's Preface to Shakespeare - Session 1
- Lecture 18 - Samuel Johnson's Preface to Shakespeare - Session 2
- Lecture 19 - Samuel Johnson's Preface to Shakespeare - Session 3
- Lecture 20 - Samuel Johnson's Preface to Shakespeare - Session 4
- Lecture 21 - Wordsworth's 'Preface to Lyrical Ballads'
- Lecture 22 - Coleridge's 'Biographia Literaria' (Chapter 13 and 14)
- Lecture 23 - Shelley's A Defence of Poetry - Part 1
- Lecture 24 - Shelley's A Defence of Poetry - Part 2
- Lecture 25 - Shelley's A Defence of Poetry - Part 3
- Lecture 26 - Shelley's A Defence of Poetry - Part 4
- Lecture 27 - Introduction to Peter Barry's Literary Theory
- Lecture 28 - Mary Wollstonecraft's A Vindication of the Rights of Women
- Lecture 29 - Edgar Allan Poe's The Poetic Principle - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Edgar Allan Poe's The Poetic Principle - Part 2
- Lecture 31 - Leo Tolstoy's What is Art?
- Lecture 32 - Matthew Arnold's Study of Poetry
- Lecture 33 - Matthew Arnold's Sweetness and Light
- Lecture 34 - Russian Formalism
- Lecture 35 - Henry James 'The Art of Fiction' (Session 1)
- Lecture 36 - T.S. Eliot's 'Tradition and Individual Talent'
- Lecture 37 - T.S. Eliot's 'Tradition and Individual Talent' (Session 2)
- Lecture 38 - Virginia Woolf's 'Modern Fiction'
- Lecture 39 - Virginia Woolf's 'Modern Fiction' (Session 2)
- Lecture 40 - Virginia Woolf's 'A Room of One's Own'
- Lecture 41 - Virginia Woolf's 'A Room of One's Own' (Session 1)
- Lecture 42 - Virginia Woolf's 'A Room of One's Own' (Session 2)
- Lecture 43 - Virginia Woolf's 'A Room of One's Own' (Session 3)
- Lecture 44 - Rene Wellek's The New Criticism
- Lecture 45 - Walter Benjamin's The Work of Art in the Age of Mechanical Reproduction - 1
- Lecture 46 - Walter Benjamin's The Work of Art in the Age of Mechanical Reproduction - 2
- Lecture 47 - Walter Benjamin's The Work of Art in the Age of Mechanical Reproduction - 3
- Lecture 48 - Walter Benjamin's The Work of Art in the Age of Mechanical Reproduction - 4
- Lecture 49 - Walter Benjamin's The Storyteller
- Lecture 50 - FR Leavis
- Lecture 51 - FR Leavis's 'The Great Tradition' (Session 1)
- Lecture 52 - FR Leavis's 'The Great Tradition' (Session 2)
- Lecture 53 - FR Leavis's 'The Great Tradition' (Session 3)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Twentieth Century Fiction

Subject Co-ordinator - Prof. Avishek Parui

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - The Postmaster - Part 1

Lecture 2 - The Postmaster - Part 2

Lecture 3 - The Postmaster - Part 3

Lecture 4 - The Fly - 1

Lecture 5 - The Fly - 2

Lecture 6 - Heart of Darkness - Part 1

Lecture 7 - Heart of Darkness - Part 2

Lecture 8 - Heart of Darkness - Part 3

Lecture 9 - Heart of Darkness - Part 4

Lecture 10 - Heart of Darkness - Part 5

Lecture 11 - Heart of Darkness - Part 6

Lecture 12 - Heart of Darkness - Part 7

Lecture 13 - Heart of Darkness - Part 8

Lecture 14 - Heart of Darkness - Part 9

Lecture 15 - Love Song of J. Alfred Prufrock - Part 1

Lecture 16 - Love Song of J. Alfred Prufrock - Part 2

Lecture 17 - Love Song of J. Alfred Prufrock - Part 3

Lecture 18 - Preludes - Part 1

Lecture 19 - Preludes - Part 2

Lecture 20 - The Wasteland - Part 1

Lecture 21 - The Wasteland - Part 2

Lecture 22 - The Wasteland - Part 3

Lecture 23 - Similarity of Myths, Fallen Cities of History, Ganga, Philomel

Lecture 24 - Twentieth century Dublin, Decadance, Focalization, Sexual imagery

Lecture 25 - Biblical marker, Eroticization, Metonymy, Cinematic quality

Lecture 26 - Knightly quest, Fib, Bazar, Epiphany

Lecture 27 - Relativity of universe, Kafkaesque quality, Fetish, Thing theory

Lecture 28 - Material Engagement Theory, Uncanny, Perverse consumption

Lecture 29 - Mimicry, Abandonment, Thingness of objects

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Mrs. Dalloway - Part 1
- Lecture 31 - Mrs. Dalloway - Part 2
- Lecture 32 - Mrs. Dalloway - Part 3
- Lecture 33 - Mrs. Dalloway - Part 4
- Lecture 34 - Mrs. Dalloway - Part 5
- Lecture 35 - Emotion, Medicine, Contrasts of high and low culture, Stiff upper lip
- Lecture 36 - Bergson's philosophy of time, Rest cure, Affect, Clock time
- Lecture 37 - Power in medical discourse, Shakespeare, Trauma and self-realization, Food
- Lecture 38 - Depression, Suicide, Civilization, Courage
- Lecture 39 - Ulysses - Part 1
- Lecture 40 - Ulysses - Part 2
- Lecture 41 - Ulysses - Part 3
- Lecture 42 - Ulysses - Part 4
- Lecture 43 - Ulysses - Part 5
- Lecture 44 - Summary
- Lecture 45 - Ulysses - Part 6
- Lecture 46 - Ulysses - Part 7
- Lecture 47 - Gibraltar, Numbers, Movement, Directionlessness
- Lecture 48 - Promiscuity, Writerly text, Narrativity, Postmodernism
- Lecture 49 - Toba Tek Singh - Part 1
- Lecture 50 - Toba Tek Singh - Part 2
- Lecture 51 - Toba Tek Singh - Part 3
- Lecture 52 - Toba Tek Singh - Part 4
- Lecture 53 - Toba Tek Singh - Part 5
- Lecture 54 - Mrs. Dalloway - Part 10
- Lecture 55 - Modernist Poetry
- Lecture 56 - The Chess Players - Part 1
- Lecture 57 - The Chess Players - Part 2
- Lecture 58 - The Chess Players - Part 3
- Lecture 59 - The Chess Players - Part 4
- Lecture 60 - Conclusion
- Lecture 61 - Modernist Fiction

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Modern Indian Writing in Translation

Subject Co-ordinator - Prof. Divya.A

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Hunger Of Stones
- Lecture 2 - Hunger Of Stones (Continued...)
- Lecture 3 - Translation (Introduction); Nagamandala and Hunger of Stones
- Lecture 4 - Introduction to Literature in Translation in India
- Lecture 5 - The Blue Light - Part 1
- Lecture 6 - The Blue Light - Part 2
- Lecture 7 - The Blue Light - Part 3
- Lecture 8 - Gold From the Grave - Part 1
- Lecture 9 - Gold From the Grave - Part 2
- Lecture 10 - Gold From the Grave - Part 3
- Lecture 11 - Toba Tek Singh - Part 1
- Lecture 12 - Toba Tek Singh - Part 2
- Lecture 13 - Toba Tek Singh - Part 3
- Lecture 14 - Crossing the Ravi - Part 1
- Lecture 15 - Crossing the Ravi - Part 2
- Lecture 16 - Writing Effective Paragraph
- Lecture 17 - Stench of Kerosene - Part 1
- Lecture 18 - Stench of Kerosene - Part 2
- Lecture 19 - Stench of Kerosene - Part 3
- Lecture 20 - Stench of Kerosene - Part 4
- Lecture 21 - The Man Who Could Not Sleep - Part 1
- Lecture 22 - The Man Who Could Not Sleep - Part 2
- Lecture 23 - The Man Who Could Not Sleep - Part 3
- Lecture 24 - The Man Who Could Not Sleep - Part 4
- Lecture 25 - Nagamandala - Part 1
- Lecture 26 - Nagamandala - Part 2
- Lecture 27 - Nagamandala - Part 3
- Lecture 28 - Nagamandala - Part 4
- Lecture 29 - Nagamandala - Part 5

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Nagamandala - Part 6
- Lecture 31 - Nagamandala - Part 7
- Lecture 32 - Tamarind History - Part 1
- Lecture 33 - Tamarind History - Part 2
- Lecture 34 - Tamarind History - Part 3
- Lecture 35 - Tamarind History - Part 4
- Lecture 36 - Tamarind History - Part 5
- Lecture 37 - Tamarind History - Part 6
- Lecture 38 - Tamarind History - Part 7
- Lecture 39 - Indian poetry - Part 1
- Lecture 40 - Indian poetry - Part 2
- Lecture 41 - Indian poetry - Part 3
- Lecture 42 - Indian poetry - Part 4
- Lecture 43 - Indian poetry - Part 5
- Lecture 44 - Indian poetry - Part 6

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Political Ideologies: Contexts, Ideologies

Subject Co-ordinator - Prof. Arvind Sivaramakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Fascism Introduction and Main Ideas

Lecture 2 - Fascism - problems. The Hindu right and Nazism

Lecture 3 - Ordinary people's part in fascism. A worked example

Lecture 4 - Background and forms of conservatism

Lecture 5 - Main ideas and main problems in conservatism

Lecture 6 - Short recap. Politics in a conservative society. India survey evidence

Lecture 7 - Worked example

Lecture 8 - Introduction. Main ideas with examples

Lecture 9 - Forms of the liberal state

Lecture 10 - Forms of liberalism

Lecture 11 - Multiculturalism

Lecture 12 - Main problems in liberalism

Lecture 13 - Return to editingBiography. Main concepts lecture 1

Lecture 14 - Marx main concepts lecture 2

Lecture 15 - Contradictions, cyclical crises in capitalism. Problems in Marx

Lecture 16 - Marx - worked examples older and current

Lecture 17 - Historical background; global appeal, recent revival; Catalonia; Occupy

Lecture 18 - Anarchism main ideas and examples. The Mondragon Corporation

Lecture 19 - Mutualism; syndicalism; anarchocapitalism

Lecture 20 - Evaluating anarchism - debates and examples

Lecture 21 - Intro, historical background leading to the present

Lecture 22 - Feminism - main concepts, with examples

Lecture 23 - Feminism and other ideologies

Lecture 24 - Intersectionality and Intersectionality - worked examples

Lecture 25 - Human environmental impact and forms of response. Ecological concepts. Examples and selected concepts

Lecture 26 - Ecologism - main concepts, with examples

Lecture 27 - Ecologism and politics

Lecture 28 - Ecologism today. Conceptual problems - the idea of nature. Natural capital - worked example

Lecture 29 - Poststructuralism; Derrida and Foucault; background and explanation. Political engagement

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

- Lecture 30 - Postmodernism; challenge to and contrast with modernism; wide impact. Postmodern theory. Criticism
- Lecture 31 - Recap on problems in Derrida and Foucault. Postmodernist theory. Worked example 1
- Lecture 32 - Poststructuralism and postmodernism worked examples 2 and 3
- Lecture 33 - Definitions. Theocracy - main themes, main problems, with examples
- Lecture 34 - Fundamentalism - contexts for emergence, types of fundamentalism, rejection of modernity, Manichaeism
- Lecture 35 - Worked examples
- Lecture 36 - Definitions - technocracy and managerialism. Outline of technocracy - long history. Main problem
- Lecture 37 - Managerialism - self-conception; efficiency; claim to expertise; problems and failures - concepts
- Lecture 38 - Technocracy and managerialism - worked examples
- Lecture 39 - Nationalism - introduction
- Lecture 40 - Nationalism - main themes. The nation; community or organic community; self-determination; identity
- Lecture 41 - Identity politics. Forms of nationalism. Nationalism and colonialism
- Lecture 42 - Nationalism - conceptual problems. Brexit
- Lecture 43 - Worked examples
- Lecture 44 - Republicanism and Citizenship Introduction
- Lecture 45 - Citizenship as substantive membership of the polity
- Lecture 46 - Republicanism and Citizenship problems and conclusion. Worked examples

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Feminism: Concepts and Theories

Subject Co-ordinator - Prof. Mathangi Krishnamurthy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Feminism
- Lecture 2 - Vocabulary
- Lecture 3 - Vocabulary (Continued...)
- Lecture 4 - Feminism is for everybody
- Lecture 5 - Key Concepts
- Lecture 6 - Key Concepts
- Lecture 7 - Key Concepts
- Lecture 8 - Key Concepts
- Lecture 9 - Key Concepts
- Lecture 10 - Key Concepts
- Lecture 11 - Care
- Lecture 12 - Key Concepts
- Lecture 13 - Key Concepts
- Lecture 14 - Key Concepts
- Lecture 15 - Feminist Theory
- Lecture 16 - Feminist Theory
- Lecture 17 - The Feminist Body - Part I
- Lecture 18 - The Feminist Body - Part II
- Lecture 19 - Feminism in India
- Lecture 20 - Feminism in India
- Lecture 21 - Feminism in India
- Lecture 22 - Feminism of Work and Labor - I
- Lecture 23 - Feminism of Work and Labor - II
- Lecture 24 - Feminism and Affective/ Emotional Labor
- Lecture 25 - Female Impersonators in Parsi Theatre
- Lecture 26 - Feminism and Film
- Lecture 27 - Feminisms
- Lecture 28 - Feminisms
- Lecture 29 - Feminisms

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Title
- Lecture 31 - Title
- Lecture 32 - Learnings And Conclusions
- Lecture 33 - Summary - Weeks 1-4
- Lecture 34 - Summary - Weeks 5-11
- Lecture 35 - Final exam structure and suggestions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Poetry

Subject Co-ordinator - Prof. S P Dhanavel

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The Relevance of Poetry
- Lecture 2 - Approaching Poetry
- Lecture 3 - Functions of Poetry
- Lecture 4 - Forms of Poetry
- Lecture 5 - Poetic Devices
- Lecture 6 - The Music of Poetry
- Lecture 7 - Geoffrey Chaucer (c. 1343-1400)
- Lecture 8 - The Prologue
- Lecture 9 - Elizabethan Poetry
- Lecture 10 - Sir Thomas Wyatt
- Lecture 11 - Henry Howard
- Lecture 12 - Sir Philip Sidney
- Lecture 13 - Edmund Spenser (1552-1559)
- Lecture 14 - Michael Drayton (1563-1631)
- Lecture 15 - Samuel Daniel (1563-1619)
- Lecture 16 - William Shakespeare (1564-1616)
- Lecture 17 - Metaphysical Poetry
- Lecture 18 - John Donne - 1
- Lecture 19 - John Donne - 2
- Lecture 20 - George Herbert
- Lecture 21 - Henry Vaughan
- Lecture 22 - Andrew Marvell
- Lecture 23 - John Milton - 1
- Lecture 24 - John Milton - 2
- Lecture 25 - Neo-Classical and Pre-Romantic Poetry
- Lecture 26 - John Dryden - 1
- Lecture 27 - John Dryden - 2
- Lecture 28 - Alexander Pope - 1
- Lecture 29 - Alexander Pope - 2

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- Lecture 30 - Thomas Gray
- Lecture 31 - William Collins
- Lecture 32 - William Blake
- Lecture 33 - Romantic Poetry
- Lecture 34 - William Wordsworth - 1
- Lecture 35 - William Wordsworth - 2
- Lecture 36 - Samuel Taylor Coleridge
- Lecture 37 - John Keats
- Lecture 38 - Percy Bysshe Shelley
- Lecture 39 - Victorian Poetry
- Lecture 40 - Alfred, Lord Tennyson
- Lecture 41 - Robert Browning
- Lecture 42 - Elizabeth Barrett Browning
- Lecture 43 - Matthew Arnold
- Lecture 44 - Gerard Manley Hopkins
- Lecture 45 - Modernist Poetry
- Lecture 46 - William Butler Yeats
- Lecture 47 - T S Eliot - 1
- Lecture 48 - T S Eliot - 2
- Lecture 49 - Wilfred Owen
- Lecture 50 - Dylan Thomas
- Lecture 51 - American Poetry
- Lecture 52 - Robert Frost
- Lecture 53 - Wallace Stevens
- Lecture 54 - William Carlos Williams
- Lecture 55 - A R Ammons
- Lecture 56 - Langston Hughes
- Lecture 57 - Feminist Poetry
- Lecture 58 - Maya Angelou
- Lecture 59 - Adrienne Rich
- Lecture 60 - Sylvia Plath
- Lecture 61 - P. K. Page
- Lecture 62 - Judith Wright
- Lecture 63 - Contemporary British Poetry
- Lecture 64 - Seamus Heaney
- Lecture 65 - Carol Ann Duffy
- Lecture 66 - Simon Armitage
- Lecture 67 - Indian Poetry in English
- Lecture 68 - Nissim Ezekiel

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Lecture 69 - Kamala Das  
Lecture 70 - A K Ramanujan  
Lecture 71 - Jayanta Mahapatra  
Lecture 72 - Discussion-1 - Part 1  
Lecture 73 - Discussion-1 - Part 2  
Lecture 74 - Discussion-2 - Part 1  
Lecture 75 - Discussion-2 - Part 2  
Lecture 76 - Outro to Poetry - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:The Popular Gothic Novel

Subject Co-ordinator - Prof. Divya.A

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Gothic Elements; Gothic Sublime.
- Lecture 3 - Introduction
- Lecture 4 - Gothic Forebonding; Affinity with the French Revolution; Types of Gothic Fiction
- Lecture 5 - Gothic and identities, Empire, Contemporary Anxieties
- Lecture 6 - Ann Radcliffe, The Mysteries of Udolpho
- Lecture 7 - Gothic Castle, Gothic Energy, Gothic Sensibility
- Lecture 8 - Reading the Gothic Novel; Gothic and Family
- Lecture 9 - Gothic Domesticity and Patriarchy
- Lecture 10 - Gothic and Travel, Marriage, Discussion Questions
- Lecture 11 - The Gothic Contexts
- Lecture 12 - Plotting the Gothic
- Lecture 13 - Feminine Silence and Marginality
- Lecture 14 - Gothic Landscape
- Lecture 15 - Historical and Literary Contexts
- Lecture 16 - Gothic Parody
- Lecture 17 - Gothic Terrors and the Education of Catherine Morland
- Lecture 18 - Gothic Reading and Mentor Figures
- Lecture 19 - Gothic Parody and Female Gothic
- Lecture 20 - Parodying the Gothic Villain
- Lecture 21 - Introduction to Emily Bronte and Wuthering Heights
- Lecture 22 - Gothic terror, Fantasy and Violence
- Lecture 23 - Gothic Transgressions
- Lecture 24 - Gothic Displacement
- Lecture 25 - Gothic Displacement
- Lecture 26 - Introduction to Charlotte Bronte, and the plot of Jane Eyre
- Lecture 27 - Gothic Plot and Imperial Gothic
- Lecture 28 - Gothic Subtexts; Madness and Femininity
- Lecture 29 - Gothic Rebellion and Symbols

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gothic Rebellion, The Domestic and the Colony
- Lecture 31 - Introduction to the Christmas Ghost Story and Charles Dickens
- Lecture 32 - The Gothic Plot, Spectrality, and Commodity
- Lecture 33 - The Dark Narrative; The Ghostly Children
- Lecture 34 - Gothic City
- Lecture 35 - Gothic Structure and The Consciousness
- Lecture 36 - Introduction to Dracula, Literary Contexts and Gothic Monsters
- Lecture 37 - Gothic Sexuality, Tradition, and Metaphors
- Lecture 38 - Gothic Transformations and Narrative Roles
- Lecture 39 - Gothic Symbolisms
- Lecture 40 - The Urban Gothic, New Woman and Gothic Monsters
- Lecture 41 - Introduction to the author; the novel; literary Contexts
- Lecture 42 - Plotting and the Female Gothic
- Lecture 43 - Imperial Gothic
- Lecture 44 - Legacies of Empire and Gothic
- Lecture 45 - Imperial Gothic, and the Orient
- Lecture 46 - Introduction to Doyle and contexts
- Lecture 47 - Gothic Plot
- Lecture 48 - Anxieties of the Past and the Future
- Lecture 49 - Gothic tropes, landscape and cultural anxieties
- Lecture 50 - Gothic Crime and Mythical Subtexts
- Lecture 51 - Gothic Evil
- Lecture 52 - Introduction to Oscar Wilde; Literary Contexts; Plot of the novel
- Lecture 53 - Aesthetic Gothic
- Lecture 54 - Aestheticism and Degeneracy
- Lecture 55 - Gothic Art and Morality
- Lecture 56 - Gothic Setting
- Lecture 57 - Gothic Setting (Continuation...)
- Lecture 58 - Dicken's Realist Gothic 'Bleak House' Women's Writing
- Lecture 59 - Lectuer Overview
- Lecture 60 - Lectuer Overview
- Lecture 61 - Overview of Frankenstein and Jane Eyre
- Lecture 62 - Lectuer Overview



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Classical Sociological Theory

Subject Co-ordinator - Prof. R. Santhosh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Sociology an Overview
- Lecture 2 - Sociological perspective
- Lecture 3 - C Wriugh Mill's Socioloigcal Imagination
- Lecture 4 - Thinking Sociologically
- Lecture 5 - Emergence of Sociology
- Lecture 6 - Enlightenment
- Lecture 7 - Emegernce of nation-state and French Revolution
- Lecture 8 - Industrial revolution and the rise of capitalism
- Lecture 9 - Discussion with Dr. Roland Part - 1
- Lecture 10 - Discussion with Dr. Roland Part - 2
- Lecture 11 - Clasical Thinkers of Sociology
- Lecture 12 - Auguste Comte
- Lecture 13 - Herbert Spencer
- Lecture 14 - Marx Durkheim and Weber
- Lecture 15 - Factory scene from Modern Times
- Lecture 16 - Karl Marx Life
- Lecture 17 - Intellectual Influence
- Lecture 18 - Historical Materialism
- Lecture 19 - Marxian theory of social Change
- Lecture 20 - Theory of Capitalism - 1
- Lecture 21 - Theory of Capitalism - 2
- Lecture 22 - Karl Marx and Alienation
- Lecture 23 - Karl Marx and Religion
- Lecture 24 - Marx on Democracy, and Colonialism
- Lecture 25 - Marx - An Appraisal
- Lecture 26 - Emile Durkheim; Life and Intellectual Influences
- Lecture 27 - The Rules of the Sociological Method
- Lecture 28 - Division of Labour (1893)
- Lecture 29 - Division of Labour (Continued...)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Suicide (1897)
- Lecture 31 - Elementary forms of Religious Life (1912)
- Lecture 32 - Durkheim on Education, Colonialism and Democracy
- Lecture 33 - Durkheim An Assessment
- Lecture 34 - Max Weber
- Lecture 35 - Weber's Methodology of the Social Sciences
- Lecture 36 - Rationalization and social action
- Lecture 37 - Rationalization and Authority
- Lecture 38 - The Protestant Ethic and Spirit of Capitalism
- Lecture 39 - MODERN RATIONAL CAPITALISM
- Lecture 40 - Bureaucracy
- Lecture 41 - Social Stratification
- Lecture 42 - Comparative Religion and Disenchantment
- Lecture 43 - Weber on democracy and colonialism
- Lecture 44 - Critical Assessment
- Lecture 45 - Ferdinand Tonnies (1885-1936)
- Lecture 46 - George Simmel (1858 - 1918)
- Lecture 47 - Social Differentiation and Conflict
- Lecture 48 - Simmel on Philosophy of Money
- Lecture 49 - Mind, Self and Society
- Lecture 50 - George Herbert Mead
- Lecture 51 - Mead on Self
- Lecture 52 - Mead on Society
- Lecture 53 - Perkins Gilman and the gender question
- Lecture 54 - Dubois and question of race
- Lecture 55 - Classical Sociological Theory and Modernity
- Lecture 56 - Subsequent Development of Sociological Theory
- Lecture 57 - Conflict Theory
- Lecture 58 - Interactionist Perspective
- Lecture 59 - Theoretical orientations and methodologies
- Lecture 60 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Basics of Language Science

Subject Co-ordinator - Prof. Rajesh Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Goals and Objectives
- Lecture 3 - Fundamentals of the Course
- Lecture 4 - Language and Linguistics
- Lecture 5 - Aspects of Language
- Lecture 6 - Language of Continuum
- Lecture 7 - I-Language and E-Language
- Lecture 8 - Language Acquisition
- Lecture 9 - Learning and Acquisition
- Lecture 10 - Structure of Language (Sounds)
- Lecture 11 - Vocal Apparatus and Salient Features of Sounds
- Lecture 12 - Places and Manners of Articulations of Sounds
- Lecture 13 - Phonotactic Rules and Word Formation
- Lecture 14 - Making of a Word: Rules and Constraints
- Lecture 15 - What Makes a Sentence?
- Lecture 16 - Components of a Sentence
- Lecture 17 - Grammaticality vs Acceptability
- Lecture 18 - Subject and Predicate
- Lecture 19 - Verb and Object
- Lecture 20 - Phrase Structure
- Lecture 21 - X Bar Theory
- Lecture 22 - Specifier and Complement
- Lecture 23 - Complements and Adjuncts
- Lecture 24 - Components of a Verb Phrase
- Lecture 25 - Categories and Selectional Restrictions on Verbs
- Lecture 26 - Thematic Relations
- Lecture 27 - Concept of Case in Natural Language
- Lecture 28 - Morphological and Abstract Case
- Lecture 29 - Structural Case

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Exceptional Case Marking
- Lecture 31 - Movement (Displacement of Constituents) in Natural Language
- Lecture 32 - Motivation for Movement of Language Constituents
- Lecture 33 - Movement of Constituents in Interrogative Sentences
- Lecture 34 - Displacement of Noun Phrases in Passive Constructions
- Lecture 35 - NP Movement and Raising of Constituents
- Lecture 36 - Noun Phrase Interpretations in Binding Theory
- Lecture 37 - Principles of Binding Theory
- Lecture 38 - Constraints on Displacement of Constituents
- Lecture 39 - Negation in the Structure of Language
- Lecture 40 - Negation and Negative Polarity Items in Natural Language
- Lecture 41 - Understanding Cognition and Pragmatics in the Structure of Language

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Globalization: Theoretical Perspectives

Subject Co-ordinator - Prof. R. Santhosh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course
- Lecture 2 - Globalization - Key Debates - 1
- Lecture 3 - Globalization - Key Debates - 2
- Lecture 4 - What is Globalization?
- Lecture 5 - Globalization - Major Players
- Lecture 6 - Cultural Globalization
- Lecture 7 - Cultural Globalization - Introduction II
- Lecture 8 - The Clash of Civilizations?
- Lecture 9 - The Cultural Construction of Neoliberal Globalization
- Lecture 10 - McDonaldization thesis by George Ritzer
- Lecture 11 - Arjun Appadurai
- Lecture 12 - Arjun Appadurai - II
- Lecture 13 - Production of Localities - Arjun Appadurai
- Lecture 14 - Appadurai on Violence
- Lecture 15 - Rooted Cosmopolitanism: Emerging From a Rivalry of Distinctions
- Lecture 16 - Globalization and modernity debate
- Lecture 17 - Globalization and modernity: Anthony Giddens the consequences of modernity
- Lecture 18 - Globalization and modernity: Anthony Giddens the consequences of modernity (Continued...)
- Lecture 19 - Globalization and modernity: Anthony Giddens the consequences of modernity (Continued...)
- Lecture 20 - Giddens : Consequences of Modernity Globalization : Key Thinkers by William Jones
- Lecture 21 - Giddens and the 'runaway world'
- Lecture 22 - David Harvey : Conditions of Postmodernity
- Lecture 23 - Reflexive Modernity : Ulrich Beck -1
- Lecture 24 - Continuation of Reflexive Modernity : Ulrich Beck - 1
- Lecture 25 - Continuation of Reflexive Modernity : Ulrich Beck - 1
- Lecture 26 - Space, time, place and flows David Harvey, Saskia Sassen and Manuel Castells
- Lecture 27 - Time-Space Compression: David Harvey
- Lecture 28 - Saskia Sassen and Spatiality
- Lecture 29 - The city: localizations of the global: Saskia Sassen

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Manuel Castells: Introduction
- Lecture 31 - Manuel Castells: Theory of Space and Flows
- Lecture 32 - Manuel Castells: Time of Flows
- Lecture 33 - Castells : Information Age
- Lecture 34 - Globalized Space Centres Cities - Solly Benjamin
- Lecture 35 - Globalized Space Centres Cities - Solly Benjamin
- Lecture 36 - Ulrich Beck- The Nation-state and Globalizaation - Part I
- Lecture 37 - Ulrich Beck- The Nation-state and Globalizaation - Part II
- Lecture 38 - Ulrich Beck- The Risk Society - Part I
- Lecture 39 - Ulrich Beck- The Risk Society - Part II
- Lecture 40 - Ulrich Beck- The Risk Society - Part III
- Lecture 41 - Anti-Globalization: The Empire Thesis - Part I
- Lecture 42 - Anti-Globalization: The Empire Thesis - Part II
- Lecture 43 - Globalization and its Discontents: Joseph Stigiliz
- Lecture 44 - Imaginations of Alternate Globalization - Part I
- Lecture 45 - Imaginations of Alternate Globalization - Part II
- Lecture 46 - Globalization and the Environment
- Lecture 47 - Media and Global Culture
- Lecture 48 - Religion and Globalization - Part I
- Lecture 49 - Religion and Globalization - Part II
- Lecture 50 - Religion and Globalization - Part III
- Lecture 51 - The Modernity of caste and the Market Economy - Part I
- Lecture 52 - The Modernity of caste and the Market Economy - Part II
- Lecture 53 - Gender, Dowry and the Migration System of Indian IT professionals
- Lecture 54 - Employment, Exclusion and 'Merit' in the Indian IT Industry
- Lecture 55 - Medical Tourism in India: Progress or Predicament?
- Lecture 56 - Globalisation, Class and Work in India
- Lecture 57 - The New Middle class and Employment
- Lecture 58 - Consuming Goa: Tourist site as Dispensable Space
- Lecture 59 - The regional identity politics of India's new land wars: Land, Food and Popular Mobilisation in
- Lecture 60 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Towards an Ethical Digital Society: From Theory to

Subject Co-ordinator - Prof. Bidisha Chaudhuri

Co-ordinating Institute - IIIT - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Ethics: What, Why and Why not?

Lecture 2 - Technology And Ethics: To Do Good Or To Do No Harm?

Lecture 3 - Centralized Technology, Localized Services: A Case For Selective Inclusion?

Lecture 4 - Smart Cities And Equity

Lecture 5 - Data Or An Anti-Politics Machine?

Lecture 6 - Data, Democracy and Justice

Lecture 7 - Ai And Ethics, Governance, Policy: Landscape And Roadmap

Lecture 8 - On A Materialist Conception Of AI And Ethics

Lecture 9 - Keynote - Technology And Ethics: An Economist's Ruminations

Lecture 10 - Poster Presentations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Literary and Cultural Disability Studies: An Exploration

Subject Co-ordinator - Prof. Hemachandran Karah

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Module 1: Disability and the Problem of Canon
- Lecture 2 - Introduction to LCDS - Part 1
- Lecture 3 - Introduction to LCDS - Part 2
- Lecture 4 - Autobiography and Disability: A Review via the writings of Ved Mehta
- Lecture 5 - Themes of Attachments, Blindness and Infrastructures of Care in Mehtas Intimate Worlds
- Lecture 6 - Introduction to Module 2: Disability and Literary Criticism
- Lecture 7 - Conversation with Ms. Deepa Kiran
- Lecture 8 - Conversation with Dr. Sona Hill Kazemi
- Lecture 9 - Introduction to Module 3: Disability and the Multilingual Question
- Lecture 10 - Interview with Prof. Amy Shuman
- Lecture 11 - Conversation with Prof Ato Quayson: Aesthetic Nervousness and Disability
- Lecture 12 - Conversation with Prof. Chithra
- Lecture 13 - Introduction to Module 4: Disability and Interdisciplinarity respectively
- Lecture 14 - Studying the Notion of Trauma via Cynthia Ozicks Short Story The Shawl
- Lecture 15 - Critique of Trauma via Cynthia Ozick's The Shawl
- Lecture 16 - Metamorphosis: A Story of Human Predicament
- Lecture 17 - Metamorphosis: A Critique of the Politics of Abandonment
- Lecture 18 - Anjali: A Watershed Moment in Care Ethics - Part 1
- Lecture 19 - Anjali: A Filmic begin in Integration and Inclusion - Part 2
- Lecture 20 - Tradition and Individual Madness
- Lecture 21 - The Mark On The Wall (Continued...)
- Lecture 22 - Intellectual Statism: The Problem of Reality and Magical Realism
- Lecture 23 - Busting Fictional and Cognitive Monochromatism
- Lecture 24 - Kubla Khan By Samuel Taylor Coleridge: A Classroom Discussion
- Lecture 25 - The Most Popular Story Of Christopher Boone, A Fictional Aspergic Detective
- Lecture 26 - Neurotypicality, Yet Another Catchment Area of the Bestsellers
- Lecture 27 - Introduction To Deaf Ways Of Living As A Linguistic Minority - Part 1
- Lecture 28 - Introduction To Deaf Ways Of Living As A Linguistic Minority - Part 2
- Lecture 29 - Demonstration Of The Workings Of ISL; Its Beauty And Diversity - Part 1

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- Lecture 30 - Demonstration Of The Workings Of ISL; Its Beauty And Diversity - Part 2
- Lecture 31 - Sign Vocabulary and the Dictionary of ISL - Part 1
- Lecture 32 - Sign Vocabulary and the Dictionary of ISL - Part 2
- Lecture 33 - Talk By Prof. Tanmoy Bhattacharya on Sign Language and Linguistics - Part 1
- Lecture 34 - Talk By Prof. Tanmoy Bhattacharya on Sign Language and Linguistics - Part 2
- Lecture 35 - Teaching Science for Deaf Children: A Personal Experience
- Lecture 36 - The Theme Culture Of Hearing In Thirukural, A Classical Tamil Book of Couplets
- Lecture 37 - Governmentality
- Lecture 38 - Governmentality and Disability Studies: A Special Connection
- Lecture 39 - Data, Disability, and Census: An Indian Experience
- Lecture 40 - Medical Education And Disability
- Lecture 41 - Design, Accommodation, and Disability
- Lecture 42 - Medical Humanities and Disability
- Lecture 43 - Making Paper Pumpkins Work for DS: Towards a Moral Politics of Vulnerability

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Trauma and Literature

Subject Co-ordinator - Prof. Avishek Parui

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General Overview
- Lecture 2 - Manto's Toba Tek Singh - Part 1
- Lecture 3 - Manto's Toba Tek Singh - Part 2
- Lecture 4 - Manto's Toba Tek Singh - Part 3
- Lecture 5 - Manto's Thanda Gosht
- Lecture 6 - Mansfield's The Fly - Part 1
- Lecture 7 - Mansfield's The Fly - Part 2
- Lecture 8 - Mansfield's The Fly - Part 3
- Lecture 9 - Woolf's Mrs. Dalloway - Part 1
- Lecture 10 - Woolf's Mrs. Dalloway - Part 2
- Lecture 11 - Woolf's Mrs. Dalloway - Part 3
- Lecture 12 - Woolf's Mrs. Dalloway - Part 4
- Lecture 13 - Woolf's Mrs. Dalloway - Part 5
- Lecture 14 - Woolf's Mrs. Dalloway - Part 6
- Lecture 15 - Woolf's Mrs. Dalloway - Part 7
- Lecture 16 - Malabou's The New Wounded - Part 1
- Lecture 17 - Malabou's The New Wounded - Part 2
- Lecture 18 - Malabou's The New Wounded - Part 3
- Lecture 19 - Malabou's The New Wounded - Part 4
- Lecture 20 - Malabou's The Ontology of the Accident - Part 1
- Lecture 21 - Malabou's The Ontology of the Accident - Part 2
- Lecture 22 - Malabou's The Ontology of the Accident - Part 3
- Lecture 23 - Malabou's The Ontology of the Accident - Part 4
- Lecture 24 - Malabou's The Ontology of the Accident - Part 5
- Lecture 25 - Malabou's The Ontology of the Accident - Part 6
- Lecture 26 - Malabou's The Ontology of the Accident - Part 7
- Lecture 27 - Malabou's The Ontology of the Accident - Part 8
- Lecture 28 - Heller's Catch-22 - Part 1
- Lecture 29 - Heller's Catch-22 - Part 2

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heller's Catch-22 - Part 3
- Lecture 31 - Heller's Catch-22 - Part 4
- Lecture 32 - Heller's Catch-22 - Part 5
- Lecture 33 - Heller's Catch-22 - Part 6
- Lecture 34 - Heller's Catch-22 - Part 7
- Lecture 35 - Heller's Catch-22 - Part 8
- Lecture 36 - Heller's Catch-22 - Part 9
- Lecture 37 - Butalia's The Other Side of Silence - Part 1
- Lecture 38 - Butalia's The Other Side of Silence - Part 2
- Lecture 39 - Butalia's The Other Side of Silence - Part 3
- Lecture 40 - Butalia's The Other Side of Silence - Part 4
- Lecture 41 - Butalia's The Other Side of Silence - Part 5
- Lecture 42 - Butalia's The Other Side of Silence - Part 6
- Lecture 43 - Butalia's The Other Side of Silence - Part 7
- Lecture 44 - Dangarembga's Nervous Conditions - Part 1
- Lecture 45 - Dangarembga's Nervous Conditions - Part 2
- Lecture 46 - Dangarembga's Nervous Conditions - Part 3
- Lecture 47 - Dangarembga's Nervous Conditions - Part 4
- Lecture 48 - Dangarembga's Nervous Conditions - Part 5
- Lecture 49 - Dangarembga's Nervous Conditions - Part 6
- Lecture 50 - Vonnegut's Slaughterhouse-five - Part 1
- Lecture 51 - Vonnegut's Slaughterhouse-five - Part 2
- Lecture 52 - Vonnegut's Slaughterhouse-five - Part 3
- Lecture 53 - Vonnegut's Slaughterhouse-five - Part 4
- Lecture 54 - Vonnegut's Slaughterhouse-five - Part 5
- Lecture 55 - Toni Morrison's Beloved - Part 1
- Lecture 56 - Toni Morrison's Beloved - Part 2
- Lecture 57 - Toni Morrison's Beloved - Part 3
- Lecture 58 - Toni Morrison's Beloved - Part 4
- Lecture 59 - Toni Morrison's Beloved - Part 5
- Lecture 60 - Toni Morrison's Beloved - Part 6
- Lecture 61 - Carruth's Unclaimed Experience - Part 1
- Lecture 62 - Carruth's Unclaimed Experience - Part 2
- Lecture 63 - Carruth's Unclaimed Experience - Part 3
- Lecture 64 - Ann Whitehead's Trauma Fiction - Part 1
- Lecture 65 - Ann Whitehead's Trauma Fiction - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Twentieth Century American Drama

Subject Co-ordinator - Prof. Merin Simi Raj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introductory Lecture
- Lecture 2 - Eugene O'Neil's The Emperor Jones - Part 1
- Lecture 3 - Eugene O'Neil's The Emperor Jones - Part 2
- Lecture 4 - Eugene O'Neil's The Emperor Jones - Part 3
- Lecture 5 - Eugene O'Neil's The Emperor Jones - Part 4
- Lecture 6 - Arthur Miller's Death of a Salesman - Part 1
- Lecture 7 - Arthur Miller's Death of a Salesman - Part 2
- Lecture 8 - Arthur Miller's Death of a Salesman - Part 3
- Lecture 9 - Arthur Miller's Death of a Salesman - Part 4
- Lecture 10 - Arthur Miller's Death of a Salesman - Part 5
- Lecture 11 - Arthur Miller's Death of a Salesman - Part 6
- Lecture 12 - Arthur Miller's Death of a Salesman - Part 7
- Lecture 13 - Arthur Miller's Death of a Salesman - Part 8
- Lecture 14 - Arthur Miller's Death of a Salesman - Part 9
- Lecture 15 - Arthur Miller's All My Sons - Part 1
- Lecture 16 - Arthur Miller's All My Sons - Part 2
- Lecture 17 - Arthur Miller's All My Sons - Part 3
- Lecture 18 - Arthur Miller's All My Sons - Part 4
- Lecture 19 - Arthur Miller's All My Sons - Part 5
- Lecture 20 - Arthur Miller's All My Sons - Part 6
- Lecture 21 - Arthur Miller's All My Sons - Part 7
- Lecture 22 - You Can't Take it with You - Part 1
- Lecture 23 - You Can't Take it with You - Part 2
- Lecture 24 - You Can't Take it with You - Part 3
- Lecture 25 - You Can't Take it with You - Part 4
- Lecture 26 - The Glass Menagerie - Part 1
- Lecture 27 - The Glass Menagerie - Part 2
- Lecture 28 - The Glass Menagerie - Part 3
- Lecture 29 - The Glass Menagerie - Part 4

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- Lecture 30 - Albee's Who's Afraid of Virginia Woolf - Part 1
- Lecture 31 - Albee's Who's Afraid of Virginia Woolf - Part 2
- Lecture 32 - Albee's Who's Afraid of Virginia Woolf - Part 3
- Lecture 33 - Albee's Who's Afraid of Virginia Woolf - Part 4
- Lecture 34 - Albee's Who's Afraid of Virginia Woolf - Part 5
- Lecture 35 - Albee's The Zoo Story - Part 1
- Lecture 36 - Albee's The Zoo Story - Part 2
- Lecture 37 - Albee's The Zoo Story - Part 3
- Lecture 38 - Albee's The Zoo Story - Part 4
- Lecture 39 - Albee's The Zoo Story - Part 5
- Lecture 40 - Hansberry's Day in the Sun - Part 1
- Lecture 41 - Hansberry's Day in the Sun - Part 2
- Lecture 42 - Hansberry's Day in the Sun - Part 3
- Lecture 43 - Hansberry's Day in the Sun - Part 4
- Lecture 44 - Hansberry's Day in the Sun - Part 5
- Lecture 45 - Post World War II American Theatre: A Historical Perspective
- Lecture 46 - American Theatre in Context: 1945- Present - Part 1
- Lecture 47 - American Theatre in Context: 1945- Present - Part 2
- Lecture 48 - American Theatre in Context: 1945- Present - Part 3
- Lecture 49 - August Wilson's The Piano Lesson - Part 1
- Lecture 50 - August Wilson's The Piano Lesson - Part 2
- Lecture 51 - August Wilson's The Piano Lesson - Part 3
- Lecture 52 - August Wilson's The Piano Lesson - Part 4
- Lecture 53 - August Wilson's The Piano Lesson - Part 5
- Lecture 54 - August Wilson's The Piano Lesson - Part 6
- Lecture 55 - August Wilson's The Piano Lesson - Part 7
- Lecture 56 - August Wilson's The Piano Lesson - Part 8
- Lecture 57 - Modern American Drama 1945-2000: Redefining the Centre

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Fundamental Concepts in Sociolinguistics

Subject Co-ordinator - Prof. Om Prakash

Co-ordinating Institute - Gautam Buddha University

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction
- Lecture 2 - Language as a System
- Lecture 3 - Design Features
- Lecture 4 - Linguistic Relativity
- Lecture 5 - Language and Culture
- Lecture 6 - Language and Gender
- Lecture 7 - Behaviourist paradigm in language acquisition
- Lecture 8 - Innateness Hypothesis [Generative Paradigm] in Language Acquisition
- Lecture 9 - Key Concepts in Language Acquisition Lad, Ug, and poverty Stimulus
- Lecture 10 - Linguistic Competence
- Lecture 11 - Communicative Competence
- Lecture 12 - Critical Period Hypothesis
- Lecture 13 - Dialects
- Lecture 14 - Speech Community
- Lecture 15 - Diglossia
- Lecture 16 - Systemic Functions of Language
- Lecture 17 - SPEAKING Model
- Lecture 18 - Register and Style
- Lecture 19 - Bilingualism - Part I
- Lecture 20 - Bilingualism - Part II
- Lecture 21 - Code Mixing and Switching
- Lecture 22 - Language Hybridity Case of Hindi-English Mixing
- Lecture 23 - Pidgin and Creole
- Lecture 24 - Creolization Process and birth of a Language
- Lecture 25 - Mixing and Switching: Creative Outcome of Bi/Multilingual Mind
- Lecture 26 - Language Policy and Planning
- Lecture 27 - Types of Language Planning
- Lecture 28 - Official Languages of India
- Lecture 29 - The Process of Standardization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Three Language Formula
- Lecture 31 - The Eighth Schedule
- Lecture 32 - Mother Tongue
- Lecture 33 - Linguistic Diversity of India
- Lecture 34 - Schedule and Non-Schedule Languages Census of India 2011
- Lecture 35 - Multilingualism in India
- Lecture 36 - Language and Education Policy
- Lecture 37 - English in India
- Lecture 38 - Emergence of Sociolinguistics As An Independent Discipline
- Lecture 39 - Language and Variations
- Lecture 40 - William Labov Martha's Vineyard Island Study
- Lecture 41 - William Labov Social Stratification of English in New York City (1966)
- Lecture 42 - Observers Paradox and Sociolinguistic Variable
- Lecture 43 - Dell Hymes and His Work
- Lecture 44 - Basil Bernstein and His Work
- Lecture 45 - John J. Gumperz and His Work
- Lecture 46 - Joshua Fishman and His Work
- Lecture 47 - Uriel Weinreich and his work
- Lecture 48 - Susan Ervin M Tripp and her work
- Lecture 49 - Charles A Ferguson and his Work
- Lecture 50 - William Bright and his work
- Lecture 51 - Allen D Grimshaw and his work
- Lecture 52 - MAK Halliday and His Work
- Lecture 53 - MAK Halliday and His Work
- Lecture 54 - Signific Studies in Language Variation
- Lecture 55 - Indian English
- Lecture 56 - Multilingual Societies and Multilingual Discourse
- Lecture 57 - Language Endangerment
- Lecture 58 - Linguistic Identity and Language Movements
- Lecture 59 - Linguistic Identity and language Movements in India
- Lecture 60 - Ferdinand de Saussure and his Influence
- Lecture 61 - Saussure's Key Concepts
- Lecture 62 - 20th Century Theoretical Developments in Linguistics
- Lecture 63 - Varieties of Language
- Lecture 64 - Linguistic Landscape
- Lecture 65 - Linguistic Allegiance, Identity, and Socialization in Digital Space
- Lecture 66 - Recapitulating Language Acquisition
- Lecture 67 - Review and Concluding Remarks
- Lecture 68 - Significance of Culture in Language Learning/Teaching

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Literature and Life

Subject Co-ordinator - Prof. S P Dhanavel

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is literature ?

Lecture 2 - What is Life ?

Lecture 3 - The Relationship between Literature and Life

Lecture 4 - Approaches to Literature and Life

Lecture 5 - Essay

Lecture 6 - Poetry

Lecture 7 - Drama

Lecture 8 - The Novel and the Short Story

Lecture 9 - Abdul Kalams When I Failed

Lecture 10 - Chetan Bhagats My Stupid Suicide Plan

Lecture 11 - R K Narayans Toasted English

Lecture 12 - Amishs Why I Write

Lecture 13 - George Orwells Politics and the English Language

Lecture 14 - William Zinssers Writing English as a Second Language

Lecture 15 - Joan Didions Why I Write

Lecture 16 - Virginia Woolfs The Death of the Moth

Lecture 17 - William Wordsworths Resolution and Independence

Lecture 18 - H W Longfellows A Psalm of Life

Lecture 19 - W H Davies Leisure

Lecture 20 - Robert Frosts Mending Wall

Lecture 21 - Emily Dickinsons A Narrow Fellow in the Grass

Lecture 22 - Kamala Dass Words

Lecture 23 - Louise GlÃ¼cks The Mountain

Lecture 24 - Sujata Bhatts Search for My Tongue

Lecture 25 - Girish Karnads Tughlaq: An Introduction

Lecture 26 - Characters and Characterization in Karnads Tughlaq

Lecture 27 - Sources, Structure, Form, Themes, and Techniques in Tughlaq

Lecture 28 - Irony, Humor and Symbol in Tughlaq

Lecture 29 - Tughlaq: Further Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Anton Chekhovs The Bear
- Lecture 31 - The Bear: An Analysis
- Lecture 32 - J M Synges Riders to the Sea
- Lecture 33 - Riders to the Sea: An Analysis
- Lecture 34 - Aravind Adigas The White Tiger: An Introduction
- Lecture 35 - Characters and Characterization in Aravind Adigas The White Tiger
- Lecture 36 - Themes and Techniques in Aravind Adigas The White Tiger
- Lecture 37 - Literary Devices in The White Tiger
- Lecture 38 - Aravind Adigas The White Tiger: Further Analysis
- Lecture 39 - Guy de Maupassants The Dispenser of Holy Water
- Lecture 40 - Katherine Mansfields A Cup of Tea
- Lecture 41 - Heinrich Bolls Action Will Be Taken
- Lecture 42 - Joao Guimaraes Rosas The Third Bank of the River
- Lecture 43 - G G Joshi's The Letter
- Lecture 44 - Ruskin Bond's The Boy Who Broke the Bank
- Lecture 45 - Anjana Appachana's Sharmaji
- Lecture 46 - Isaac Asimovs True Love
- Lecture 47 - Discussion 1 - Prose
- Lecture 48 - Discussion 2 - Poetry
- Lecture 49 - Discussion 3 - Drama
- Lecture 50 - Discussion 4 - Novel

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:German - III

Subject Co-ordinator - Prof. Milind Brahme

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - GUTE REISE. Reisen, Ferien und Urlaub
- Lecture 2 - Infinitiv mit zu
- Lecture 3 - Wir lernen das Verb lassen
- Lecture 4 - Das Verb lassen / Aber eine Reise sprechen und schreiben
- Lecture 5 - Wir Machen Lektion 1 Zu Ende
- Lecture 6 - Wir Sprechen Aber Vorlieben Und Abneigungen
- Lecture 7 - Mein Lieblingsurlaub
- Lecture 8 - Wir beginnen mit Kapitel 2
- Lecture 9 - Kapitel 2. Wir Lernen Die Konnektoren -- Weil, Deshalb, Obwohl Und Trotzdem
- Lecture 10 - Der Genitiv
- Lecture 11 - Der Genitiv -- Die Präpositionen wegen und trotz -- Wir machen Lektion 2 zu Ende
- Lecture 12 - Wir machen Lektion 3.
- Lecture 13 - Das Präteritum
- Lecture 14 - Technik im Alltag
- Lecture 15 - Die Präpositionen vor, nach und während.
- Lecture 16 - Neue Technologien - Eine Meinung
- Lecture 17 - Wir üben Konnektoren. Wir beginnen mit Lektion 4
- Lecture 18 - Wir machen mit Lektion 4 weiter
- Lecture 19 - Wir lernen das Präteritum und den Konjunktiv 2
- Lecture 20 - Verben mit Präpositionen - Lektion 4
- Lecture 21 - Wir machen Lektion 4 zu Ende
- Lecture 22 - Was bedeutet Glück für mich?
- Lecture 23 - Umweltfreundlich? Wir machen Lektion 5
- Lecture 24 - Glücklich sein und umweltfreundlich leben. Lektion 5: Komparativ und Superlativ
- Lecture 25 - Wir wiederholen Adjektiv- und n-Deklination
- Lecture 26 - Umweltschutz und Tierschutz. Wir machen Lektion 5 zu Ende.
- Lecture 27 - Wir bereiten uns auf eine Präsentation vor.
- Lecture 28 - Relativsatz 1
- Lecture 29 - Relativsatz 2. Und wir lesen eine kleine Geschichte.

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- Lecture 30 - Zukunftszeichen und Vorsätze fürs neue Jahr: Wir lernen Futur I.
- Lecture 31 - Relativsatz - eine Wiederholung | Zukunft: Hamburg 2030
- Lecture 32 - Was kann ich für die Umwelt tun? (I)
- Lecture 33 - Was kann ich für die Umwelt tun? (II)
- Lecture 34 - Was kann ich für die Umwelt tun? (III)
- Lecture 35 - Kleines Städte-Quiz
- Lecture 36 - Was kann ich für die Umwelt tun? (IV)
- Lecture 37 - Wir lernen und üben das Plusquamperfekt.
- Lecture 38 - Wir beginnen mit Kapitel 7.
- Lecture 39 - Thema Beziehungskisten. Wir lernen dabei temporale Nebensätze kennen.
- Lecture 40 - Wir üben temporale Nebensätze.
- Lecture 41 - Berühmte Paare. Wir machen Kapitel 7 zu Ende.
- Lecture 42 - Wir beginnen mit Kapitel 8.
- Lecture 43 - Im Krankenhaus. brauchen nicht und brauchen nur + zu | dass Stze und Infinitiv Stze
- Lecture 44 - Wir wiederholen und ben das Reflexiv.
- Lecture 45 - Wofür interessierst du dich? | Reflexiv und zweiteilige Konnektoren: Wir machen Kapitel 8 zu Ende
- Lecture 46 - Thema: Hotel Mama. Präsentationen der Lernenden. (I)
- Lecture 47 - Hotel Mama. Präsentationen der Lernenden. (II)
- Lecture 48 - Präsentationen der Lernenden zum Thema Hotel Mama (III)
- Lecture 49 - Ergänzung der Adjektivdeklinatation. Wir beginnen mit Kapitel 9.
- Lecture 50 - Präsentationen der Lernenden zum Thema Hotel Mama (IV)
- Lecture 51 - Wir sehen einen Film zum Thema Hotel Mama.
- Lecture 52 - Stellung von nicht im Satz. | Volkslieder
- Lecture 53 - Wir lernen das Passiv.
- Lecture 54 - Wir lernen und üben das Passiv.
- Lecture 55 - Wir üben das Passiv. (II) | Präpositionen mit dem Genitiv | Wir machen Kapitel 10 zu Ende.
- Lecture 56 - Adjektivdeklinatation - Wiederholung | Kapitel 11: Artikelwörter als Pronomen
- Lecture 57 - Kapitel 11: Adjektiv als Nomen | Sprichwörter | Ergänzung zu den Relativsätzen
- Lecture 58 - Kapitel 11: Störterankings | Relativsätze mit was und wo
- Lecture 59 - Wir machen Kapitel 11 zu Ende. | Sätze mit je...desto
- Lecture 60 - Kapitel 12: Verben als Adjektive - Partizip 2 und Partizip 1
- Lecture 61 - Wir lernen und üben das Passiv.
- Lecture 62 - Kapitel 12: Lesetexte zu den Themen Globalisierung und Gewissensfragen
- Lecture 63 - Zwei Präsentationen zum Thema: Leben - in der Stadt oder auf dem Land?
- Lecture 64 - Kapitel 12: Lesetext -- Die Fuggerei in Augsburg
- Lecture 65 - Zwei Präsentationen zum Thema: Leben - in der Stadt oder auf dem Land? (II)
- Lecture 66 - Präsentationen zum Thema: Leben - in der Stadt oder auf dem Land? (III)
- Lecture 67 - Präsentationen zum Thema: Leben - in der Stadt oder auf dem Land? (IV)
- Lecture 68 - Präsentationen zum Thema: Leben - in der Stadt oder auf dem Land? (V) | Wir lernen

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Lecture 69 - Wir lernen, wie man einen informellen Brief oder eine informelle E-Mail schreibt

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Appreciating Hindustani Music

Subject Co-ordinator - Prof. Lakshmi Sreeram

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Hindustani Music - A World of Colour, Romance and History
- Lecture 2 - Classical or Shastriya - What's in a Name!
- Lecture 3 - Dhrupad, Khayal and Instrumental Music: A Bird's-eye View
- Lecture 4 - Hindustani Music is Raga Sangeet
- Lecture 5 - The Textual Tradition
- Lecture 6 - Swara and Shruti: Tone and Microtone
- Lecture 7 - Swara and Shruti in the Textual Tradition
- Lecture 8 - Tanpura - The King of Overtones
- Lecture 9 - Entering the World of Raga - Raga and Swara
- Lecture 10 - The World of Raga-2: Strong and Weak Notes
- Lecture 11 - The World of Raga-3: Ornament
- Lecture 12 - The World of Raga-4: Paths of a Raga
- Lecture 13 - Raga and Time Association
- Lecture 14 - Raga-Lakshana or Features of Raga
- Lecture 15 - Defining Raga
- Lecture 16 - Classification of Ragas - The Mela or Thaata System
- Lecture 17 - Classification of Ragas - The Raagaanga System
- Lecture 18 - Classification of Ragas - Raga Ragini System
- Lecture 19 - Extending the Raga Corpus - Winds from the South
- Lecture 20 - Extending the Raga Corpus - Jod Ragas
- Lecture 21 - Principles of Time in Hindustani Music - Tala and Laya
- Lecture 22 - Some Aspects of Tala and a Few Important Talas
- Lecture 23 - Tabla as Keeper of Tala in Khayal
- Lecture 24 - Khayal, A Compositional Form - 1
- Lecture 25 - Khayal, A Compositional Form - 2
- Lecture 26 - Khayal Compositions by Contemporary Composers
- Lecture 27 - The Vilambit Khayal
- Lecture 28 - Tarana and Trivat
- Lecture 29 - Raga Vistaar or Badhat - Improvisation in Khayal

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- Lecture 30 - Ashtaanga of Khayal - The Many Limbs of a Khayal Presentation
- Lecture 31 - A Typical Khayal Concert
- Lecture 32 - Gharanas - Schools/Styles of Khayal
- Lecture 33 - Gharanas of Khayal - An Introduction
- Lecture 34 - Gharanas of Khayal - Early Masters
- Lecture 35 - Gharanas of Khayal - Twentieth Century Masters
- Lecture 36 - Gharana - Lecture Demonstration by Pt. Satyasheel Deshpande
- Lecture 37 - Melodic Accompaniment in Khayal
- Lecture 38 - The Harmonium as Accompaniment for Khayal-Guest Lecture
- Lecture 39 - Dhrupad and Khayal - Some Comparative Remarks
- Lecture 40 - Dhrupad - An Overview
- Lecture 41 - Dhrupad - Style and Structure
- Lecture 42 - Dhrupad - Aalaap
- Lecture 43 - Dhrupad - Song Texts in Different Talas
- Lecture 44 - Dhamaar - A Compositional Form
- Lecture 45 - Sadra - A Compositional Form
- Lecture 46 - The Enchanting World of Thumri
- Lecture 47 - Instrumental Music - A Brief Overview
- Lecture 48 - The Sitar - The Instrument, Technique and Presentation
- Lecture 49 - The Sarod - A Lecdem
- Lecture 50 - Art of the Tabla - Introduction
- Lecture 51 - Art of the Tabla - The Instrument, Its Vocabulary and Diverse Roles
- Lecture 52 - Art of the Tabla - Gharanas and Repertoire: Peshkaar and Quaaidaa
- Lecture 53 - Art of the Tabla - Gharanas and Repertoire: Qaaida, Relaa, Gat, Tukdaa
- Lecture 54 - Art of the Tabla - Non Extendable Compositions
- Lecture 55 - Bhakthande and Paluskar - The 20th Century Reformers of Hindustani Music
- Lecture 56 - Hindustani Music in a World of Millions of Views

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:An Introduction to Indian Literary Theory

Subject Co-ordinator - Prof. Sreenath V.S

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The Social History of Sanskrit and the Origin of Kā vya
- Lecture 2 - The Rā mā yañ;ā;ā and Sanskrit Literary Theory
- Lecture 3 - The Genesis and Evolution of Sanskrit Literary Theory
- Lecture 4 - The Actual Relation Between Kā vyañ ā °ā stra or Kā vya
- Lecture 5 - Sanskrit Kā vyañ ā °ā stra in the Medieval Period
- Lecture 6 - Sanskrit Literary Theoreticians - Early Period
- Lecture 7 - Sanskrit Literary Theoreticians - Medieval Period A
- Lecture 8 - Sanskrit Literary Theoreticians - Medieval Period B
- Lecture 9 - Sanskrit Literary Theory in the Colonial Period
- Lecture 10 - Sanskrit poetics in the Postcolonial Phase
- Lecture 11 - Reader in Sanskrit kā vya tradition
- Lecture 12 - Who is the ideal spectator for nā ã;ā;ā-ya?
- Lecture 13 - Dañ ā °arñ ā«paka: Ten dramatic forms - Part I
- Lecture 14 - Dañ ā °arñ ā«paka: Ten dramatic forms - Part II
- Lecture 15 - Uparñ ā«pakas
- Lecture 16 - Kā vya and the Three Languages
- Lecture 17 - Kā vyañ varñ ā«pa or the Ontology of Poetry
- Lecture 18 - Bharata and the Idea of Rasa
- Lecture 19 - The Beginning of Rasa Discourse in Literary Theory
- Lecture 20 - Rasa Theory and ã ā -nandavardhana
- Lecture 21 - Rasa Theory and Bhañ;ā;ā-ñ;ā;ā- Lollañ;ā;ā-a
- Lecture 22 - Rasa Theory and ã ā;ri ã ā;añ;ā;ā |kuka
- Lecture 23 - Rasa Theory and Bhañ;ā;ā-ñ;ā;ā-a Tauta
- Lecture 24 - Rasa Theory and Bhañ;ā;ā-ñ;ā;ā-a Nā yaka
- Lecture 25 - Rasa Theory and Abhinavagupta
- Lecture 26 - Rasa Theory, Rā macandra and Guñ;ā;ā;ā acandra
- Lecture 27 - Rasa Theory and Vidyñ dhara
- Lecture 28 - The Theory of Alamkara
- Lecture 29 - The Concept of Aucitya: An Introduction

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- Lecture 30 - The Concept of Aucitya and Kāñ;Ā¹Āñemendra
- Lecture 31 - Two Ways of Implementing Aucitya - Part 1
- Lecture 32 - Two Ways of Implementing Aucitya - Part 2
- Lecture 33 - Aucitya and Kaviñ Ā °ikñ;Ā¹Āñfa
- Lecture 34 - Aucitya and the Readers
- Lecture 35 - Aucitya and the Opinion of Literary Theoreticians
- Lecture 36 - Aucitya and Ñ Ā ñnandavardhana
- Lecture 37 - Guna or Poetic Merit: Bharata and Bhamaha
- Lecture 38 - Guna or Poetic Merit: Dañ;Ā¹Āñ ĵñ;Āñ, in and Udbhañ;Ā¹Āñ-a
- Lecture 39 - Guna or Poetic Merit: Vñ man's Contribution
- Lecture 40 - Guna or Poetic Merit: Ñ Ā ñnandavardhana, Namidñ shu and Pratihñ renduraja
- Lecture 41 - Guna or Poetic Merit: Bhoja
- Lecture 42 - Guna or Poetic Merit: Viñ Ā °veñ Ā °vara and the author of Agnipurñ Ñ;Ā¹Āñ ĵa
- Lecture 43 - Guna or Poetic Merit: Mammañ;Ā¹Āñ-'s View
- Lecture 44 - Rñ Āñti or the Theory of Poetic Styles
- Lecture 45 - Theory of Dosa or Poetic Blemish: Bharat's View
- Lecture 46 - Theory of Doñ;Ā¹Āñfa or Poetic Blemish: Bhñ mah's View
- Lecture 47 - Theory of Doñ;Ā¹Āñfa or Poetic Blemish: Dañ;Ā¹Āñ ĵdinñçĀ ñĀ çs View
- Lecture 48 - Theory of Doñ;Ā¹Āñfa or Poetic Blemish: Vñ man's View
- Lecture 49 - Theory of Doñ;Ā¹Āñfa or Poetic Blemish: Ñ Ā ñnandavardhana and Mammañ;Ā¹Āñ-'s Views
- Lecture 50 - Theory of Doñ;Ā¹Āñfa or Poetic Blemish: Mammañ;Ā¹Āñ-'s View II
- Lecture 51 - Theory of Doñ;Ā¹Āñfa or Poetic Blemish: Ñ Ā ñnandavardhana and Mammañ;Ā¹Āñ-'s View III
- Lecture 52 - Vakrokti: An Introduction
- Lecture 53 - Vakrokti: Pada-pñ Āñrvñ rtha-vakrata - I
- Lecture 54 - Vakrokti: Pada-pñ Āñrvñ rtha-vakrata - II
- Lecture 55 - Vakrokti: Pada-pñ Āñrvñ rtha-vakrata - III
- Lecture 56 - Vakrokti: Padaparñ rddha vakratñ
- Lecture 57 - Vakrokti: Vñ kya-vakratñ
- Lecture 58 - Vakrokti: Prakarañ;Ā¹Āñ ĵa-vakratñ
- Lecture 59 - Vakrokti: Prabandha vakratñ
- Lecture 60 - Dhvani: Avivakñ;Ā¹Āñfita-vñ cya
- Lecture 61 - Vivakñ;Ā¹Āñfitñ nya-paravñ cya



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Host-Pathogen Interaction (Immunology)

Subject Co-ordinator - Prof. Himanshu Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - History of Immunology - 1
- Lecture 2 - History of Immunology - 2
- Lecture 3 - History of Immunology - 3
- Lecture 4 - History of Immunology - 4 (Nobel Prizes in Immunology)
- Lecture 5 - Branches of Immunology
- Lecture 6 - An Introduction of Immune system-immunity properties
- Lecture 7 - An Introduction of Immune system-link between innate and adaptive immunity
- Lecture 8 - An Introduction of immune organs
- Lecture 9 - Immune organs - 1
- Lecture 10 - Immune organs - 2
- Lecture 11 - Immune organs - 3
- Lecture 12 - Cells of Immune System - Hematopoiesis
- Lecture 13 - Cells of Immune System - Transgenesis - 1
- Lecture 14 - Cells of Immune System - Transgenesis - 2
- Lecture 15 - Cells of Immune System and its role in Host Defense - PBMC isolation
- Lecture 16 - Cells of Immune System and its role in Host Defense - Neutrophils
- Lecture 17 - Cells of Immune System and its role in Host Defense - Eosinophils, Basophils, Mast cells
- Lecture 18 - Cells of Immune System and its role in Host Defense - Dendritic cells
- Lecture 19 - Cells of Immune System and its role in Host Defense - Macrophages
- Lecture 20 - Cells of Immune System and its role in Host Defense - Natural Killer cells and NK T cells
- Lecture 21 - Cells of Immune System and its role in Host Defense - B and T cells
- Lecture 22 - Basics of Cytokines
- Lecture 23 - Basics of Cytokines-Cytokine function and other Immune Mediators
- Lecture 24 - Inflammation and Signature of Inflammation
- Lecture 25 - Signatures of Inflammation
- Lecture 26 - Application of Interferons in Therapies
- Lecture 27 - Application of Cytokines in Therapies and Research
- Lecture 28 - Introduction of Innate Immunity
- Lecture 29 - Introduction of Innate Immunity - Physical, Bio-chemical and Microbiological Barriers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction of Innate Immunity - skin
- Lecture 31 - Introduction of Innate Immunity - Mucosal Surfaces and Microbiological Barrier
- Lecture 32 - Concept of Pattern - recognition receptors (PRRs)
- Lecture 33 - Pattern-recognition receptors - TLRs and TLR Ligand
- Lecture 34 - Pattern-recognition receptors - TLRs Signaling and MyD88 and TRIF-dependent signalling
- Lecture 35 - Pattern-recognition receptors - TLRs and Diseases
- Lecture 36 - Pattern-recognition receptors - TLRs and Therapeutics
- Lecture 37 - Pattern-recognition receptors - RLR
- Lecture 38 - Pattern-recognition receptors - RLR Signaling pathways
- Lecture 39 - Pattern-recognition receptors - RLR associated-Diseases and therapeutics
- Lecture 40 - Pattern-recognition receptors - NLR and NLR Signaling pathways
- Lecture 41 - Pattern-recognition receptors - NLR and Diseases
- Lecture 42 - Pattern-recognition receptors - Discovery of DNA Sensor
- Lecture 43 - Pattern-recognition receptors - DNA Sensor and Signaling pathway
- Lecture 44 - Pattern-recognition receptors - DNA Sensor and Diseases
- Lecture 45 - Innate Immunity - Complement Introduction
- Lecture 46 - Complement - Classical Pathway
- Lecture 47 - Complement - Alternative and Lectin Pathway
- Lecture 48 - Complement - Regulation and Diseases
- Lecture 49 - Introduction to the adaptive Immunity
- Lecture 50 - Adaptive Immunity - Antigen
- Lecture 51 - Adaptive Immunity - Antigen/Immunogen Properties
- Lecture 52 - Adaptive Immunity - B and T cells Antigenic epitopes
- Lecture 53 - Adaptive Immunity - Antibodies
- Lecture 54 - Adaptive Immunity - Antibody types
- Lecture 55 - Adaptive Immunity - Antibody Diversity
- Lecture 56 - Adaptive Immunity - T cells and T cell-mediated Immune responses
- Lecture 57 - Host-virus interaction
- Lecture 58 - Innate Immunity during virus infection - Type I Interferon-dependent
- Lecture 59 - Innate Immunity during virus infection - Type I Interferon-independent
- Lecture 60 - Innate immune evasion by viruses
- Lecture 61 - Adaptive Immune Responses Against Viruses
- Lecture 62 - Adaptive immune evasion by viruses
- Lecture 63 - Influenza Virus and Disease - 1
- Lecture 64 - Influenza Virus and Disease - 2
- Lecture 65 - Influenza Virus and Disease - 3
- Lecture 66 - Influenza Virus and Disease - 4
- Lecture 67 - Influenza Virus and Disease - 5
- Lecture 68 - Influenza Virus and Disease - 6

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Arbovirus and Aroboviral diseases
- Lecture 70 - Arbovirus and Dengue virus infection
- Lecture 71 - Arbovirus and Zika virus infection
- Lecture 72 - Introduction to Bacterial Infection
- Lecture 73 - Virulence factor during Bacterial Infection
- Lecture 74 - Bacterial Infection - Tuberculosis - 1
- Lecture 75 - Bacterial Infection - Tuberculosis - 2
- Lecture 76 - Bacterial Infection - Tuberculosis - 3
- Lecture 77 - Fungal Infection - 1
- Lecture 78 - Fungal Infection - 2
- Lecture 79 - Introduction to the parasite infection and Malaria
- Lecture 80 - Parasite infection - Trpanosomiasis (African Sleeping Sickness)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Indian Feminisms: Concepts and Issues

Subject Co-ordinator - Prof. Anandita Pan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Feminism ?
- Lecture 2 - Making of Indian Feminism - Part 1
- Lecture 3 - Making of Indian Feminism - Part 2
- Lecture 4 - Women's Activism
- Lecture 5 - Gender and Anti-caste movements
- Lecture 6 - Dalit Women's Activism
- Lecture 7 - Identity, Difference and Intersectionality - Part 1
- Lecture 8 - Identity, Difference and Intersectionality - Part 2
- Lecture 9 - Nation and the Construction of Woman
- Lecture 10 - Social Reformation - Part 1
- Lecture 11 - Social Reformation - Part 2
- Lecture 12 - Nationalism and the 'Women's Question
- Lecture 13 - Nationalism and the New Patriarchy
- Lecture 14 - Concept of Endogamy
- Lecture 15 - Nation through the Lens of Women's Autobiographies
- Lecture 16 - Gender and Violence
- Lecture 17 - Theorising Violence - Dowry
- Lecture 18 - Theorising Violence - Domestic Violence
- Lecture 19 - Theorising Violence - Rape
- Lecture 20 - Theorising Violence - Heteronormativity and Sexuality
- Lecture 21 - Resisting Violence
- Lecture 22 - Gender and Labour
- Lecture 23 - Women's Labour in India - The 20th Century
- Lecture 24 - Gender and Class
- Lecture 25 - Sexual Harassment in Workplace
- Lecture 26 - Gender, Labour, and Agency - Part 1
- Lecture 27 - Gender, Labour, and Agency - Part 2
- Lecture 28 - Through the Lens of Gender - Textual Analysis
- Lecture 29 - Feminist Futures

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:United Nations Sustainable Development Goals

Subject Co-ordinator - Prof. Shiva Ji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, United Nations and a World in Order
- Lecture 2 - Scenario of Current Model of Growth and Development
- Lecture 3 - Need for Change
- Lecture 4 - Definition of Sustainability, Aspects of Sustainability, Transition from MDGs to SDGs - Part 1
- Lecture 5 - Definition of Sustainability, Aspects of Sustainability, Transition from MDGs to SDGs - Part 2
- Lecture 6 - The Role of UN and the Need for SDGs and Adoption by the World
- Lecture 7 - Scope and Inclusion and Agenda 2030
- Lecture 8 - Our Common Future and Philosophy behind SDGs
- Lecture 9 - Distinction between Development and Sustainable Development
- Lecture 10 - Circular economy
- Lecture 11 - Design for sustainability
- Lecture 12 - Thinking Alternatives and Innovation
- Lecture 13 - Causal Mapping, Systemic Mapping and Problem Identification
- Lecture 14 - Identifying probable interventions for SD, Framework and Structuring of Seventeen SDGs
- Lecture 15 - No Poverty - Part 1
- Lecture 16 - No Poverty - Part 2
- Lecture 17 - Zero Hunger - Part 1
- Lecture 18 - Zero Hunger - Part 2
- Lecture 19 - Good Health and Well-being - Part 1
- Lecture 20 - Good Health and Well-being - Part 2
- Lecture 21 - Quality Education - Part 1
- Lecture 22 - Quality Education - Part 2
- Lecture 23 - Gender Equality - Part 1
- Lecture 24 - Gender Equality - Part 2
- Lecture 25 - Clean Water and Sanitation
- Lecture 26 - Affordable and Clean Energy - Part 1
- Lecture 27 - Affordable and Clean Energy - Part 2
- Lecture 28 - Decent Work and Economic Growth - Part 1
- Lecture 29 - Decent Work and Economic Growth - Part 2

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- Lecture 30 - Industry, Innovation and Infrastructure - Part 1
- Lecture 31 - Industry, Innovation and Infrastructure - Part 2
- Lecture 32 - Reduced Inequality
- Lecture 33 - Reduced Inequality
- Lecture 34 - Sustainable Cities and Communities - Part 1
- Lecture 35 - Sustainable Cities and Communities - Part 2
- Lecture 36 - Sustainable Cities and Communities - Part 3
- Lecture 37 - Responsible Consumption and Production - Part 1
- Lecture 38 - Responsible Consumption and Production - Part 2
- Lecture 39 - Climate Action - Part 1
- Lecture 40 - Climate Action - Part 2
- Lecture 41 - Life Below Water - Part 1
- Lecture 42 - Life Below Water - Part 2
- Lecture 43 - Life on Land - Part 1
- Lecture 44 - Life on Land - Part 2
- Lecture 45 - Peace and Justice Strong Institutions
- Lecture 46 - Partnerships to achieve the Goal - Part 1
- Lecture 47 - Partnerships to achieve the Goal - Part 2
- Lecture 48 - Analyzing SDG connections, grouped into People, Ecological, and Spiritual categories - Part 1
- Lecture 49 - Analyzing SDG connections, grouped into People, Ecological, and Spiritual categories - Part 2
- Lecture 50 - Analyzing SDG connections, grouped into People, Ecological, and Spiritual categories - Part 3
- Lecture 51 - Analyzing SDG connections, grouped into People, Ecological, and Spiritual categories - Part 4
- Lecture 52 - SDGs and Socio Ecological Systems: Economy SDGs ; Society SDGs ; Biosphere SDGs
- Lecture 53 - Financing the SDGs and Global Funds, Implementation Planning, Capacity Building and Finance - Pa
- Lecture 54 - Financing the SDGs and Global Funds, Implementation Planning, Capacity Building and Finance - Pa
- Lecture 55 - Financing the SDGs and Global Funds, Implementation Planning, Capacity Building and Finance - Pa
- Lecture 56 - Financing the SDGs and Global Funds, Implementation Planning, Capacity Building and Finance - Pa
- Lecture 57 - Financing the SDGs and Global Funds, Implementation Planning, Capacity Building and Finance - Pa
- Lecture 58 - Key Climate Conferences and Summits: Rio 92, Kyoto 95, Paris 15, COP26 - Part 1
- Lecture 59 - Key Climate Conferences and Summits: Rio 92, Kyoto 95, Paris 15, COP26 - Part 2
- Lecture 60 - Key Climate Conferences and Summits: Rio 92, Kyoto 95, Paris 15, COP26 - Part 3
- Lecture 61 - Key Climate Conferences and Summits: Rio 92, Kyoto 95, Paris 15, COP26 - Part 4
- Lecture 62 - Key Climate Conferences and Summits: Rio 92, Kyoto 95, Paris 15, COP26 - Part 5
- Lecture 63 - Case Studies from around the World, Implementation at International Level, Global Reports - Part
- Lecture 64 - Case Studies from around the World, Implementation at International Level, Global Reports - Part
- Lecture 65 - Case studies from India, Implementation at National Level, National Reports
- Lecture 66 - Nodal Agency for Implementation in India
- Lecture 67 - Indian implementation strategy: State reports, assessment, and effectiveness checks
- Lecture 68 - Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Learning English in Hindi

Subject Co-ordinator - Prof. Rajesh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Sounds and Writing Symbols in English
- Lecture 2 - Speech Sounds in English
- Lecture 3 - Consonants and Consonant Clusters in English
- Lecture 4 - Syllables and Words
- Lecture 5 - Some Features of English Words
- Lecture 6 - Plural Words in English
- Lecture 7 - Parts of speech - 1
- Lecture 8 - Parts of Speech - 2
- Lecture 9 - Parts of Speech - 3
- Lecture 10 - Parts of Speech - 4
- Lecture 11 - Articles
- Lecture 12 - Words and Phrases in English
- Lecture 13 - Sentences in English
- Lecture 14 - Direct and Indirect Objects
- Lecture 15 - Verb-be (is, are, am) in English
- Lecture 16 - Imperative sentences in English (command or request)
- Lecture 17 - Questions in English (Interrogative sentences)
- Lecture 18 - Negative Sentences in English
- Lecture 19 - Agreement in English Sentences
- Lecture 20 - Participles in English
- Lecture 21 - Relative Clauses in English
- Lecture 22 - Functions of Modals
- Lecture 23 - Passives in English
- Lecture 24 - Mood and Modal Verbs
- Lecture 25 - Will/Would
- Lecture 26 - Modals Verbs: Can or Could
- Lecture 27 - Modals Verbs: Could vs Would
- Lecture 28 - Modals Verbs/Auxiliary: Must; Shall and Should
- Lecture 29 - Telephone English

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- Lecture 30 - Illustrating Clauses and Sentences
- Lecture 31 - Describing Clauses and Sentences
- Lecture 32 - Sentence, Clause and Complex Sentences
- Lecture 33 - Adjectival (Relative) Clause
- Lecture 34 - Adverbs
- Lecture 35 - Agreement in English Sentences (Subject and Verb in Sentences)
- Lecture 36 - Question Tags in English Sentences
- Lecture 37 - Questions in English (Interogative sentences)
- Lecture 38 - Learning Softening (Knowing vs Using)
- Lecture 39 - Rhythm and Pitch in English
- Lecture 40 - Punctuation - Pauses - 1
- Lecture 41 - Punctuation - Pauses - 2
- Lecture 42 - Advanced Vocabulary
- Lecture 43 - Innovation in Vocabulary
- Lecture 44 - Metaphors
- Lecture 45 - Phrases and Idioms You Must Know
- Lecture 46 - Make your expressions impressive
- Lecture 47 - Fundamentals of Learning English for Accuracy, Fluency and Communicative Confidence



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Social History of Medicine in Colonial India

Subject Co-ordinator - Prof. John Bosco Lourdasamy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Significance of Medicine in the Colonial Context

Lecture 2 - Medicine as Cultural and Intellectual Encounter

Lecture 3 - Tutorial 1

Lecture 4 - Colonial Understandings of Indian Landscape, Diseases and Causations; Initial Concerns About Surveys

Lecture 5 - Initial Attitudes Towards Indigenous Systems

Lecture 6 - The IMS (Indian Medical Service)

Lecture 7 - Tutorial 2

Lecture 8 - British Settling; Enclavism

Lecture 9 - Consolidation of Medical Measures

Lecture 10 - Medical Education

Lecture 11 - Public Health and Sanitary Measures

Lecture 12 - Sanitary Education; Statistics; Epidemics

Lecture 13 - Tutorial 3

Lecture 14 - Small Pox

Lecture 15 - Malaria

Lecture 16 - Cholera and Plague

Lecture 17 - Epidemics, Colonial Cultural Stereotypes and Accommodative Approaches

Lecture 18 - Epidemics, Cultural Dimensions of Indian Responses and Role of Media

Lecture 19 - Epidemics and International Influences

Lecture 20 - Tutorial 4

Lecture 21 - Tutorial 4 - Part 2

Lecture 22 - Tropical Medicine

Lecture 23 - Kala Azar as Exemplar of Tropical Disease

Lecture 24 - Tropical and Bacteriological Research

Lecture 25 - Malarial Research and Surveys, Vaccine Research and Production

Lecture 26 - Tutorial 5 - Part 1

Lecture 27 - Tutorial 5 - Part 2

Lecture 28 - Women Health: Zenana Mission; Dufferin Fund

Lecture 29 - Association of Medical Women in India; Lock Hospitals; Regulation of Dais

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Nursing
- Lecture 31 - Women's Medical Education; Women's Medical Service
- Lecture 32 - Tutorial 6
- Lecture 33 - Colonial State and Medical Volunteerism
- Lecture 34 - Role of Missionaries - Part 1
- Lecture 35 - Role of Missionaries - Part 2
- Lecture 36 - Reforms Movements and Indigenous Voluntary Organisations
- Lecture 37 - Role of International Organisations and Individuals
- Lecture 38 - Tutorial 7
- Lecture 39 - Western versus Indigenous Systems
- Lecture 40 - Indigenous Response to the Domination of Western Medicine
- Lecture 41 - Professionalisation of Indigenous Systems
- Lecture 42 - Standardisation and Marketing
- Lecture 43 - Tutorial 8 - Part 1
- Lecture 44 - Tutorial 8 - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Indian Society: Sociological Perspectives

Subject Co-ordinator - Dr. R. Santhosh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Sociology: An Overview

Lecture 2 - Anthropology: An Introduction

Lecture 3 - Theoretical Traditions in Sociology and Anthropology

Lecture 4 - Colonialism and Anthropology

Lecture 5 - Orientalism and the Politics of Knowledge Production - I

Lecture 6 - Orientalism and the Politics of Knowledge Production - II

Lecture 7 - Orientalism and the Politics of Knowledge Production - III

Lecture 8 - Orientalism and the Politics of Knowledge Production - IV

Lecture 9 - Orientalism and Its Critics

Lecture 10 - Ronald Inden: Orientalist Constructions of India - I

Lecture 11 - Ronald Inden: Orientalist Constructions of India - II

Lecture 12 - Development of Sociology and Anthropology in India

Lecture 13 - Sociological Traditions in India - I

Lecture 14 - Sociological Traditions in India - II

Lecture 15 - Indological Approach

Lecture 16 - G. S. Ghurye: Introduction

Lecture 17 - G. S. Ghurye: Features of Caste

Lecture 18 - Irawati Karve: Introduction

Lecture 19 - Radhakamal Mukerjee

Lecture 20 - D. N. Majumdar

Lecture 21 - Marxian Perspective: Historical Materialism

Lecture 22 - Marxian Theory of Social Change

Lecture 23 - Gail Omvedt: Towards a Historical Materialist Analysis of the Origin and Development of Caste -

Lecture 24 - Gail Omvedt: Towards a Historical Materialist Analysis of the Origin and Development of Caste -

Lecture 25 - Marxist Sociology of A. R. Desai

Lecture 26 - An Introduction to Structural Functionalism

Lecture 27 - Sociology of M. N. Srinivas

Lecture 28 - Sociology of M. N. Srinivas: Basic Concepts

Lecture 29 - Sociology of M. N. Srinivas: Varna and Jati

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Andre Beteille: A Social Stratification Perspective to Indian Society
- Lecture 31 - Introduction to Structuralism
- Lecture 32 - Sociology of Louis Dumont: Homo Hierarchicus - I
- Lecture 33 - Sociology of Louis Dumont: Homo Hierarchicus - II
- Lecture 34 - Sociology of Louis Dumont: Homo Hierarchicus - III
- Lecture 35 - Criticisms of Louis Dumont
- Lecture 36 - Introducing Subaltern Studies - I
- Lecture 37 - Introducing Subaltern Studies - II
- Lecture 38 - Subaltern Studies as Postcolonial Criticism
- Lecture 39 - Critique of Subaltern Studies - I
- Lecture 40 - Critique of Subaltern Studies - II
- Lecture 41 - Feminist Perspectives and Gender Studies in India - I
- Lecture 42 - Feminist Perspectives and Gender Studies in India - II
- Lecture 43 - Feminist Research: Redefining Methodology in the Social Sciences
- Lecture 44 - Feminist Challenges to Sociology in India
- Lecture 45 - Mapping and Marking Feminist Sociologies in India
- Lecture 46 - Dalit Sociology and Indian Sociology: On Ambedkar's sociology of Caste
- Lecture 47 - Introduction to Sociology of Dalits - I
- Lecture 48 - Introduction to Sociology of Dalits - II
- Lecture 49 - Dalit Women Talk Differently: Debate Between Gopal Guru and Sharmila Rege - I
- Lecture 50 - Dalit Women Talk Differently: Debate Between Gopal Guru and Sharmila Rege - II
- Lecture 51 - The Cracked Mirror: Introduction
- Lecture 52 - The Cracked Mirror: How Egalitarian are the Social Sciences in India? - I
- Lecture 53 - The Cracked Mirror: How Egalitarian are the Social Sciences in India? - II
- Lecture 54 - The Cracked Mirror: Experience and Theory From Habermas to Guru - I
- Lecture 55 - The Cracked Mirror: Experience and Theory From Habermas to Guru - II
- Lecture 56 - Decolonialism in Sociology - I
- Lecture 57 - Decolonialism in Sociology - II
- Lecture 58 - Globalization and Sociology: Risk Society of Ulrich Beck
- Lecture 59 - Globalization and Sociology: The Network Society of Manuel Castells
- Lecture 60 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Human Movement Science

Subject Co-ordinator - Prof. Shruti Bhandurje, Prof. Subham Badhyal

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction
- Lecture 2 - Learning outcomes and module design
- Lecture 3 - Professional skillset development
- Lecture 4 - Skeletal system
- Lecture 5 - Muscular system
- Lecture 6 - Neuromuscular System
- Lecture 7 - Motor control and learning
- Lecture 8 - Anatomical planes and axes of motion
- Lecture 9 - Major joints and their actions - Part 1
- Lecture 10 - Major joints and their actions - Part 2
- Lecture 11 - Muscles and movement
- Lecture 12 - Posture - static and dynamic
- Lecture 13 - Implications of functional anatomy in HMS
- Lecture 14 - Introduction to the concepts of biomechanics
- Lecture 15 - Review of Basic - Mathematical Concepts
- Lecture 16 - Linear Kinematics
- Lecture 17 - Angular Kinematics
- Lecture 18 - Linear Kinetics
- Lecture 19 - Angular Kinetics - Part 1
- Lecture 20 - Angular Kinetics - Part 2
- Lecture 21 - Angular Kinetics - Part 3
- Lecture 22 - Angular Kinetics - Part 4
- Lecture 23 - Qualitative analysis - Intro, Data Collection
- Lecture 24 - Qualitative analysis - Analysis and Injury
- Lecture 25 - Quantitative analysis
- Lecture 26 - Coaching implications in HMS
- Lecture 27 - Fundamental movement skills - Part 1
- Lecture 28 - Fundamental movement skills - Part 2
- Lecture 29 - Fundamental movement skills - Part 3

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- Lecture 30 - Gait Analysis
- Lecture 31 - Exercises - Part 1
- Lecture 32 - Exercises - Part 2
- Lecture 33 - Exercises - Part 3
- Lecture 34 - Injury Patterns - Part 1
- Lecture 35 - Injury Patterns - Part 2
- Lecture 36 - Sports - Part 1
- Lecture 37 - Sports - Part 2
- Lecture 38 - Biomechanical characteristics of various sports - Part 1
- Lecture 39 - Biomechanical characteristics of various sports - Part 2
- Lecture 40 - Data Science
- Lecture 41 - AI and ML
- Lecture 42 - Technological advancements and Research in HMS - Part 1
- Lecture 43 - Technological advancements and Research in HMS - Part 2
- Lecture 44 - Career Opportunities

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Sports and Performance Nutrition

Subject Co-ordinator - Prof. Geetha Ghaliyavar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to sports and performance nutrition
- Lecture 2 - Introduction to energy availability
- Lecture 3 - Fundamentals of carbohydrates
- Lecture 4 - Carbohydrate manipulation for sports performance
- Lecture 5 - Myths around carbohydrates
- Lecture 6 - Dr Sola Athletes with celiac disease and gluten sensitivity
- Lecture 7 - Importance of proteins in performance
- Lecture 8 - Introduction to protein and protein supplements
- Lecture 9 - Introduction to fats and its importance in performance
- Lecture 10 - Hydration and electrolytes
- Lecture 11 - Practical implications of hydration
- Lecture 12 - Mineral - Iron
- Lecture 13 - Minerals - Calcium, Magnesium Zinc and Selenium
- Lecture 14 - Antioxidants
- Lecture 15 - Water soluble vitamins
- Lecture 16 - Fat soluble vitamins
- Lecture 17 - Energy systems and biochemical pathways
- Lecture 18 - Anabolic window period for nutrient intake
- Lecture 19 - Introduction to nutrient periodization
- Lecture 20 - Applied aspects of nutrient periodization
- Lecture 21 - Competition nutrition
- Lecture 22 - Carbohydrate loading for sports performance
- Lecture 23 - Weight making and weight cycling
- Lecture 24 - Travel guidelines for athletes
- Lecture 25 - Supplements and ergogenic aids
- Lecture 26 - Three R principal
- Lecture 27 - Lifestyle practices to enhance recovery
- Lecture 28 - Sleep hygiene
- Lecture 29 - Immunity and gut health

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sports injury and dietary interventions
- Lecture 31 - Vegetarian and vegan athletes
- Lecture 32 - Diabetic athletes
- Lecture 33 - Female athletes
- Lecture 34 - Young and adolescent athletes
- Lecture 35 - Food intolerances in athletes
- Lecture 36 - Sports nutrition in Indian context
- Lecture 37 - Nutrigenomics
- Lecture 38 - Personal hygiene and sanitation
- Lecture 39 - Connections of sports nutrition
- Lecture 40 - Food psychology



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Sports Psychology

Subject Co-ordinator - Prof. Chaitanya Sridhar, Prof. Nivedita Rajan, Prof. Priyanka Prabhakar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Becoming a Sport Psychologist: Lessons from the field An introduction to field of Sports Psychology
- Lecture 2 - Becoming a Sport Psychologist: Lessons from the field Mental health issues in athletes
- Lecture 3 - Lessons from the field Learning Sport Science - An integrated approach to learning Sport Psychology
- Lecture 4 - Becoming a Sport Psychologist: Lessons from the field Challenges faced by sport psychologists
- Lecture 5 - Becoming a Sport Psychologist: Lessons from the field Sport psychology - Working with coaches
- Lecture 6 - Introduction to flow
- Lecture 7 - Flow in sport and competition
- Lecture 8 - Practical approach to flow state: Discussion
- Lecture 9 - Developing a Champion mindset: Tools to aid competitive mindset
- Lecture 10 - Discussion on Champion and Competitive Mindset
- Lecture 11 - Psychological Skills training and Goal setting
- Lecture 12 - Goal setting - Part 1
- Lecture 13 - Goal setting - Part 2
- Lecture 14 - Developing Goal setting systems
- Lecture 15 - Discussion on Mental training and Goal setting
- Lecture 16 - Imagery in sport - Introduction
- Lecture 17 - Models of Imagery and usefulness of Imagery
- Lecture 18 - Psychological factors important for PST
- Lecture 19 - Imagery in Team - A practical demonstration
- Lecture 20 - Discussion on Goal setting and Imagery in sports
- Lecture 21 - Communication in sports
- Lecture 22 - Intracommunication with self: instinct and animal lessons, body language and tactile communication
- Lecture 23 - Discussion on communication and performance
- Lecture 24 - Resilience in Sports Teams and Organizations
- Lecture 25 - Resilience and Mindfulness in sports
- Lecture 26 - Psychological factors in sport
- Lecture 27 - Strategies to work with young athletes
- Lecture 28 - Working with young children
- Lecture 29 - Burnout in sports

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- Lecture 30 - Burnout in coaches, Discussion with coach
- Lecture 31 - Building teams and team culture
- Lecture 32 - Discussion on building high performance teams
- Lecture 33 - Channeling emotions in sports
- Lecture 34 - Discussion on transformational leadership
- Lecture 35 - Stress management in sports
- Lecture 36 - Psychology of Injury - Introduction
- Lecture 37 - Psychological Strategies for Injury
- Lecture 38 - Integrated approach to injury - A discussion
- Lecture 39 - Career transition in sports - Sports retirement and coping
- Lecture 40 - Discussion on Sports career transition
- Lecture 41 - Conclusion Video

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Strength and Conditioning for the Indian Population

Subject Co-ordinator - Prof. Varun Suresh Kumar, Prof. Deckline Leitao

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Sports Performance
- Lecture 2 - Major Components of Fitness
- Lecture 3 - Difference between Fitness and Sport
- Lecture 4 - Defining S&C and Sports S&C
- Lecture 5 - Defining S&C and Physios Roles and Responsibilities
- Lecture 6 - Player Interview - Lakshya Sen
- Lecture 7 - Player Interview - Avani Prashanth
- Lecture 8 - Principle of Individuality
- Lecture 9 - Principle of Progressive Overload
- Lecture 10 - Principle of Specificity
- Lecture 11 - Principle of -Indianization-
- Lecture 12 - Principle of Reversibility
- Lecture 13 - Sports Specific Training
- Lecture 14 - Safety in the Gym
- Lecture 15 - Exercise and the Female Athlete
- Lecture 16 - Working with Female Athletes - Do's and Dont's
- Lecture 17 - Training Youth Athletes - Part 1
- Lecture 18 - Training Youth Athletes - Part 2
- Lecture 19 - Training Masters Athletes
- Lecture 20 - Training Para Athletes
- Lecture 21 - Bodybuilding
- Lecture 22 - Powerlifting
- Lecture 23 - Weightlifting
- Lecture 24 - Effective over Impressive Excercises
- Lecture 25 - Anabolic Steriods, Muscle Building, and Sports Performance
- Lecture 26 - Free Weight Training
- Lecture 27 - Warm Up and Cool Down
- Lecture 28 - Free Weights Training (Demonstration) - Part 1
- Lecture 29 - Free Weights Training (Demonstration) - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Free Weights Training (Demonstration) - Part 3
- Lecture 31 - Free Weights Training (Demonstration) - Part 4
- Lecture 32 - Warm up Demonstration
- Lecture 33 - Cool Down Demonstration
- Lecture 34 - Weight Training Using Machines
- Lecture 35 - Training with Machines (Demonstration) - Part 1
- Lecture 36 - Training with Machines (Demonstration) - Part 2
- Lecture 37 - Training with Machines (Demonstration) - Part 3
- Lecture 38 - Training with Machines (Demonstration) - Part 4
- Lecture 39 - Training with Machines (Demonstration) - Part 5
- Lecture 40 - Bodyweight and Functional Training
- Lecture 41 - Bodyweight and Functional Training Demonstration
- Lecture 42 - Plyometrics Training
- Lecture 43 - Plyometrics Demonstration
- Lecture 44 - Cardiovascular Training
- Lecture 45 - Cardiovascular Training Demonstration - Part 1
- Lecture 46 - Cardiovascular Training Demonstration - Part 2
- Lecture 47 - Cardiovascular Training Demonstration - Part 3
- Lecture 48 - Stability and Endurance Training
- Lecture 49 - Stability and Endurance Training Demonstration - Part 1
- Lecture 50 - Stability and Endurance Training Demonstration - Part 2
- Lecture 51 - Flexibility training and types of stretches - Part 1
- Lecture 52 - Flexibility training and types of stretches - Part 2
- Lecture 53 - Periodization of Indian Athlete
- Lecture 54 - Sports Specific Program Design
- Lecture 55 - Assessments- How, When, Why
- Lecture 56 - Opportunities and Challenges of an S&C
- Lecture 57 - Training Celebrities/Elite Athletes
- Lecture 58 - Role of Social Media in Sport
- Lecture 59 - Scope of Technology in Sport

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Essentials of Sports Injury Prevention and Rehabilitation

Subject Co-ordinator - Prof. Col (Dr) Anup Krishnan (Retd), Prof. Wg Cdr (Dr) CS Guru, Prof. Lt Col (Dr) Atul

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Sports Injuries and Prevention

Lecture 2 - Rehabilitation and Reconditioning

Lecture 3 - Joints of the Upper Limb

Lecture 4 - Joints of the Lower Limb

Lecture 5 - The Back In Sports

Lecture 6 - Pre Medical Examination

Lecture 7 - Lab Investigations

Lecture 8 - Flexibility

Lecture 9 - Conditioning

Lecture 10 - Anatomy of Upper Limb

Lecture 11 - Anatomy of Lower Limb

Lecture 12 - Common Injuries Of Lower Limb

Lecture 13 - Common Causes of Upper Limb and Lower Limb

Lecture 14 - Treatments for Various Injuries

Lecture 15 - Head, Face and Neck Injuries

Lecture 16 - Spine Injuries

Lecture 17 - Concussion in Sports

Lecture 18 - Management of Sports Concussion

Lecture 19 - Emergency Action Plan

Lecture 20 - Risk Factors in Injury

Lecture 21 - Prehabilitation and Rehabilitation

Lecture 22 - Periodisation of Rehabilitation - I

Lecture 23 - Periodisation of Rehabilitation - II

Lecture 24 - Team Roles in Sports Injuries

Lecture 25 - Sport-Specific Rehabilitation, Principles and Techniques - I

Lecture 26 - Sport-Specific Rehabilitation, Principles and Techniques - II

Lecture 27 - Sport-Specific Rehabilitation, Principles and Techniques - III

Lecture 28 - Rehabilitation

Lecture 29 - Management of common sports injuries

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Injury prevention in adolescent athletes and Women athletes - Part 1
- Lecture 31 - Injury prevention in adolescent athletes and Women athletes - Part 2
- Lecture 32 - Injury prevention in adolescent athletes and Women athletes - Part 3
- Lecture 33 - Injury prevention in adolescent athletes and Women athletes - Part 4
- Lecture 34 - Injury prevention in adolescent athletes and Women athletes - Part 5
- Lecture 35 - Psychological aspects of injury and Rehabilitation - Part 1
- Lecture 36 - Psychological aspects of injury and Rehabilitation - Part 2
- Lecture 37 - Return to sports and long term injury prevention - Part 1
- Lecture 38 - Return to sports and long term injury prevention - Part 2
- Lecture 39 - Return to sports and long term injury prevention - Part 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Exercise Physiology and Sports Performance

Subject Co-ordinator - Prof. Col (Dr) Anup Krishnan (Retd), Prof. Wg Cdr (Dr) CS Guru, Prof. Lt Col (Dr) Atul

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Focus of Exercise and Sports Physiology
- Lecture 2 - Evolution of Exercise Physiology
- Lecture 3 - Acute and Chronic response to Exercise
- Lecture 4 - Functional Anatomy of Skeletal muscle
- Lecture 5 - Skeletal muscle and Exercise
- Lecture 6 - Bioenergetics - Part 1
- Lecture 7 - Bioenergetics - Part 2
- Lecture 8 - Cardiovascular System and Exercise - Part 1
- Lecture 9 - Cardiovascular System and Exercise - Part 2
- Lecture 10 - Cardiovascular System and Exercise - Part 3
- Lecture 11 - Respiratory System and Exercise - Part 1
- Lecture 12 - Respiratory System and Exercise - Part 2
- Lecture 13 - Respiratory System and Exercise - Part 3
- Lecture 14 - Neurophysiology and Exercise - Part 1
- Lecture 15 - Neurophysiology and Exercise - Part 2
- Lecture 16 - Endocrine responses to Exercise - Part 1
- Lecture 17 - Endocrine responses to Exercise - Part 2
- Lecture 18 - Endocrine responses to Exercise - Part 3
- Lecture 19 - Exercise in Children and Adolescents - Part 1
- Lecture 20 - Exercise in Children and Adolescents - Part 2
- Lecture 21 - Exercise Prescription and Training principles - Part 1
- Lecture 22 - Exercise Prescription and Training principles - Part 2
- Lecture 23 - Adaptations to aerobic and anaerobic training - Part 1
- Lecture 24 - Adaptations to aerobic and anaerobic training - Part 2
- Lecture 25 - Adaptations to aerobic and anaerobic training - Part 3
- Lecture 26 - Body temperature regulation
- Lecture 27 - Physiological response to Exercise in Heat and Cold
- Lecture 28 - Acclimation to Heat and Cold
- Lecture 29 - Health Risks during Exercise in Heat and Cold

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Exercise and Sports performance at Altitude
- Lecture 31 - Hydration and Fluid Balance - Part 1
- Lecture 32 - Hydration and Fluid Balance - Part 2
- Lecture 33 - Body composition and its Implications - Part 1
- Lecture 34 - Body composition and its Implications - Part 2
- Lecture 35 - Body composition and its Implications - Part 3
- Lecture 36 - Role of performance testing
- Lecture 37 - Performance testing in aerobic sports
- Lecture 38 - Performance testing in anaerobic sports
- Lecture 39 - Role of exercise in disease prevention
- Lecture 40 - Role of exercise in Disease management



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Fundamentals of Sports Training, Load Management and

Subject Co-ordinator - Prof. Col (Dr) Anup Krishnan (Retd), Prof. Wg Cdr (Dr) CS Guru, Prof. Kaustubh Shedjal

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Fitness Vocabulary

Lecture 2 - Types of Fitness

Lecture 3 - Health Specific Fitness Acute Training variables - Part 1

Lecture 4 - Health Specific Fitness Acute Training variables - Part 2

Lecture 5 - Application of Acute Training variables

Lecture 6 - Principle of Training - 1

Lecture 7 - Principle of Training - 2

Lecture 8 - Principle of Training - 3

Lecture 9 - Periodization in sports - 1

Lecture 10 - Periodization in sports - 2

Lecture 11 - Concept of Load Training - 1

Lecture 12 - Concept of Load Training - 2

Lecture 13 - Concept of Load Training - 3

Lecture 14 - Load monitoring in Sports - 1

Lecture 15 - Load monitoring in Sports - 2

Lecture 16 - Aerobic Training Methods - 1

Lecture 17 - Aerobic Training Methods - 2

Lecture 18 - Aerobic Training Methods - 3

Lecture 19 - Anerobic Training Method - 1

Lecture 20 - Anerobic Training Method - 2

Lecture 21 - Load Monitoring Methods in HSF - 1

Lecture 22 - Load Monitoring Methods in HSF - 2

Lecture 23 - Load Monitoring Methods in SSF - 1

Lecture 24 - Load Monitoring Methods in SSF - 2

Lecture 25 - Load Monitoring Methods in SSF - 3

Lecture 26 - Fatigue in Sports Training

Lecture 27 - Overtraining and Overreaching

Lecture 28 - Diagnosis and management of OTS

Lecture 29 - Recovery in sports

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Recovery Technique
- Lecture 31 - Training Program Design - 1
- Lecture 32 - Training Program Design - 2
- Lecture 33 - Training Program Design - 3
- Lecture 34 - Training Program Design - 4
- Lecture 35 - Training Program Design - 5
- Lecture 36 - Technoloy in Performance Analysis
- Lecture 37 - Technoloy in Performance Enchanmnet
- Lecture 38 - Waerables in Sports
- Lecture 39 - Future of technology in sports
- Lecture 40 - Sports Training Technology and Innovation

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Forensic Linguistics

Subject Co-ordinator - Prof. Deepak Mashru

Co-ordinating Institute - National Forensic Sciences Universtiy

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Week 1
- Lecture 2 - Evolution and concept of Linguistics
- Lecture 3 - Defining Linguistics and its branches
- Lecture 4 - The role of linguistics in understanding human communication
- Lecture 5 - Application of linguistic theories in various fields
- Lecture 6 - The Crucial Role of Linguistic Analysis in Legal Settings
- Lecture 7 - Impact of Forensic Linguistics and Case Studie
- Lecture 8 - Current Trends and Emerging Areas in Forensic Linguistics
- Lecture 9 - Introduction to Week 2 - The Confluence of Language and Law
- Lecture 10 - Exploring the Interplay Between Language and Law
- Lecture 11 - Analysis of Courtroom Discourse
- Lecture 12 - Impact of Linguistic Diversity on Legal Processes
- Lecture 13 - Interdisciplinary Nature of Forensic Linguistics
- Lecture 14 - Ethical Considerations in Forensic Linguistic Analysis
- Lecture 15 - Impact on Understanding Legal and Cultural Contexts
- Lecture 16 - Analysing Language as Vital Evidence in Legal Contexts
- Lecture 17 - Challenges in Presenting Linguistic Evidence in Court
- Lecture 18 - Introduction to Week 3
- Lecture 19 - Illuminating Authorship Analysis and Its Nuances
- Lecture 20 - Navigating Through Forensic Phonetics
- Lecture 21 - Discourse Analysis: A Journey through Linguistic Structures
- Lecture 22 - Exploring the Depths of Threat and Deception Analysis
- Lecture 23 - Unveiling the Secrets of Language Profiling
- Lecture 24 - Introduction to Week 4
- Lecture 25 - Investigating Real-World Case Studies in Forensic Linguistics
- Lecture 26 - Tackling the Challenges and Obstacles Within Forensic Linguistics
- Lecture 27 - Upholding Ethics and Professionalism in Forensic Linguistics
- Lecture 28 - Envisioning the Future: Prospective Pathways in Forensic Linguistics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Time value of money-Concepts and Calculations

Subject Co-ordinator - Dr.Bikash Mohanty

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Interest Rate

Lecture 3 - Simple interest

Lecture 4 - Compounding techniques - I & II

Lecture 5 - Discrete annually compounding - I & II

Lecture 6 - Continuous compounding

Lecture 7 - Comparison of all compounding methods

Lecture 8 - Present value

Lecture 9 - Future Value

Lecture 10 - Annuities - I & II

Lecture 11 - Perpetuity

Lecture 12 - Amortization

Lecture 13 - Multiple cash flow - I & II

Lecture 14 - Valuation of bond - I & II

Lecture 15 - Valuation of ordinary shares

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Depreciation, Alternate Investment and Profitability

Subject Co-ordinator - Prof. Bikash Mohanty

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to course
- Lecture 2 - Introduction to depreciation and Straight line method
- Lecture 3 - Declining balance method
- Lecture 4 - Double-declining balance method
- Lecture 5 - Sum-of-the-digits method
- Lecture 6 - Sinking fund method and Repair provision method
- Lecture 7 - Accelerated cost recovery method - I
- Lecture 8 - Accelerated cost recovery method - II
- Lecture 9 - Introduction to alternate investment
- Lecture 10 - Introduction to alternate investment
- Lecture 11 - Present worth method
- Lecture 12 - Rate of return method
- Lecture 13 - Incremental rate of return
- Lecture 14 - Perpetuity method
- Lecture 15 - Minimum return as cost
- Lecture 16 - Introduction to profitability analysis and Payback period
- Lecture 17 - Return on investment
- Lecture 18 - Net Return
- Lecture 19 - Discounted cash flow - I
- Lecture 20 - Discounted cash flow - II

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Soft Skills

Subject Co-ordinator - Prof. Binod Mishra

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Soft Skills
- Lecture 2 - Aspects of Soft Skills
- Lecture 3 - Effective Communication Skills
- Lecture 4 - Classification of Communication
- Lecture 5 - Personality Development
- Lecture 6 - Positive Thinking
- Lecture 7 - Telephonic Communication Skills - Part I
- Lecture 8 - Telephonic Communication Skills - Part II
- Lecture 9 - Communicating Without Words
- Lecture 10 - Paralanguage
- Lecture 11 - Proxemics
- Lecture 12 - Haptics
- Lecture 13 - Meta-communication
- Lecture 14 - Listening Skills
- Lecture 15 - Types of Listening
- Lecture 16 - Negotiation Skills - I
- Lecture 17 - Negotiation Skills - II
- Lecture 18 - Culture as Communication
- Lecture 19 - Communicating across Cultures
- Lecture 20 - Organizational Communication
- Lecture 21 - Communication Breakdown - Part I
- Lecture 22 - Communication Breakdown - Part II
- Lecture 23 - Advanced Writing Skills
- Lecture 24 - Principles of Business Writing
- Lecture 25 - Types of Business Writing - Part I
- Lecture 26 - Types of Business Writing - Part II
- Lecture 27 - Business Letters
- Lecture 28 - Business Letters
- Lecture 29 - Types of Business Letters - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Types of Business Letters - Part II
- Lecture 31 - Report Writing
- Lecture 32 - Types of Reports
- Lecture 33 - Strategies for Report Writing - Part I
- Lecture 34 - Strategies for Report Writing - Part II
- Lecture 35 - Evaluation and Organization of Data
- Lecture 36 - Structure of Reports - Part I
- Lecture 37 - Structure of Reports - Part II
- Lecture 38 - Report Style - Part I
- Lecture 39 - Report Style - Part II
- Lecture 40 - Group Communication
- Lecture 41 - Leadership Skills
- Lecture 42 - Group Discussion - Part I
- Lecture 43 - Group Discussion - Part II
- Lecture 44 - Meeting Management
- Lecture 45 - Adaptability and Work Ethics
- Lecture 46 - Advanced Speaking Skills
- Lecture 47 - Oral Presentations, Speeches, and Debates
- Lecture 48 - Combating Nervousness
- Lecture 49 - Patterns and Methods of Presentation
- Lecture 50 - Oral Presentation
- Lecture 51 - Making Effective Presentations
- Lecture 52 - Speeches for Various Occasions
- Lecture 53 - Interviews
- Lecture 54 - Planning and Preparation - Part I
- Lecture 55 - Planning and Preparation - Part II
- Lecture 56 - Drafting an Effective Resum 
- Lecture 57 - Facing Job Interviews - Part I
- Lecture 58 - Facing Job Interviews - Part II
- Lecture 59 - Emotional Intelligence and Critical Thinking
- Lecture 60 - Applied Grammar

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Sociology of Science

Subject Co-ordinator - Dr. Aninday Jayant Mishra

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Sociology
- Lecture 2 - Sociology
- Lecture 3 - History of Science
- Lecture 4 - HSS in Technology Institutes
- Lecture 5 - HSS in Technology Institutes
- Lecture 6 - Ethos of Science - I
- Lecture 7 - Ethos of Science - II
- Lecture 8 - Science and Economy of 17th Century England
- Lecture 9 - Matthew Effect - Part 1
- Lecture 10 - Matthew Effect - Part 2
- Lecture 11 - Matthew Effect - Part 3
- Lecture 12 - Thomas Kuhn - Part 1
- Lecture 13 - Thomas Kuhn - Part 2
- Lecture 14 - Karl Popper - Part 1
- Lecture 15 - Karl Popper - Part 2
- Lecture 16 - Scientist as Indexical Reasoner - Part 1
- Lecture 17 - Scientist as Indexical Reasoner - Part 2
- Lecture 18 - Science technology and Colonial Power - Part 1
- Lecture 19 - Science Technology and Colonial Power - Part 2
- Lecture 20 - Large Community but Few Peers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC: Perspectives on Neurolinguistic

Subject Co-ordinator - Prof. Smita Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Scope of Neurolinguistic Programming
- Lecture 3 - NLP Communicating Model
- Lecture 4 - NLP Filters
- Lecture 5 - Causes and Effect
- Lecture 6 - Four Pillars of NLP
- Lecture 7 - Sensory Acuity
- Lecture 8 - Rapport
- Lecture 9 - Flexibility
- Lecture 10 - Useful NLP Techniques
- Lecture 11 - Presuppositions of NLP
- Lecture 12 - Four Stages of Competence
- Lecture 13 - Metacognition
- Lecture 14 - Outcome and Ecology
- Lecture 15 - Introducing Frames
- Lecture 16 - Negotiation
- Lecture 17 - Persuasion
- Lecture 18 - Emotionality
- Lecture 19 - Stage Fear - I
- Lecture 20 - Stage Fear - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Literature, Culture and Media

Subject Co-ordinator - Prof. Rashmi Gaur

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction Aims and Objectives
- Lecture 2 - Defining Literature
- Lecture 3 - Defining Culture
- Lecture 4 - Relationship between Literature and Culture
- Lecture 5 - Literature, Culture and Media
- Lecture 6 - Introduction to Cultural Studies
- Lecture 7 - Cultural Studies I
- Lecture 8 - Cultural Studies II
- Lecture 9 - High Culture and Popular Culture
- Lecture 10 - Subculture and Counterculture
- Lecture 11 - Modernism and Postmodernism - I
- Lecture 12 - Modernism and Postmodernism - II
- Lecture 13 - Lyotard's The Postmodern Condition
- Lecture 14 - Foucault's -â çs Notion of Knowledge and Power
- Lecture 15 - Poststructuralism and Deconstruction
- Lecture 16 - Introduction to Feminism - I
- Lecture 17 - Introduction to Feminism - II
- Lecture 18 - Theories of Gender
- Lecture 19 - Men's and Masculinity Studies
- Lecture 20 - Queer Studies and Representations of Gender in Media
- Lecture 21 - Intersectionality
- Lecture 22 - Introduction to Postcolonial Theory
- Lecture 23 - Key Concepts in Postcolonial theory
- Lecture 24 - Said, Spivak and Bhabha
- Lecture 25 - Postcolonial Reading of Achebe and Amitav Ghosh
- Lecture 26 - Theories of Ideology
- Lecture 27 - Adorno and Horkheimer on Culture
- Lecture 28 - 1. Culture Industry and Mass Deception; 2. Walter Benjamin
- Lecture 29 - Interconnections between Literature, Culture and Identity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interconnections between Literature, Culture and Identity
- Lecture 31 - The Evolution of Media
- Lecture 32 - Media and Culture - I
- Lecture 33 - Media and Culture - II
- Lecture 34 - Media, Culture and Technology
- Lecture 35 - Harold Innis
- Lecture 36 - Introduction to Marshall McLuhan
- Lecture 37 - Media and the Electric Age
- Lecture 38 - Hot and Cool Media
- Lecture 39 - Postmodern Media - I
- Lecture 40 - Postmodern Media - II and Formation of Public Opinion
- Lecture 41 - Word and the Image
- Lecture 42 - Film and Literature - I
- Lecture 43 - Film and Literature - II
- Lecture 44 - Language of Films
- Lecture 45 - Reading of 12 Years a Slave
- Lecture 46 - Development of Media
- Lecture 47 - Development of Media
- Lecture 48 - Film, Television and Literature
- Lecture 49 - Impact of Technology on Literary Genres
- Lecture 50 - Media in the 21st Century
- Lecture 51 - Approaches to Digital Forms of Media
- Lecture 52 - Literature, Internet and Culture
- Lecture 53 - Digital Culture, Media, and Literature
- Lecture 54 - Representation of Partition in Different Media
- Lecture 55 - Representation of Partition in Different Media
- Lecture 56 - Game Studies - I
- Lecture 57 - Game Studies - II
- Lecture 58 - Body Culture Studies and Representation of Women in the Media
- Lecture 59 - Media and Gender
- Lecture 60 - Media and Language, Glass Ceiling in Media

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Body Language: Key to Professional Success

Subject Co-ordinator - Prof. Rashmi Gaur

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Defining Body Language, Scope and Relevance

Lecture 2 - Defining Proxemics, Four Zones

Lecture 3 - Proxemics

Lecture 4 - Oculistics - I

Lecture 5 - Oculistics - II

Lecture 6 - Haptics - I

Lecture 7 - Haptics - II

Lecture 8 - Kinesics

Lecture 9 - Facial Expressions

Lecture 10 - Macro and Micro Facial Expressions

Lecture 11 - Mouth and Smiles

Lecture 12 - Cultural Differences in Smiles; Head Nods

Lecture 13 - Hand Movements

Lecture 14 - Understanding Finger Movements

Lecture 15 - Movements of Feet and Legs

Lecture 16 - Paralanguage

Lecture 17 - Chronemics

Lecture 18 - Chromatics, Olfactics and Physical Appearance

Lecture 19 - Digital Body Language

Lecture 20 - Gustorics and Silence

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Interpersonal Skills

Subject Co-ordinator - Prof. Smita Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Interpersonal Skills  
Lecture 2 - What are the Important Interpersonal Skills  
Lecture 3 - How Can I Develop Interpersonal Skills  
Lecture 4 - Practice Makes Interview Perfect  
Lecture 5 - Personal Attributes  
Lecture 6 - Interpersonal Attributes  
Lecture 7 - Technical Communication Skills  
Lecture 8 - What is Technical Communication  
Lecture 9 - Body Language - 1  
Lecture 10 - Body Language - 2  
Lecture 11 - Decision making - 1  
Lecture 12 - Decision making - 2  
Lecture 13 - Pronunciation - 1  
Lecture 14 - Pronunciation - 2  
Lecture 15 - Creative Problem Solving - 1  
Lecture 16 - Creative problem solving - 2  
Lecture 17 - Time Management - 1  
Lecture 18 - Time Management - 2  
Lecture 19 - Leadership skills - 1  
Lecture 20 - Leadership skills - 2  
Lecture 21 - Group Dynamics - 1  
Lecture 22 - Group Dynamics - 2  
Lecture 23 - Reducing Stage Fright - 1  
Lecture 24 - Reducing Stage Fright - 2  
Lecture 25 - Death by Power Point - 1  
Lecture 26 - Death by Power Point - 2  
Lecture 27 - Negotiation - 1  
Lecture 28 - Negotiation - 2  
Lecture 29 - Assertiveness - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Assertiveness - 2
- Lecture 31 - Emotional Intelligence - 1
- Lecture 32 - Emotional Intelligence - 2
- Lecture 33 - Brain Storming Technique - 1
- Lecture 34 - Brain Storming Technique - 2
- Lecture 35 - Group Discussion - 1
- Lecture 36 - Group Discussion - 2
- Lecture 37 - Persuasion - 1
- Lecture 38 - Persuasion - 2
- Lecture 39 - Glossophobia - 1
- Lecture 40 - Glossophobia - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Introduction to Environmental Economics

Subject Co-ordinator - Prof. Diptimayee Nayak, Prof. S. P. Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Meaning, Rationale and Evolution
- Lecture 2 - Basic Concepts and Tools from Micro and Welfare Economics
- Lecture 3 - Environmental Economics and Other Sub-disciplines
- Lecture 4 - Study Specific in Environmental Economics, Major Problems, and Key Concerns
- Lecture 5 - Commons and Collective Actions Problem
- Lecture 6 - Commons and Collective Actions Problem
- Lecture 7 - Commons and Collective Actions Problem
- Lecture 8 - Mancur Olson's Theory of Collective Action
- Lecture 9 - Collective Action and Prisoner's Dilemma Game
- Lecture 10 - Governing the Commons
- Lecture 11 - Governing the Commons
- Lecture 12 - Environmental Goods and Ecosystem Services - I
- Lecture 13 - Environmental Goods and Ecosystem Services - II
- Lecture 14 - Ecological Footprint - I
- Lecture 15 - Ecological Footprint - II
- Lecture 16 - Poverty and Environment Linkages - I
- Lecture 17 - Poverty and Environment Linkages - II
- Lecture 18 - Poverty and Environment Linkages - III
- Lecture 19 - Environment and Economic Growth Linkages - I
- Lecture 20 - Environment and Economic Growth Linkages - II
- Lecture 21 - Environmental Sustainability - I
- Lecture 22 - Environmental Sustainability - II
- Lecture 23 - Environmental Performance Index
- Lecture 24 - Benefit-Cost Analysis and The Environment - I
- Lecture 25 - Benefit-Cost Analysis and The Environment - II
- Lecture 26 - Consumer Demand for Environmental Goods - I
- Lecture 27 - Consumer Demand for Environmental Goods - II
- Lecture 28 - Welfare Effects of Price Change
- Lecture 29 - Non-market Environment Valuation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hedonic Pricing Method
- Lecture 31 - Household Production Function
- Lecture 32 - Household Production Function
- Lecture 33 - Damage Costs/Costs of Illness and Lost Output Approach
- Lecture 34 - Travel Cost Method
- Lecture 35 - Contingent Valuation Method
- Lecture 36 - Choice Experiment Method
- Lecture 37 - Market Efficiency and Optimality - I
- Lecture 38 - Market Efficiency and Optimality - II
- Lecture 39 - Market Efficiency and Optimality - III
- Lecture 40 - Market Efficiency and Optimality - IV
- Lecture 41 - Consumer and Producer Surplus - I
- Lecture 42 - Consumer and Producer Surplus - II
- Lecture 43 - Optimal Provision of Public Goods and Bads - I
- Lecture 44 - Optimal Provision of Public Goods and Bads - II
- Lecture 45 - Optimal Provision of Public Goods and Bads - III
- Lecture 46 - Externality and Market Failure
- Lecture 47 - Pigouvian Fees
- Lecture 48 - Property Rights and Coase Theorem - I
- Lecture 49 - Property Rights and Coase Theorem - II
- Lecture 50 - Environmental Regulation and Basic Regulatory Instruments - I
- Lecture 51 - Environmental Regulation and Basic Regulatory Instruments - II
- Lecture 52 - Command and Control Approach
- Lecture 53 - Command and Control Approach
- Lecture 54 - Command and Control Approach
- Lecture 55 - Environmental Regulation and Basic Regulatory Instruments - Market-based Instruments - I
- Lecture 56 - Environmental Regulation and Basic Regulatory Instruments - Market-based Instruments - II
- Lecture 57 - Environmental Regulation and Basic Regulatory Instruments - Market-based Instruments - III
- Lecture 58 - Environmental Regulation and Basic Regulatory Instruments - Market-based Instruments - IV
- Lecture 59 - Environmental Regulation and Basic Regulatory Instruments - Market Trading Systems - I
- Lecture 60 - Environmental Regulation and Basic Regulatory Instruments - Market Trading Systems - II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Effective Writing

Subject Co-ordinator - Prof. Binod Mishra

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Effective Writing
- Lecture 2 - Effective Writing as an Art
- Lecture 3 - Principles of Effective Writing
- Lecture 4 - Types and Stages of Effective Writing
- Lecture 5 - Notions of Correctness and Appropriateness - Part I
- Lecture 6 - Notions of Correctness and Appropriateness - Part II
- Lecture 7 - Essay Writing
- Lecture 8 - Types of Essays
- Lecture 9 - Essentials of Academic Writing - Part I
- Lecture 10 - Essentials of Academic Writing - Part II
- Lecture 11 - Business Writing and its Functions
- Lecture 12 - Mechanics of Business Writing
- Lecture 13 - Business Letters and Memos
- Lecture 14 - Format of Business Letters and Memos
- Lecture 15 - Types of Business Letter
- Lecture 16 - Sales, Complaint and Adjustment Letters
- Lecture 17 - Report Writing
- Lecture 18 - Strategies and Structure of Reports
- Lecture 19 - Style of Report Writing
- Lecture 20 - Creative Writing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:International Trade - Theory and Empirics

Subject Co-ordinator - Prof. Pratap C. Mohanty

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Strategic Trade and Protectionism
- Lecture 2 - Introduction to Protectionism and Strategic Trade
- Lecture 3 - India's International Trade: Latest Facts and Figures
- Lecture 4 - Facts on Trade Policies and Facilitations
- Lecture 5 - Introduction to Trade Theories: What, Why and for Whom?
- Lecture 6 - Mercantilism
- Lecture 7 - From Mercantilism to Adam Smith
- Lecture 8 - Theory of Comparative Cost Advantage
- Lecture 9 - Static to Dynamic Comparative Advantage Theory
- Lecture 10 - Empirical Testing of Comparative Advantage Theory
- Lecture 11 - Neoclassical Trade Theory - Standard Trade Model
- Lecture 12 - Heckscher-Ohlin Theory of Trade
- Lecture 13 - H-O-S Model in Trade and Income Distribution
- Lecture 14 - Empirical Testing of H-O Theory
- Lecture 15 - Extension to H-O Theory
- Lecture 16 - Imperfect Competition and Trade
- Lecture 17 - Monopolistic Competition and Trade
- Lecture 18 - Intra-Industry versus Inter-Industry Trade
- Lecture 19 - Measuring Intra-Industry Trade - I
- Lecture 20 - Measuring Intra-Industry Trade - II
- Lecture 21 - Partial Equilibrium Analysis of Trade
- Lecture 22 - Offer Curves in Trade Analysis
- Lecture 23 - Terms of Trade with Cases
- Lecture 24 - Measurement of Terms of Trade
- Lecture 25 - Terms of Trade: Determinants and Impacts
- Lecture 26 - Trade Protectionism
- Lecture 27 - Types of Protections
- Lecture 28 - Welfare Effects of Tariffs
- Lecture 29 - Effective Protections

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Effective Protections - Latest Facts and Figures
- Lecture 31 - Non-Tariff Measures: Recent Facts
- Lecture 32 - Types of Non-Tariff Barriers
- Lecture 33 - Effects of Non-Tariffs Barriers
- Lecture 34 - Technical Barriers to Trade (TBTs)
- Lecture 35 - Sanitary and Phytosanitary Measures (SPS)
- Lecture 36 - Economic Integration: Blocs and Blocks
- Lecture 37 - Theory of Customs Union
- Lecture 38 - Structure and Functions of WTO
- Lecture 39 - India and WTO
- Lecture 40 - Strategic Trade - Summary and Conclusion
- Lecture 41 - Trade and Balance of Payment
- Lecture 42 - Trends of India's BoP
- Lecture 43 - Foreign Exchange Market
- Lecture 44 - Types of Foreign Exchange market
- Lecture 45 - Exchange Rate Determination
- Lecture 46 - Monetary Approach to the Balance of Payments and Exchange Rates
- Lecture 47 - Exchange Rate Dynamics
- Lecture 48 - Exchange Rate in the Short run
- Lecture 49 - Exchange Rate in the Long run
- Lecture 50 - Capital Mobility and the Trilemma of the Exchange Rate Regime
- Lecture 51 - Adjustment with Fixed and Flexible Exchange Rates
- Lecture 52 - Stability of Foreign Exchange Markets
- Lecture 53 - J-Curve Effect
- Lecture 54 - Exchange Rate Pass-through
- Lecture 55 - Optimum Currency Area
- Lecture 56 - Import Substitution versus Export Orientation
- Lecture 57 - East Asian Miracle - I
- Lecture 58 - East Asian Miracle - II
- Lecture 59 - Trade and Development - Post Covid-I
- Lecture 60 - Trade and Development - Post Covid-II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Handling Large Scale Unit Level Data Using STATA

Subject Co-ordinator - Prof. Pratap C. Mohanty

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Data
- Lecture 2 - Introduction to Unit Level Data
- Lecture 3 - Understanding Unit Level Data: NSSO
- Lecture 4 - Understanding Unit Level Data: IHDS
- Lecture 5 - Understanding Unit Level Data: NFHS
- Lecture 6 - Review of Sample Techniques - I
- Lecture 7 - Review of Sample Techniques - II
- Lecture 8 - Sample Size
- Lecture 9 - Sample Size Determination - I
- Lecture 10 - Sample Size Determination - II
- Lecture 11 - Introduction to Stata
- Lecture 12 - Exploring Data in Stata
- Lecture 13 - Managing Data in Stata - I
- Lecture 14 - Managing Data in Stata - II
- Lecture 15 - Managing Data in Stata - III
- Lecture 16 - Questionnaire Design
- Lecture 17 - Tabulation and Creation of New Variables in Stata - I
- Lecture 18 - Tabulation and Creation of New Variables in Stata - II
- Lecture 19 - Tabulation and Creation of New Variables in Stata - III
- Lecture 20 - Variable and Value Labels
- Lecture 21 - Extraction in Stata - I
- Lecture 22 - Extraction in Stata - II
- Lecture 23 - Combining Datasets in Stata - I
- Lecture 24 - Combining Datasets in Stata - II
- Lecture 25 - Review of Commands
- Lecture 26 - Factor Analysis with Stata - I
- Lecture 27 - Factor Analysis with Stata - II
- Lecture 28 - Linear Regression Analysis in Stata - I
- Lecture 29 - Linear Regression Analysis in Stata - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear Regression Analysis in Stata - III
- Lecture 31 - Introduction to Qualitative Variables
- Lecture 32 - Binary Response Model - I
- Lecture 33 - Binary Response Model - II
- Lecture 34 - Binary Response Model - III
- Lecture 35 - Binary Response Model - IV
- Lecture 36 - Introduction to Panel Data
- Lecture 37 - Panel Data Models
- Lecture 38 - Pooled Cross-sectional Data
- Lecture 39 - Construction of Panel Data
- Lecture 40 - Analysis of Panel Data in Stata

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Indian Poetry in English

Subject Co-ordinator - Prof. Binod Mishra

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Indian English Poetry - Part I
- Lecture 2 - Introduction to Indian English Poetry - Part II
- Lecture 3 - Toru Dutt
- Lecture 4 - Rabindranath Tagore
- Lecture 5 - Sri Aurobindo - Part 1
- Lecture 6 - Sri Aurobindo - Part 2
- Lecture 7 - Sarojni Naidu
- Lecture 8 - Nissim Ezekiel
- Lecture 9 - Jayanta Mahapatra
- Lecture 10 - K. N Daruwalla
- Lecture 11 - Shiv K. Kumar
- Lecture 12 - Arun Kolatkar
- Lecture 13 - Arvind K. Mehrotra
- Lecture 14 - Kamala Das
- Lecture 15 - Adil Jussawalla
- Lecture 16 - Gieve Patel
- Lecture 17 - Pritish Nandy
- Lecture 18 - A.K. Ramanujan - Part I
- Lecture 19 - A.K. Ramanujan - Part II
- Lecture 20 - Agha Shahid Ali
- Lecture 21 - Meena Alexander
- Lecture 22 - Vikram Seth
- Lecture 23 - Sujata Bhatt
- Lecture 24 - Eunice de Souza
- Lecture 25 - Lakshmi Kannan
- Lecture 26 - Tara Patel
- Lecture 27 - Menka Shivdasani
- Lecture 28 - Niranjana Mohanty
- Lecture 29 - Charu Sheel Singh

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Bibhu Padhi
- Lecture 31 - Gopi Kottoor
- Lecture 32 - T V Reddy
- Lecture 33 - R. K. Singh
- Lecture 34 - R. Parthasarathy
- Lecture 35 - Mamang Dai
- Lecture 36 - Temsula Ao and Easterine Kire
- Lecture 37 - Hoshang Merchant
- Lecture 38 - Jeet Thayil
- Lecture 39 - Meena Kandasamy
- Lecture 40 - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Exploring Survey Data on Health Care

Subject Co-ordinator - Prof. Pratap C. Mohanty

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Problem Statement and Research Questions
- Lecture 2 - Data, Measurement and Scaling
- Lecture 3 - Understanding Healthcare Database: NSSO
- Lecture 4 - Understanding Healthcare Database: NFHS
- Lecture 5 - Understanding Healthcare Database: LASI
- Lecture 6 - Understanding Sampling Base and Design
- Lecture 7 - Preparing Schedule and Questionnaire
- Lecture 8 - Sample Size Determination - Observational Study
- Lecture 9 - Sample Size Determination and Probability Proportional to Size Sampling
- Lecture 10 - Focus Group Discussion (FGD)
- Lecture 11 - Pre-testing of Sample
- Lecture 12 - Weights and Representative Sampling
- Lecture 13 - Normalizing Data
- Lecture 14 - Deal with Missing Values
- Lecture 15 - Validity, Reliability, Accuracy and Precision of Sample
- Lecture 16 - Basic Understanding of STATA
- Lecture 17 - Syntax and Do File
- Lecture 18 - Making Dictionary File
- Lecture 19 - Data Browse and Basic Statistics - I
- Lecture 20 - Data Browse and Basic Statistics - II
- Lecture 21 - Basic Understanding of SPSS and Data Filtration in STATA
- Lecture 22 - Data Extraction from ASCII Format
- Lecture 23 - Merging Blocks of Information after Extraction
- Lecture 24 - Composite Index
- Lecture 25 - Measure of Variation-  $r^2$ ,  $R^2$ , Adjusted  $R^2$ , Pseudo  $R^2$
- Lecture 26 - Regression Models of Quantitative Healthcare Variables
- Lecture 27 - Regression Models of Qualitative Dependent Variables
- Lecture 28 - Relative Risk Ratio Estimation
- Lecture 29 - Generalized Linear Model

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Independence of Irrelevant Alternatives
- Lecture 31 - Balanced and Unbalanced Panel in Healthcare
- Lecture 32 - Common Constant Model in Healthcare
- Lecture 33 - Fixed Effect Model in Healthcare
- Lecture 34 - Random Effect Model in Healthcare
- Lecture 35 - Construction of Pseudo Panel
- Lecture 36 - Need for Evaluation
- Lecture 37 - Propensity Score Matching (PSM)
- Lecture 38 - Difference-in-Difference Method (DID)
- Lecture 39 - Randomized Control Trial (RCT)
- Lecture 40 - Regression Discontinuity Method

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Contextualizing Gender

Subject Co-ordinator - Prof. Rashmi Gaur

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Aims and Objectives
- Lecture 2 - Introduction to Gender Studies
- Lecture 3 - Feminist Consciousness and Gendered Experiences in Simone de Beauvoir
- Lecture 4 - Gender Perspectives in Simone de Beauvoirs The Second Sex (Volume 1)
- Lecture 5 - Gender Perspectives in Simone de Beauvoirs The Second Sex (Volume 2)
- Lecture 6 - Gender and Race Consciousness - I
- Lecture 7 - Gender and Race Consciousness - II
- Lecture 8 - Intersectionality
- Lecture 9 - Gender and Power Politics in bell hooks
- Lecture 10 - Gender and Power Politics in Audre Lorde
- Lecture 11 - Gender-Blurring in Toni Morrison - I
- Lecture 12 - Gender-Blurring in Toni Morrison - II
- Lecture 13 - Gender-Blurring in Toni Morrison - III
- Lecture 14 - Unmasking Heterosexual Assumptions in Nancy Chodorow
- Lecture 15 - Technologies of Gender in Teresa de Lauretis
- Lecture 16 - Introduction to Queer Theory
- Lecture 17 - Sex/Gender System in Gayle Rubin
- Lecture 18 - Thinking Gender and Homosexuality in Gayle Rubin
- Lecture 19 - Queer Theory and Literature in Eve Sedgwick
- Lecture 20 - Eve Sedgwicks Epistemology of the Closet
- Lecture 21 - Introduction to Queer Literature
- Lecture 22 - 21st Century Queer Fiction
- Lecture 23 - Queer Cinema - I
- Lecture 24 - Queer Cinema - II
- Lecture 25 - Queer Representation in OTT Platforms
- Lecture 26 - Introduction to Judith Butler
- Lecture 27 - Gender Trouble - I
- Lecture 28 - Gender Trouble - II
- Lecture 29 - Bodies that Matter - I

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- Lecture 30 - Bodies that Matter - II
- Lecture 31 - Speech and Subjectivity
- Lecture 32 - Gender in Translation
- Lecture 33 - Undoing Gender - I
- Lecture 34 - Undoing Gender - II
- Lecture 35 - Judith Butler and the Unaccountable Subject
- Lecture 36 - Performativity, Precarity and Sexual Politics
- Lecture 37 - Gender Politics and the Right to Appear
- Lecture 38 - Global Gender Movements
- Lecture 39 - Mapping the Theories of Social Movements
- Lecture 40 - #MeToo and the Politics of Social Change
- Lecture 41 - Hegemonic Masculinity: Rethinking the Concept - I
- Lecture 42 - Hegemonic Masculinity: Rethinking the Concept - II
- Lecture 43 - Feminism and Men/Masculinities Scholarship by Chris Beasley
- Lecture 44 - Postcolonial Masculinities by Fataneh Farahani and Suruchi Thapar-Bjorkert
- Lecture 45 - Engaging Men for Gender Justice by Tal Peretz
- Lecture 46 - Cyborg and Feminism in Anne Balsamos Technologies of the Gendered Body - I
- Lecture 47 - Cyborg and Feminism in Anne Balsamos Technologies of the Gendered Body - II
- Lecture 48 - Female Bodybuilding, Cosmetic Surgery and New Imaging Technologies in Anne Balsamo
- Lecture 49 - The Virtual body in Anne Balsamos Technologies of the Gendered Body
- Lecture 50 - Feminist Cultural Studies of Science and Technology in Anne Balsamo
- Lecture 51 - Introduction to Biopolitics and Gender by Jemima Repo
- Lecture 52 - Women or Womankind? by Jemima Repo - I
- Lecture 53 - Women or Womankind? by Jemima Repo - II
- Lecture 54 - Gender for a Marxist Dictionary from Simians, Cyborgs and Women by Donna J. Haraway
- Lecture 55 - Biopolitics, Gender Representation and Video Games
- Lecture 56 - Introduction to the Literary Posthuman: Narratives of Becoming Post
- Lecture 57 - A Cyborg Manifesto by Donna Haraway
- Lecture 58 - Ex-Machina and The Female Cyborg
- Lecture 59 - Re-figuring the Subject by Rosi Braidotti
- Lecture 60 - A Gender Perspective on COVID-19 Pandemic

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Public Speaking

Subject Co-ordinator - Prof. Binod Mishra

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Public Speaking
- Lecture 2 - Communication Process and Roadblocks
- Lecture 3 - Use of Rhetoric in Public Speaking
- Lecture 4 - Role of Listening in Public Speaking
- Lecture 5 - Role of Ethics in Public Speaking
- Lecture 6 - Relevance of Public Speaking
- Lecture 7 - Audience Awareness and Creating Credibility
- Lecture 8 - Content Creation and Organization
- Lecture 9 - Role of Personality in Public Speaking
- Lecture 10 - Use of Technology in Public Speaking
- Lecture 11 - Cultural Awareness in Public Speaking
- Lecture 12 - Breaking the Ice: Impress to Express
- Lecture 13 - Glossophobia
- Lecture 14 - Emotional Intelligence
- Lecture 15 - Role of Positivity in Public Speaking
- Lecture 16 - Significance of Citations in Public Speaking
- Lecture 17 - Digression: Usage and Concerns
- Lecture 18 - Forms and Stages of Public Speaking - Part I
- Lecture 19 - Forms and Stages of Public Speaking - Part II
- Lecture 20 - Classroom Interaction
- Lecture 21 - Classroom Lecturers
- Lecture 22 - Kinesics
- Lecture 23 - Proxemics
- Lecture 24 - Chronemics
- Lecture 25 - Haptics
- Lecture 26 - Paralanguage
- Lecture 27 - Meta-communication
- Lecture 28 - Conversation
- Lecture 29 - Negotiations

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- Lecture 30 - Debates
- Lecture 31 - Elocution and Recitation
- Lecture 32 - Group Discussion
- Lecture 33 - Speeches
- Lecture 34 - Types of Speeches
- Lecture 35 - Speeches for Special Occasions
- Lecture 36 - Use of Humour in Speeches
- Lecture 37 - Interviews
- Lecture 38 - Types of Interviews - I
- Lecture 39 - Types of Interviews - II
- Lecture 40 - Preparing for Interviews
- Lecture 41 - Facing the Interview
- Lecture 42 - Conference Presentations - Part I
- Lecture 43 - Conference Presentations - Part II
- Lecture 44 - Meeting Management
- Lecture 45 - Leadership Skills - Part I
- Lecture 46 - Leadership Skills - Part II
- Lecture 47 - Oral Presentation - Part I
- Lecture 48 - Oral Presentation - Part II
- Lecture 49 - Use of Visual Aids in Oral Presentation
- Lecture 50 - Use of Connectives in Oral Presentation
- Lecture 51 - Effective use of Language in Public Speaking
- Lecture 52 - Handling Feedback and Criticism
- Lecture 53 - Role of Creative Thinking in Public Speaking
- Lecture 54 - Some Other Forums of Public Speaking
- Lecture 55 - Etiquettes and Mannerisms in Public Speaking
- Lecture 56 - Online Interactions and their Challenges
- Lecture 57 - Sample Interviews
- Lecture 58 - Analysis of Sample Interviews
- Lecture 59 - Sample Speeches and their Analysis
- Lecture 60 - Summary and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Partition of India in Print Media and Cinema

Subject Co-ordinator - Prof. Sarbani Banerjee

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - History of the Partition of India - I  
Lecture 2 - History of the Partition of India - II  
Lecture 3 - History of the Partition of India - III  
Lecture 4 - History of the Partition of India - IV  
Lecture 5 - History of the Partition of India - V  
Lecture 6 - History of the Partition of India - VI  
Lecture 7 - History of the Partition of India - VII  
Lecture 8 - History and Alternative Memory Writings - I  
Lecture 9 - History and Alternative Memory Writings - II  
Lecture 10 - History and Alternative Memory Writings - III  
Lecture 11 - History and Alternative Memory Writings - IV  
Lecture 12 - History and Alternative Memory Writings - V  
Lecture 13 - Caste Politics and The Bengal Chapter - I  
Lecture 14 - Caste Politics and The Bengal Chapter - II  
Lecture 15 - Caste Politics and The Bengal Chapter - III  
Lecture 16 - Caste Politics in Punjab Partition Micro-societies and Sub-Cultures  
Lecture 17 - Womanhood and Motherhood - I  
Lecture 18 - Womanhood and Motherhood - II  
Lecture 19 - Womanhood and Motherhood - III  
Lecture 20 - Womanhood and Motherhood - IV  
Lecture 21 - Woman in the Context of Partition - I  
Lecture 22 - Woman in the Context of Partition - II  
Lecture 23 - Woman in the Context of Partition - III  
Lecture 24 - Accounts of the Survivor - I  
Lecture 25 - Accounts of the Survivor - II  
Lecture 26 - Accounts of the Survivor - III  
Lecture 27 - Accounts of the Survivor - IV  
Lecture 28 - Accounts of the Survivor - V  
Lecture 29 - Accounts of the Survivor - VI

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Accounts of the Survivor - VII
- Lecture 31 - Accounts of the Survivor - VIII
- Lecture 32 - Accounts of the Survivor - IX
- Lecture 33 - Home and Nostalgia - I
- Lecture 34 - Home and Nostalgia - II
- Lecture 35 - Home and Nostalgia - III
- Lecture 36 - Home and Nostalgia - IV
- Lecture 37 - Home and Nostalgia - V
- Lecture 38 - Refugee, Desh and Nation - I
- Lecture 39 - Refugee, Desh and Nation - II
- Lecture 40 - Refugee, Desh and Nation - III
- Lecture 41 - Refugee, Desh and Nation - IV
- Lecture 42 - Refugee, Desh and Nation - V
- Lecture 43 - Refugee, Desh and Nation - VI
- Lecture 44 - Refugee, Desh and Nation - VII
- Lecture 45 - Refugee, Desh and Nation - VIII - Agency/Lack thereof for the Immigrant Women
- Lecture 46 - Displaced People, Abandoned Homes - I
- Lecture 47 - Displaced People, Abandoned Homes - II
- Lecture 48 - Displaced People, Abandoned Homes - III
- Lecture 49 - Displaced People, Abandoned Homes - IV
- Lecture 50 - Displaced People, Abandoned Homes - V
- Lecture 51 - Displaced People, Abandoned Homes - VI
- Lecture 52 - Refugee Women and Patriarchal Society - I
- Lecture 53 - Refugee Women and Patriarchal Society - II
- Lecture 54 - Refugee Women and Patriarchal Society - III
- Lecture 55 - Refugee Women and Patriarchal Society - IV
- Lecture 56 - Refugee Women and Patriarchal Society - V
- Lecture 57 - Refugee Women and Patriarchal Society - VI
- Lecture 58 - Partition Literature in the 21st Century - I
- Lecture 59 - Partition Literature in the 21st Century - II
- Lecture 60 - Immigrant Populace in the Diaspora - I
- Lecture 61 - Immigrant Populace in the Diaspora - II
- Lecture 62 - Immigrant Populace in the Diaspora - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Narrative Mode and Fiction

Subject Co-ordinator - Prof. Sarbani Banerjee

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Genealogy of Genre - I
- Lecture 2 - Genealogy of Genre - II
- Lecture 3 - Genealogy of Genre - III
- Lecture 4 - Fiction and Different Modes of Narrative - I
- Lecture 5 - Fiction and Different Modes of Narrative - II
- Lecture 6 - Fiction and Different Modes of Narrative - III
- Lecture 7 - Fiction and Different Modes of Narrative - IV
- Lecture 8 - Commentary on the Genre of Novel - I
- Lecture 9 - Commentary on the Genre of Novel - II
- Lecture 10 - Commentary on the Genre of Novel - III
- Lecture 11 - Commentary on the Genre of Novel - IV
- Lecture 12 - Commentary on the Genre of Novel - V
- Lecture 13 - Commentary on the Genre of Novel - VI
- Lecture 14 - Novel and Existence - I
- Lecture 15 - Novel and Existence - II
- Lecture 16 - Novel and Existence - III
- Lecture 17 - Novel and Existence - IV
- Lecture 18 - Novel and Existence - V
- Lecture 19 - Novel and Existence - VI
- Lecture 20 - Features of the Novel - I
- Lecture 21 - Features of the Novel - II
- Lecture 22 - Features of the Novel - III
- Lecture 23 - Features of the Novel - IV
- Lecture 24 - Features of the Novel - V
- Lecture 25 - Features of the Novel - VI
- Lecture 26 - Features of the Novel - VII
- Lecture 27 - Tragedy and Comic Absurdity in Novel - I
- Lecture 28 - Tragedy and Comic Absurdity in Novel - II
- Lecture 29 - Tragedy and Comic Absurdity in Novel - III

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- Lecture 30 - Tragedy and Comic Absurdity in Novel - IV
- Lecture 31 - The Modern Novel - I
- Lecture 32 - The Modern Novel - II
- Lecture 33 - The Modern Novel - III
- Lecture 34 - The Modern Novel - IV
- Lecture 35 - The Modern Novel - V
- Lecture 36 - Short Story in the Modern and Post-modern Era - I
- Lecture 37 - Short Story in the Modern and Post-modern Era - II
- Lecture 38 - Short Story in the Modern and Post-modern Era - III
- Lecture 39 - Short Story in the Modern and Post-modern Era - IV
- Lecture 40 - Short Story in the Modern and Post-modern Era - V
- Lecture 41 - Short Story in the Modern and Post-modern Era - VI
- Lecture 42 - Short Story in the Modern and Post-modern Era - VII
- Lecture 43 - Short Story in the Modern and Post-modern Era - VIII
- Lecture 44 - Short Story and Novel - I
- Lecture 45 - Short Story and Novel - II
- Lecture 46 - Short Story and Novel - III
- Lecture 47 - Short Story and Novel - IV
- Lecture 48 - Science Fiction - I
- Lecture 49 - Science Fiction - II
- Lecture 50 - Science Fiction - III
- Lecture 51 - Science Fiction - IV
- Lecture 52 - Science Fiction - V
- Lecture 53 - Science Fiction - VI
- Lecture 54 - Science Fiction - VII
- Lecture 55 - Magical Realism - I
- Lecture 56 - Magical Realism - II
- Lecture 57 - Magical Realism - III
- Lecture 58 - Magical Realism - IV
- Lecture 59 - Magical Realism - V
- Lecture 60 - Future of Fictional Writing - I
- Lecture 61 - Future of Fictional Writing - IV

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Group Dynamics

Subject Co-ordinator - Prof. Pooja Garg

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction of Groups - Part I  
Lecture 2 - Introduction of Groups - Part II  
Lecture 3 - Introduction of Groups - Part III  
Lecture 4 - Introduction of Groups - Part IV  
Lecture 5 - Group Process - Part I  
Lecture 6 - Group Process - Part II  
Lecture 7 - Interpersonal Attraction and Social Relationship - Part I  
Lecture 8 - Interpersonal Attraction and Social Relationship - Part II  
Lecture 9 - Group Communication - Part I  
Lecture 10 - Group Communication - Part II  
Lecture 11 - Group Communication - Part III  
Lecture 12 - Interactive Behavior - Part I  
Lecture 13 - Interactive Behavior - Part II  
Lecture 14 - Interactive Behavior - Part III  
Lecture 15 - Interactive Behavior - Part IV  
Lecture 16 - Group Leadership - Part I  
Lecture 17 - Group Leadership - Part II  
Lecture 18 - Group Leadership - Part III  
Lecture 19 - Group Leadership - Part IV  
Lecture 20 - Group Leadership - Part V  
Lecture 21 - Group Leadership - Part VI  
Lecture 22 - Group Leadership - Part VII  
Lecture 23 - Organizational Justice, Ethics and Corporate Social Responsibility - Part I  
Lecture 24 - Organizational Justice, Ethics and Corporate Social Responsibility - Part II  
Lecture 25 - Organizational Justice, Ethics and Corporate Social Responsibility - Part III  
Lecture 26 - Organizational Justice, Ethics and Corporate Social Responsibility - Part IV  
Lecture 27 - Organizational Justice, Ethics and Corporate Social Responsibility - Part V  
Lecture 28 - Positive Organizational Scholarship - Part I  
Lecture 29 - Positive Organizational Scholarship - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Positive Organizational Scholarship - Part III
- Lecture 31 - Positive Organizational Scholarship - Part IV
- Lecture 32 - Positive Organizational Scholarship - Part V
- Lecture 33 - Positive Organizational Scholarship - Part VI
- Lecture 34 - Positive Organizational Scholarship - Part VII
- Lecture 35 - Positive Organizational Scholarship - Part VIII
- Lecture 36 - Positive Organizational Scholarship - Part IX

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Countering Stage Fright

Subject Co-ordinator - Prof. Smita Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course - I
- Lecture 2 - Introduction to the Course - II
- Lecture 3 - Definition with Symptoms - I
- Lecture 4 - Definition with Symptoms - II
- Lecture 5 - Is Stage Fright Common ? - I
- Lecture 6 - Is Stage Fright Common ? - II
- Lecture 7 - When and Where Does Performance Anxiety Happen ? - I
- Lecture 8 - When and Where Does Performance Anxiety Happen ? - II
- Lecture 9 - Symptoms of Performance Anxiety - I
- Lecture 10 - Symptoms of Performance Anxiety - II
- Lecture 11 - Causes of Stage Fright - I
- Lecture 12 - Causes of Stage Fright - II
- Lecture 13 - Types of Stage Fright - I
- Lecture 14 - Types of Stage Fright - II
- Lecture 15 - Can Stage Fright be Cured ? - I
- Lecture 16 - Can Stage Fright be Cured ? - II
- Lecture 17 - Systematic Desensitization as Countering Stage Fright - I
- Lecture 18 - Systematic Desensitization as Countering Stage Fright - II
- Lecture 19 - Systematic Desensitization as Countering Stage Fright - III
- Lecture 20 - Systematic Desensitization as Countering Stage Fright - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Advance Course in Social Psychology

Subject Co-ordinator - Prof. Pooja Garg

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Social Psychology - Part I  
Lecture 2 - Introduction to Social Psychology - Part II  
Lecture 3 - Methods Adopted in Social Psychology - Part I  
Lecture 4 - Methods Adopted in Social Psychology - Part II  
Lecture 5 - Methods Adopted in Social Psychology - Part III  
Lecture 6 - Methods Adopted in Social Psychology - Part IV  
Lecture 7 - Methods Adopted in Social Psychology - Part V  
Lecture 8 - Methods Adopted in Social Psychology - Part VI  
Lecture 9 - Interpersonal Attraction - Part I  
Lecture 10 - Interpersonal Attraction - Part II  
Lecture 11 - Prosocial Behavior - Part I  
Lecture 12 - Prosocial Behavior - Part II  
Lecture 13 - Attitudes - Part I  
Lecture 14 - Attitudes - Part II  
Lecture 15 - Attitudes - Part III  
Lecture 16 - Attitudes - Part IV  
Lecture 17 - Attitudes - Part V  
Lecture 18 - Attitudes - Part VI  
Lecture 19 - Social Influence - Part I  
Lecture 20 - Social Influence - Part II  
Lecture 21 - Social Influence - Part III  
Lecture 22 - Social Influence - Part IV  
Lecture 23 - Distributive, Procedural and Interactional Justice  
Lecture 24 - Conflicting Behavior - Part I  
Lecture 25 - Conflicting Behavior - Part II  
Lecture 26 - Conflicting Behavior - Part III  
Lecture 27 - Conflicting Behavior - Part IV  
Lecture 28 - Communication - Part I  
Lecture 29 - Communication - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Communication - Part III
- Lecture 31 - Communication - Part IV
- Lecture 32 - Communication - Part V
- Lecture 33 - Communication - Part VI
- Lecture 34 - Group Behaviour - Part I
- Lecture 35 - Group Behaviour - Part II
- Lecture 36 - Group Behaviour - Part III
- Lecture 37 - Group Behaviour - Part IV
- Lecture 38 - Group Behaviour - Part V
- Lecture 39 - Group Behaviour - Part VI
- Lecture 40 - Group Behaviour - Part VII
- Lecture 41 - Group Behaviour - Part VIII
- Lecture 42 - Group Leadership - Part I
- Lecture 43 - Group Leadership - Part II
- Lecture 44 - Group Leadership - Part III
- Lecture 45 - Group Leadership - Part IV
- Lecture 46 - Group Leadership - Part V
- Lecture 47 - Group Leadership - Part VI
- Lecture 48 - Group Leadership - Part VII
- Lecture 49 - Group Leadership - Part VIII
- Lecture 50 - Group Leadership - Part IX
- Lecture 51 - Group Leadership - Part X
- Lecture 52 - Group Leadership - Part XI
- Lecture 53 - Interactive Behaviour - Part I
- Lecture 54 - Interactive Behaviour - Part II
- Lecture 55 - Interactive Behaviour - Part III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Performative Gender and Religions in South Asia

Subject Co-ordinator - Prof. Sarbani Banerjee

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introducing Performance and its Characteristics in the South Asian Context - I
- Lecture 2 - Introducing Performance and its Characteristics in the South Asian Context - II
- Lecture 3 - Introducing Performance and its Characteristics in the South Asian Context - III
- Lecture 4 - Introducing Performance and its Characteristics in the South Asian Context - IV
- Lecture 5 - Sanskrit Dramaturgy and Rasa Theory - I
- Lecture 6 - Sanskrit Dramaturgy and Rasa Theory - II
- Lecture 7 - Sanskrit Dramaturgy and Rasa Theory - III
- Lecture 8 - Sanskrit Dramaturgy and Rasa Theory - IV
- Lecture 9 - Sanskrit Dramaturgy and Rasa Theory - V
- Lecture 10 - Bhakti Tradition - I
- Lecture 11 - Bhakti Tradition - II
- Lecture 12 - Bhakti Tradition - III
- Lecture 13 - Bhakti Tradition - IV
- Lecture 14 - Bhakti Tradition - V
- Lecture 15 - Sufi Tradition - I
- Lecture 16 - Sufi Tradition - II
- Lecture 17 - Sufi Tradition - III
- Lecture 18 - Sufi Tradition - IV
- Lecture 19 - Bhakti Mysticism and Poetics - I
- Lecture 20 - Bhakti Mysticism and Poetics - II
- Lecture 21 - Bhakti Mysticism and Poetics - III
- Lecture 22 - Bhakti Mysticism and Poetics - IV
- Lecture 23 - Bhakti Mysticism and Poetics - V
- Lecture 24 - Bhakti Mysticism and Poetics - VI
- Lecture 25 - Gender and Performance in Bhakti Movement - I
- Lecture 26 - Gender and Performance in Bhakti Movement - II
- Lecture 27 - Gender and Performance in Bhakti Movement - III
- Lecture 28 - Gender and Performance in Bhakti Movement - IV
- Lecture 29 - Sufi Mysticism and Poetics - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sufi Mysticism and Poetics - II
- Lecture 31 - Sufi Mysticism and Poetics - III
- Lecture 32 - Sufi Mysticism and Poetics - IV
- Lecture 33 - Sufi Mysticism and Poetics - V
- Lecture 34 - Sufi Mysticism and Poetics - VI
- Lecture 35 - Gender and Performance in Sufi Movement - I
- Lecture 36 - Gender and Performance in Sufi Movement - II
- Lecture 37 - Gender and Performance in Sufi Movement - III
- Lecture 38 - Gender and Performance in Sufi Movement - IV
- Lecture 39 - Folk Traditions and Performances - I
- Lecture 40 - Folk Traditions and Performances - II
- Lecture 41 - Folk Traditions and Performances - III
- Lecture 42 - Folk Traditions and Performances - IV
- Lecture 43 - Folk Traditions and Performances - V
- Lecture 44 - Folk Traditions and Performances - VI
- Lecture 45 - Folk Traditions and Performances - VII
- Lecture 46 - Classical Traditions and Performances - I
- Lecture 47 - Classical Traditions and Performances - II
- Lecture 48 - Classical Traditions and Performances - III
- Lecture 49 - Classical Traditions and Performances - IV
- Lecture 50 - Classical Traditions and Performances - V
- Lecture 51 - Classical Traditions and Performances - VI
- Lecture 52 - Tribal Traditions and Performances - I
- Lecture 53 - Tribal Traditions and Performances - II
- Lecture 54 - Tribal Traditions and Performances - III
- Lecture 55 - Tribal Traditions and Performances - IV
- Lecture 56 - Tribal Traditions and Performances - V
- Lecture 57 - Tribal Traditions and Performances - VI
- Lecture 58 - Bhakti, Sufi, and Cinema - I
- Lecture 59 - Bhakti, Sufi, and Cinema - II
- Lecture 60 - Bhakti, Sufi, and Cinema - III
- Lecture 61 - Bhakti, Sufi, and Cinema - IV
- Lecture 62 - Bhakti, Sufi, and Cinema - V
- Lecture 63 - Secularism in the Western and Indian Context



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Online Communication in the Digital Age

Subject Co-ordinator - Prof. Rashmi Gaur

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Aims and Objectives
- Lecture 2 - Computer Mediated Communication
- Lecture 3 - Impersonal Computer - Mediated Communication
- Lecture 4 - Interpersonal Communication Theories of CMC
- Lecture 5 - Interpersonal Computer-Mediated Communication
- Lecture 6 - Intrapersonal Computer-Mediated Communication
- Lecture 7 - Digital Identity - I
- Lecture 8 - Digital Identity - II
- Lecture 9 - Embodiment and Digital Identity
- Lecture 10 - Digital Identity in the Workplace
- Lecture 11 - Introduction to Technical Communication
- Lecture 12 - Workplace Communication
- Lecture 13 - Need of Specific Audiences
- Lecture 14 - Persuading your Audience
- Lecture 15 - Teamwork and Global Considerations
- Lecture 16 - Virtual Teams and Virtual Presentations
- Lecture 17 - Digital Writing
- Lecture 18 - Evolution of Digital Literary Practices
- Lecture 19 - Evolving Landscape of Cybernetic Writing
- Lecture 20 - The Digital Literary Domain
- Lecture 21 - Introduction to the Digital Humanities
- Lecture 22 - Digital Humanities and Literary Analyses
- Lecture 23 - Towards an Intersectional Approach to Digital Humanities
- Lecture 24 - Introduction to Postcolonial Digital Humanities
- Lecture 25 - Feminism and Future of Digital Humanities
- Lecture 26 - Professional Communication, Digital Rhetoric and Digital Literacy
- Lecture 27 - Professional Communication, Digital Rhetoric and Digital Literacy (Continued...)
- Lecture 28 - New Literacies in Multimodality and Multimedia
- Lecture 29 - Evolution of Social Software

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Artificial Intelligence and Online Communication
- Lecture 31 - Artificial Intelligence and Online Communication (Continued...)
- Lecture 32 - Introduction to Social Media
- Lecture 33 - Social Networking Sites
- Lecture 34 - Blogging and Microblogging
- Lecture 35 - Online Social Support and Social Media
- Lecture 36 - Social Media Marketing
- Lecture 37 - Advertising Strategies and Social Media Marketing
- Lecture 38 - Social Media Entertainment and Media Studies
- Lecture 39 - Digital Storytelling
- Lecture 40 - Playing with Stories: Interactive Digital Storytelling in Film and Games
- Lecture 41 - Digital Ethics
- Lecture 42 - Fundamentals of Ethical Behaviour
- Lecture 43 - The Social Network: Navigating Ethics in Entrepreneurship
- Lecture 44 - Digital Deception: Introduction
- Lecture 45 - Linguistic Style of Liars
- Lecture 46 - Scammers and Swindlers in Online Spaces
- Lecture 47 - Perils and Pitfalls of Online Communication - Part I
- Lecture 48 - Perils and Pitfalls of Online Communication - Part II
- Lecture 49 - Deceptive Realities: Cinematic Exploration of Digital Deception
- Lecture 50 - Cyberbullying
- Lecture 51 - Gender and Online Communication
- Lecture 52 - Theories of Gender in Digital Spaces
- Lecture 53 - Digital Feminist Interventions
- Lecture 54 - Cyberfeminism and Cyborg Metaphors
- Lecture 55 - Transforming Stereotypes: Evolving Portrayals of Gender in Video Games
- Lecture 56 - The Future of Communication Technology
- Lecture 57 - Augmented Reality
- Lecture 58 - Virtual Reality and the Metaverse
- Lecture 59 - Exploring the Digital Persona: The World of Avatars
- Lecture 60 - Online Communication: Summative Insights

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Energy Resources, Economics and Sustainability

Subject Co-ordinator - Prof. Pratham Arora

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction to Fossil Fuels
- Lecture 3 - Introduction to Renewable Energy
- Lecture 4 - Energy Consumption in Different Countries
- Lecture 5 - Energy Consumption in Different Sectors
- Lecture 6 - Energy Consumption
- Lecture 7 - Energy Flow Diagram - I
- Lecture 8 - Energy Flow Diagram - II
- Lecture 9 - Fossil Fuel Resources - I
- Lecture 10 - Fossil Fuel Resources - II
- Lecture 11 - Energy Economics - I
- Lecture 12 - Energy Economics - II
- Lecture 13 - Energy Economics - III
- Lecture 14 - Energy Economics - IV
- Lecture 15 - Wind Farm Financial Model - I
- Lecture 16 - Wind Farm Financial Model - II
- Lecture 17 - Economic Decision Making
- Lecture 18 - Economic Decision Making and Project Financing
- Lecture 19 - Economic and Environment
- Lecture 20 - Business and the Environment
- Lecture 21 - Energy, Ecology and Environment
- Lecture 22 - Recent Successes in Environmental Stewardship - I
- Lecture 23 - Recent Successes in Environmental Stewardship - II
- Lecture 24 - Global Climate Change
- Lecture 25 - Global Climate Change Mitigation - I
- Lecture 26 - Global Climate Change Mitigation - II
- Lecture 27 - Global Climate Change Mitigation: International Protocols
- Lecture 28 - Global Climate Change Myths
- Lecture 29 - Nuclear Waste and Thermal Pollution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Environmental Impacts of Different Energy Pathways - I
- Lecture 31 - Environmental Impacts of Different Energy Pathways - II
- Lecture 32 - Understanding Sustainability
- Lecture 33 - Introduction to Life Cycle Assessment (LCA)
- Lecture 34 - LCA Phases
- Lecture 35 - LCA System, Boundary, and Allocation
- Lecture 36 - LCA: Life Cycle Stages
- Lecture 37 - LCA: Data and Impact Assessment
- Lecture 38 - LCA: Impact Categories
- Lecture 39 - LCA Computational Structure
- Lecture 40 - SimaPro Tutorial
- Lecture 41 - Case Studies - I
- Lecture 42 - Case Studies - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Cognitive Ergonomics

Subject Co-ordinator - Prof. M. K. Asthana

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Cognitive Ergonomics - I  
Lecture 2 - Introduction to Cognitive Ergonomics - II  
Lecture 3 - Human Cognitive Abilities and Skills - I  
Lecture 4 - Human Cognitive Abilities and Skills - II  
Lecture 5 - Human Cognitive Abilities and Skills - III  
Lecture 6 - Human Cognitive Abilities and Skills - IV  
Lecture 7 - Human Cognitive Abilities and Skills - V  
Lecture 8 - Human Cognitive Abilities and Skills - VI  
Lecture 9 - Human Computer Interaction - I  
Lecture 10 - Human Computer Interaction - II  
Lecture 11 - Human Computer Interaction - III  
Lecture 12 - Human Computer Interaction - IV  
Lecture 13 - Usability - I  
Lecture 14 - Usability - II  
Lecture 15 - Usability - III  
Lecture 16 - Human Error - I  
Lecture 17 - Human Error - II  
Lecture 18 - Human Error - III  
Lecture 19 - Cognitive Safety - I  
Lecture 20 - Cognitive Safety - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Humanities and Social Sciences - NOC:Artistic Exploration in Scientific Research and Tec

Subject Co-ordinator - Prof. Bitasta Das

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Science and Humanities

Lecture 2 - Humanities and Art

Lecture 3 - Idea of Folk

Lecture 4 - Folk and Folk Art

Lecture 5 - Importance of Folklore

Lecture 6 - Folk Art Around the World

Lecture 7 - Indian Folk Art

Lecture 8 - Indian Schools of Painting

Lecture 9 - Indian Folk Paintings - 1

Lecture 10 - Indian Folk Paintings - 2

Lecture 11 - Madhubani

Lecture 12 - Gond

Lecture 13 - Warli

Lecture 14 - Chittara

Lecture 15 - Sohrai

Lecture 16 - Importance of Interdisciplinary Approach

Lecture 17 - Art vis-À-vis Science and Technology

Lecture 18 - When Art Meets Science and Technology

Lecture 19 - Folk Art A Potent Medium of Communication

Lecture 20 - Representation of Science and Technology with Indian Folk Art - 1

Lecture 21 - Representation of Science and Technology with Indian Folk Art - 2

Lecture 22 - Recapitulation

Lecture 23 - Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Law - NOC:Introduction to Law on Electricity

Subject Co-ordinator - Prof. Uday Shankar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of the Electricity Law; Constitutional Design
- Lecture 2 - Evolution of Laws on Electricity Salient Features of Electricity Act, 2003
- Lecture 3 - Evolution of Laws on Electricity
- Lecture 4 - Salient Features of the Electricity Act 2003
- Lecture 5 - Energy Security
- Lecture 6 - Energy Mix
- Lecture 7 - National Electricity Plan and Policy
- Lecture 8 - Rural Electrification
- Lecture 9 - Generation and Captive Power Plant
- Lecture 10 - Generation and Captive Power Plant (Continued...)
- Lecture 11 - Captive Power Plant and Dedicated Transmission Line
- Lecture 12 - License
- Lecture 13 - License (Continued...)
- Lecture 14 - Transmission
- Lecture 15 - Load Despatch Centre
- Lecture 16 - Distribution
- Lecture 17 - Distribution (Continued...)
- Lecture 18 - Distribution and Retail Competition
- Lecture 19 - Open Access
- Lecture 20 - Open Access (Continued...)
- Lecture 21 - Open Access (Continued...)
- Lecture 22 - Trading
- Lecture 23 - Trading and Power Market
- Lecture 24 - Consumer Welfare
- Lecture 25 - Rights of Consumer
- Lecture 26 - Offences under the Electricity Act
- Lecture 27 - Tariff
- Lecture 28 - Tariff - Determination
- Lecture 29 - Tariff - Competitive Bidding

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Regulatory Commissions
- Lecture 31 - Regulatory Commissions (Continued...)
- Lecture 32 - Appellate Tribunal
- Lecture 33 - Other Institutions under the Act
- Lecture 34 - Electricity (Amendment) Bill 2020/2021 - A Critical Comment
- Lecture 35 - Renewable Energy
- Lecture 36 - Renewable Energy (Continued...)
- Lecture 37 - Role of Civil Society; Comments on Draft Renewable Energy Act, 2015
- Lecture 38 - Energy Efficiency
- Lecture 39 - Energy Conservation Act, 2001
- Lecture 40 - Energy Conservation Act, 2001 (Continued...)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Law - NOC:Legal and Regulatory Issues in Biotechnology

Subject Co-ordinator - Prof. Niharika Sahoo Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Biotechnology product development cycle and critical issues
- Lecture 2 - Biotechnology product development cycle and critical issues (Continued...)
- Lecture 3 - Ethics in Animal and Human Research
- Lecture 4 - Ethics in Animal and Human Research: Code of ethics and regulation (Continued...)
- Lecture 5 - Ethics in Stem Cell Research
- Lecture 6 - Stem Cell Research in India
- Lecture 7 - Patenting issues in biotechnology
- Lecture 8 - Patenting issues in biotechnology (Continued...)
- Lecture 9 - Patenting issues in biotechnology (Continued...)
- Lecture 10 - IPR issues in Plant biotechnology
- Lecture 11 - Regulatory Framework for Genetically engineered Plant
- Lecture 12 - Cartagena Protocol
- Lecture 13 - Regulatory approval process for Biopharmaceuticals
- Lecture 14 - Regulatory approval process for Biopharmaceuticals and Biosimialars in US
- Lecture 15 - Data exclusivity and Patent term extension
- Lecture 16 - Resource Sharing: material transfer agreement
- Lecture 17 - Technology transfer agreements and patents

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Law - NOC:New Labour Codes of India

Subject Co-ordinator - Prof.Raju Kd

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Government Policies
- Lecture 3 - History of Labour Law in the Country
- Lecture 4 - History - Previous Social Security Legislations in India (Continued...)
- Lecture 5 - National Labour Commission Reports
- Lecture 6 - Evolution of Trade Unions in India
- Lecture 7 - Constitutional Freedom to Form Associations and Unions
- Lecture 8 - ILO on Trade Union
- Lecture 9 - Trade Union - Definitions, Registration, Cancellation, Management of Funds
- Lecture 10 - Trade Union - Recognition, Immunities
- Lecture 11 - Industrial Disputes - Introduction - Definitions
- Lecture 12 - Resolution of Industrial Disputes
- Lecture 13 - Concept of Workman, Contract of Service, Contract for Service
- Lecture 14 - Strike
- Lecture 15 - Lock-out
- Lecture 16 - Lay-off
- Lecture 17 - Retrenchment
- Lecture 18 - Closure of Undertakings
- Lecture 19 - Industrial Employment (Standing Orders)
- Lecture 20 - Disciplinary Action and Procedures
- Lecture 21 - The Code on Wages, 2019 - An Introduction
- Lecture 22 - Minimum Wages, Floor Wages, Central and State Advisory Board
- Lecture 23 - Payment of Wages, Deductions and Recovery, Fines
- Lecture 24 - Equal Remuneration
- Lecture 25 - Bonus
- Lecture 26 - C.311-Minimum Wage Fixing Convention, 1970
- Lecture 27 - C:26-ILO Minimum Wage-Fixing Machinery Convention,1928 C-99 Minimum Wage-Fixing
- Lecture 28 - C.95-Protection of Wages Convention, 1949
- Lecture 29 - C-100:Equal Remuneration Convention,1951,International Instruments on Equality

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - C-173:Protection of Workersâ Claims (Employerâ s Insolvency) Convention, 1992
- Lecture 31 - Code on Social Security, 2020 - Introduction
- Lecture 32 - Definitions Under The Code on Social Security, 2020
- Lecture 33 - Social Security Organizations (SSOs)
- Lecture 34 - Employees Compensation and Benefits
- Lecture 35 - The Concept of Arising Out of and in the Course of Employment
- Lecture 36 - Employee's State Insurance
- Lecture 37 - Different Benefits Under the ESI Scheme
- Lecture 38 - Employee's Provident Fund
- Lecture 39 - Gratuity
- Lecture 40 - Maternity Benefit
- Lecture 41 - Social Security in case of Building and Other Construction Worker
- Lecture 42 - Social Security for Unorganized Sector and Platform workers
- Lecture 43 - Bonded Labour System Abolition and Regulation
- Lecture 44 - Child Labour Prohibition
- Lecture 45 - Plantation Labour
- Lecture 46 - Occupational Safety Health and Working Conditions Code, 2020 -Introduction, Definitions
- Lecture 47 - Occupational Health and Safety
- Lecture 48 - Working conditions, Welfare Provisions and Liability of Occupier
- Lecture 49 - Regulation of Working Hours and the Concept of Decent Work
- Lecture 50 - Duties of Employer and Employees, Special Provisions relating to Employment of Women
- Lecture 51 - The Meaning of Factory,Manufacturing Process,Approval and Licensing of Factories
- Lecture 52 - Role of Inspector-cum-Facilitator and Other Authorities
- Lecture 53 - Social Security Fund, Offences and Penalties
- Lecture 54 - Contract Labourand Proposed ILO Convention
- Lecture 55 - Inter-State Migrant Workers
- Lecture 56 - Mine Workers and Working Conditions
- Lecture 57 - Beedi and Cigar Workers (Kerala and West Bengal Legislations)
- Lecture 58 - Audio-Visual Workers; Cine Workers and Dock Workers
- Lecture 59 - The Effective Abolition of Child Labour (C029; C105; C138 and C182)
- Lecture 60 - The Governance Conventions of ILO Labour Standards

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Law - NOC:IP Management and Technology Transfer

Subject Co-ordinator - Prof. Gouri Gargate

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Why IP and IPM ?- Context of the development of IP culture
- Lecture 3 - IP and academia - I
- Lecture 4 - IP and academia - II
- Lecture 5 - IP and its role in education and research
- Lecture 6 - Types of IP - Patent
- Lecture 7 - Types of IP - Copyright and trademark
- Lecture 8 - Types of IP - Industrial design, SICLD, PPVFR
- Lecture 9 - Types of IP - GI and Trade secret
- Lecture 10 - IPM and various jurisdictions
- Lecture 11 - Emerging areas of IP and open innovation
- Lecture 12 - What is IPMS?
- Lecture 13 - IPM system in organisation
- Lecture 14 - IPM system model - I
- Lecture 15 - IPM system model - II
- Lecture 16 - IP Audit framework to evaluate your IPM system
- Lecture 17 - Application of IPM model to develop/improve your IPM system
- Lecture 18 - Case Study - I
- Lecture 19 - Case Study - II
- Lecture 20 - Capsule version-I
- Lecture 21 - Use of IP analytics for your IPM
- Lecture 22 - IPM and competitive intelligence
- Lecture 23 - Case study - III
- Lecture 24 - Case study - IV
- Lecture 25 - Case study - V
- Lecture 26 - IP policy
- Lecture 27 - Case study - VI : IP policy of IITB
- Lecture 28 - Case study - VI : IP policy of IITB
- Lecture 29 - IP life cycle management

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - IP life cycle management and IP policy
- Lecture 31 - IP commercialization
- Lecture 32 - Technology transfer- Definition, concept
- Lecture 33 - Technology transfer models
- Lecture 34 - Different ways of technology transfer
- Lecture 35 - Case study - VII
- Lecture 36 - Introduction to TT contracts
- Lecture 37 - Structure of TT contracts
- Lecture 38 - Integrative approach- IPM and TT
- Lecture 39 - Capsule version II
- Lecture 40 - Am I ready for IPM and TT ? (Course applicability)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Law - NOC:Biodiversity Protection, Farmers and Breeders Rights

Subject Co-ordinator - Prof. Padmavati, Dr. Narendran Thiruthy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concept and Scope of Biodiversity Protection
- Lecture 2 - Types of Biodiversity, Megabiodiverse Centers
- Lecture 3 - Biodiversity Mapping
- Lecture 4 - Types of Bio-resources, Conservation Mechanisms
- Lecture 5 - International Resources / Centres of Conservation
- Lecture 6 - Traditional Resources Rights, Ecosystem Measures
- Lecture 7 - Overview of International Framework
- Lecture 8 - Convention on Biodiversity - Objectives and Articles
- Lecture 9 - International Regime on ABS
- Lecture 10 - Biodiversity and Climate Change
- Lecture 11 - Biobanks - Governance issues
- Lecture 12 - The Biodiversity Act, 2002
- Lecture 13 - Regulatory Authorities in India - NBA and SBB
- Lecture 14 - Biodiversity Management Committees
- Lecture 15 - Peoples Biodiversity Registers
- Lecture 16 - ABS Regulation and Benefit Sharing in India
- Lecture 17 - Trade Regime and Biodiversity
- Lecture 18 - Comparison of Biodiversity Laws of countries
- Lecture 19 - TRIPS and CBD Relation
- Lecture 20 - CBD and relation to other international treaties related to environment and organization
- Lecture 21 - Interrelationship and New Developments
- Lecture 22 - Biodiversity and Interface with IPR
- Lecture 23 - Challenges related to biopiracy - case studies
- Lecture 24 - Patents based on bioresources - Recent Trends and Developments
- Lecture 25 - Disclosure requirements in Patent - A comparative perspective
- Lecture 26 - Regulatory Law - Comparative perspective
- Lecture 27 - Concept, Definitions and Criteria for Plant Variety Protection
- Lecture 28 - Protection of Plant Varieties and Farmers' Right 2001 - Major Provisions of the Act
- Lecture 29 - Plant Variety Protection - Comparative Perspective

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - International Union for Protection of New Plant Varieties (UPOV)
- Lecture 31 - Farmers' Rights - Other Country Model
- Lecture 32 - Principles of Biodiversity Governance
- Lecture 33 - Compliance Procedure and Linkage with IPR
- Lecture 34 - Compliance Procedures under International Framework
- Lecture 35 - Compliance Procedures in India
- Lecture 36 - Compliance Procedures in EU
- Lecture 37 - Biodiversity and Interrelationship with Life
- Lecture 38 - Sustainable Development Agenda
- Lecture 39 - Biodiversity, ecosystem functioning, ecosystem services
- Lecture 40 - Biodiversity and Human Happiness

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Law - NOC:International Trade Law

Subject Co-ordinator - Prof. Raju KD

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the World Trading system
- Lecture 2 - The history of Indian Trade and the Formation of GATT
- Lecture 3 - The GATT to WTO
- Lecture 4 - The Uruguay Round and The World Trade Organization
- Lecture 5 - Introduction to World Agriculture Trade
- Lecture 6 - The GATT and Agriculture
- Lecture 7 - The WTO Agriculture Agreement Objectives, Domestic Support and Different Boxes
- Lecture 8 - Food Security Concerns at WTO
- Lecture 9 - Rules of Dumping and Anti - Dumping
- Lecture 10 - Determination of Injury, Definition of Industry, Domestic Industry and Casual Link
- Lecture 11 - Procedural Aspects and Indian Laws on Anti-Dumping
- Lecture 12 - Agreement on Sanitary and Phytosanitary measures (SPS)
- Lecture 13 - Assessment of Risks, Codex and Standards
- Lecture 14 - SPS v. TBT Agreement
- Lecture 15 - Technical Barriers to Trade Agreement (TBT) and Indian Institutions
- Lecture 16 - Basic TBT Commitments, Indian Laws, Rules and Regulations
- Lecture 17 - General Agreements on Trade in Services (GATS)
- Lecture 18 - Different Modes of Services
- Lecture 19 - Opening of Legal Service Sector in India
- Lecture 20 - Trade-Related Investment Measures Agreement (TRIMs)
- Lecture 21 - Local Content and WTO disputes
- Lecture 22 - Trade Related Aspects of Intellectual Property Rights (TRIPs) Agreement
- Lecture 23 - Patents and Trademarks
- Lecture 24 - Copyright, Industrial Design and Integrated Circuits
- Lecture 25 - Geographical Indications and Trade Secrets
- Lecture 26 - Doha Declaration and Post-TRIPs Scenario
- Lecture 27 - Agreement on Customs Valuation (CV)
- Lecture 28 - Different Methods of calculating Customs Valuation
- Lecture 29 - Indian Laws on Customs Valuation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Agreement on Pre-Shipment Inspection
- Lecture 31 - GATT Dispute Settlement
- Lecture 32 - Dispute Settlement in WTO
- Lecture 33 - Panel Proceedings
- Lecture 34 - Appellate Body Proceedings

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Law - NOC:Centre-State Relations in India

Subject Co-ordinator - Prof. Uday Shankar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concepts of Federalism and Theories of Federalism
- Lecture 2 - Nature of Centre-State Relations under the Indian Constitution
- Lecture 3 - Constitutional Provisions Relating to Centre-State Relations
- Lecture 4 - Administrative Relations between Centre and State
- Lecture 5 - Administrative Relations between Centre and Union Territories
- Lecture 6 - Administration and Control of Scheduled Areas and Scheduled Tribes
- Lecture 7 - Administrative Control of Tribal Areas
- Lecture 8 - Governor's role and control of Centre
- Lecture 9 - Inter-State Disputes Relating to Water
- Lecture 10 - Administrative Relations during Emergency
- Lecture 11 - Administrative Relations during Emergency
- Lecture 12 - Introduction to Services under Constitution, Public and Joint Public Service Commissions
- Lecture 13 - Constitutional Provisions relating to Services between Union and Delhi
- Lecture 14 - Distribution of Legislative Power
- Lecture 15 - Residuary Power and Interpretation of Statutes
- Lecture 16 - Power of Parliament to legislate for matters in State List
- Lecture 17 - Doctrine of Repugnancy
- Lecture 18 - Interpretation of Lists under Schedule VII of the Constitution
- Lecture 19 - Doctrine of Doctrines of Pith and Substance, Incidental and Ancillary Power
- Lecture 20 - Legislative Relations during Emergency
- Lecture 21 - Legislative Relations of State with special status
- Lecture 22 - Legislative Relations of Union and States in relation to role of Governor
- Lecture 23 - Legislative Relations of Union and Panchayats
- Lecture 24 - Legislative Power relating to tax laws
- Lecture 25 - Goods and Services Tax and Goods and Services Tax Council
- Lecture 26 - Distribution of Revenue between Centre and States
- Lecture 27 - Finance Commission under Article 280
- Lecture 28 - Inter State Commerce and Inter-Commerce Commission under Art 307
- Lecture 29 - Consolidated Fund of India and States, Contingency Fund of India and States and Exemptions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Financial Emergency
- Lecture 31 - Grants-in-aid (Art 275)
- Lecture 32 - Discretionary Grants (Art 282)
- Lecture 33 - Borrowing by Union and State
- Lecture 34 - Inter-State Council
- Lecture 35 - Zonal Council and North Eastern Council
- Lecture 36 - National Development Council, Planning Commission and NITI Aayog
- Lecture 37 - Mechanism to Resolve Centre - State Disputes
- Lecture 38 - Emerging Issues in Federalism I - One Nation One Election, Language Federalism
- Lecture 39 - Emerging Issues in Federalism II - Demand for new States, Demand for Special Status
- Lecture 40 - Role of Rajya Sabha in Federal Scheme

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Law - NOC:Right to Information and Good Governance

Subject Co-ordinator - Prof. Sairam Bhat

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Transparency, Accountability and Good Governance - Part 1
- Lecture 2 - Introduction to Transparency, Accountability and Good Governance - Part 2
- Lecture 3 - India's Progress In Ensuring Transparency and Accountability
- Lecture 4 - RTI and its contribution in strengthening Transparency and International Perspective on RTI Law
- Lecture 5 - Chronology of State RTI Laws in India and major Landmarks in RTI Journey
- Lecture 6 - Chronology of State RTI Laws in India and major Landmarks in RTI Journey
- Lecture 7 - Constitutional and judicial perspective on RTI
- Lecture 8 - Judicial Activism and RTI
- Lecture 9 - Judicial Precedents, Reasonable Restrictions and Comparative perspective on RTI
- Lecture 10 - Legislating the Right to Information
- Lecture 11 - Legislating the Right to Information
- Lecture 12 - Legislating the Right to Information
- Lecture 13 - Legislating the Right to Information
- Lecture 14 - Legislating the Right to Information
- Lecture 15 - Legislating the Right to Information
- Lecture 16 - Legislating the Right to Information
- Lecture 17 - Legislating the Right to Information
- Lecture 18 - Legislating the Right to Information
- Lecture 19 - Salient Features of the RTI Act - I
- Lecture 20 - Salient Features of the RTI Act - II
- Lecture 21 - Salient Features of the RTI Act - III
- Lecture 22 - Salient Features of the RTI Act - IV
- Lecture 23 - Salient Features of the RTI Act - V
- Lecture 24 - Salient Features of the RTI Act - VI
- Lecture 25 - Salient Features of the RTI Act - VII
- Lecture 26 - The Roles and Responsibilities of the Chief Information Commissioner - I
- Lecture 27 - The Roles and Responsibilities of the Chief Information Commissioner - II
- Lecture 28 - The Roles and Responsibilities of the Chief Information Commissioner - III
- Lecture 29 - Public Information Officers, Appeal and Internal Office Management for effective RTI Management

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- Lecture 30 - Public Information Officers, Appeal and Internal Office Management for effective RTI Management
- Lecture 31 - Public Information Officers, Appeal and Internal Office Management for effective RTI Management
- Lecture 32 - Public Information Officers, Appeal and Internal Office Management for effective RTI Management
- Lecture 33 - Public Authority - I
- Lecture 34 - Public Authority - II
- Lecture 35 - Public Authority - III
- Lecture 36 - Public Authority - IV
- Lecture 37 - Public Authority - V
- Lecture 38 - Public Authority - VI
- Lecture 39 - Public Authority - VII
- Lecture 40 - Public Authority - VIII
- Lecture 41 - Public Authority - IX
- Lecture 42 - Public Authority - X
- Lecture 43 - Public Authority - XI
- Lecture 44 - Public Authority - XII
- Lecture 45 - Public Authority - XIII
- Lecture 46 - Public Authority - XIV
- Lecture 47 - Exempted Information - I
- Lecture 48 - Exempted Information - II
- Lecture 49 - Exempted Information - III
- Lecture 50 - Exempted Information - IV
- Lecture 51 - Exempted Information - V
- Lecture 52 - Exempted Information - VI
- Lecture 53 - Exempted Information - VII
- Lecture 54 - Exempted Information - VIII
- Lecture 55 - Exempted Information - IX
- Lecture 56 - Exempted Information - X
- Lecture 57 - Exempted Information - XI
- Lecture 58 - Information Commissions under the RTI Act - I
- Lecture 59 - Information Commissions under the RTI Act - II
- Lecture 60 - Information Commissions under the RTI Act - III
- Lecture 61 - Information Commissions under the RTI Act - IV
- Lecture 62 - Information Commissions under the RTI Act - V
- Lecture 63 - Role of NGOs and Right to Information Act
- Lecture 64 - RTI Act and Political Parties - I
- Lecture 65 - RTI Act and Political Parties - II
- Lecture 66 - Official Secrets Act and RTI
- Lecture 67 - Whistleblowers Protection Act and Right to Information - I
- Lecture 68 - Whistleblowers Protection Act and Right to Information - II

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- Lecture 69 - Whistleblowers Protection Act and Right to Information - III
- Lecture 70 - Comparative Perspective on RTI Law - I
- Lecture 71 - Comparative Perspective on RTI Law - II
- Lecture 72 - Ecological Perspective of Right to Information
- Lecture 73 - Victimization and Misuse of Right to Information
- Lecture 74 - Landmark Judgements Under the RTI Act - I
- Lecture 75 - Landmark Judgements Under the RTI Act - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Law - NOC:Constitution of India and Environmental Governance: Administrative and Adjudicatory

Subject Co-ordinator - Prof. M. K. Ramesh, Prof. Sairam Bhat

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Environmental Governance: Basis, Sources and Foundational Norms: Salient and Stand
- Lecture 2 - Theoretical Moorings, Sources and Evolution - Part 1
- Lecture 3 - Theoretical Moorings, Sources and Evolution - Part 2
- Lecture 4 - Theoretical Moorings, Sources and Evolution - Part 3
- Lecture 5 - Theoretical Moorings, Sources and Evolution - Part 4
- Lecture 6 - Theoretical Moorings, Sources and Evolution - Part 5
- Lecture 7 - Theoretical Moorings, Sources and Evolution - Part 6
- Lecture 8 - Theoretical Moorings, Sources and Evolution - Part 7
- Lecture 9 - Common Law Roots and Constitutional Basis: Common Law and Criminal Law Anchors
- Lecture 10 - Constitutional Scheme of Environment and Natural Resources Management
- Lecture 11 - Communitarian Management and Decentralised Governance
- Lecture 12 - Constitutional Right to Environment
- Lecture 13 - Overarching Law-Environment Protection Act - I
- Lecture 14 - Overarching Law-Environment Protection Act - II
- Lecture 15 - Pollution Control: Law, Enforcement and Compliance: The Setting; Scope and Application
- Lecture 16 - Authorities regulating Pollution Control
- Lecture 17 - Pollution Control Boards: Its constitution and role
- Lecture 18 - Powers and Functions of Various Authorities - I
- Lecture 19 - Powers and Functions of Various Authorities - II
- Lecture 20 - Environment Impact Assessment Law: Why EIA? Evolution of EIA
- Lecture 21 - EIA Notification, 2006 - I
- Lecture 22 - EIA Notification, 2006 - II
- Lecture 23 - United Nations Framework Convention on Climate Change
- Lecture 24 - Kyoto Protocol: Developments Between 1992-2012
- Lecture 25 - Paris Agreement and Climate Justice
- Lecture 26 - India Case Study: National Rendezvous for Climate Justice
- Lecture 27 - Biodiversity: Significance and Concerns
- Lecture 28 - Development of the International Framework on Biodiversity: Convention on Biodiversity 1992
- Lecture 29 - Protocols Under the Convention on Biodiversity 1992

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Indian Biodiversity Legal Framework
- Lecture 31 - Legal Framework on Biosafety
- Lecture 32 - Forest and Wildlife Law: Introduction to Indian Forest Act 1927
- Lecture 33 - Forest and Wildlife Law: Introduction to Forest Conservation Act, 1980
- Lecture 34 - Forest Rights and CAMPA: Introduction to Forest Rights Act, 2006
- Lecture 35 - Forest and Wildlife Law: Introduction to Wildlife Protection Act, 1972
- Lecture 36 - Specific Ecosystems and their Management: I. Regulation of Coastal Areas
- Lecture 37 - Specific Ecosystems and their Management: II. Ecologically Sensitive Zones
- Lecture 38 - Specific Ecosystems and their Management: III. Wetlands and Water Bodies
- Lecture 39 - Water Policy and Law: An Overview
- Lecture 40 - Water Policy and Law: Indian Legal Framework
- Lecture 41 - Basic Legal Framework and Strategies for Waste Management - I
- Lecture 42 - Basic Legal Framework and Strategies for Waste Management - II
- Lecture 43 - Law Concerning Hazardous Wastes and Substances
- Lecture 44 - Environmental Justice Dispensation: Role of Higher Judiciary
- Lecture 45 - Catalytic Role and Complementary Role of the Judiciary
- Lecture 46 - Positive Aspects of Judicial Activism
- Lecture 47 - Critical Review of Judicial Activism
- Lecture 48 - Overview of the law relating to Compensation for Environmental Wrong and History of the Growth of Environmental Tribunals
- Lecture 49 - History and Growth of Environmental Tribunals
- Lecture 50 - Overview of the law relating to Compensation for Environmental Wrong and History of the Growth of Environmental Tribunals
- Lecture 51 - History and Growth of Environmental Tribunals
- Lecture 52 - National Green Tribunal - I
- Lecture 53 - National Green Tribunal - II
- Lecture 54 - National Green Tribunal - III
- Lecture 55 - Accessing and Securing Environmental Justice within the Statutory Framework
- Lecture 56 - Environmental Legal Order: Law and Policy
- Lecture 57 - Environmental Legal Order: Structures and Schemes of Governance
- Lecture 58 - Environmental Adjudication
- Lecture 59 - Suggestions and Wrap Up



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Law - NOC:Constitutional Studies

Subject Co-ordinator - Prof. Sudhir Krishnaswamy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Constitutions

Lecture 2 - Why have a Constitution?

Lecture 3 - Constitutional Change

Lecture 4 - How Should a Society Make a Constitution?

Lecture 5 - Making India's Constitution

Lecture 6 - Purpose History Preamble

Lecture 7 - Preamble Values Meaning

Lecture 8 - Citizenship: Basic Concepts

Lecture 9 - Citizenship: Challenges and Future

Lecture 10 - Introduction to Fundamental Rights

Lecture 11 - Fundamental Rights

Lecture 12 - Right to Equality

Lecture 13 - Directive Principles of State Policy and Philosophical Principles

Lecture 14 - Case Studies

Lecture 15 - Right to Life

Lecture 16 - Positive Life

Lecture 17 - Free Speech and Religious Freedom

Lecture 18 - Directive Principles of State Policy

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Law - NOC:Advanced Contracts, Tendering and Public Procurement

Subject Co-ordinator - Prof. Sairam Bhat

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Outline and Overview - Part 1
- Lecture 2 - Course Outline and Overview - Part 2
- Lecture 3 - Introduction to Contract Law
- Lecture 4 - Development of Contract Law
- Lecture 5 - Evaluation of Contract Law
- Lecture 6 - Formation of Contract - Offer
- Lecture 7 - Formation of Contract - Revocation of Offer
- Lecture 8 - Formation of Contract - Capacity to Contract
- Lecture 9 - Formation of Contract - Capacity and Consideration
- Lecture 10 - Formation of Contract - Free Consent - Part 1
- Lecture 11 - Formation of Contract - Free Consent - Part 2
- Lecture 12 - Formation of Contract - Free Consent III: Unconscionable and Standard Form of Contracts
- Lecture 13 - Formation of Contract- Free Consent IV: Voidable Contracts
- Lecture 14 - Formation of Contract: Legality of Object and Public Policy - Part 1
- Lecture 15 - Formation of Contract: Legality of Object and Public Policy - Part 2
- Lecture 16 - Formation of Contract: Legality of Object and Public Policy - Part 3
- Lecture 17 - Formation of Contract: Legality of Object and Public Policy - Part 4
- Lecture 18 - Void Agreements - Part 1
- Lecture 19 - Void Agreements - Part 2
- Lecture 20 - Void Agreements - Part 3
- Lecture 21 - Void Agreements - Part 4
- Lecture 22 - Discharge of Contracts - Part 1
- Lecture 23 - Discharge of Contracts - Part 2
- Lecture 24 - Breach of Contracts - Part 1
- Lecture 25 - Breach of Contracts - Part 2
- Lecture 26 - Breach of Contracts - Part 3
- Lecture 27 - Liquidated Damages in Government Contracts - Part 1
- Lecture 28 - Liquidated Damages in Government Contracts - Part 2
- Lecture 29 - Special Contracts: Bailment - Part 1

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- Lecture 30 - Special Contracts: Bailment - Part 2
- Lecture 31 - Special Contracts: Pledge
- Lecture 32 - Special Contracts: Indemnity - Part 1
- Lecture 33 - Special Contracts: Indemnity - Part 2
- Lecture 34 - Special Contracts: Guarantee - Part 1
- Lecture 35 - Special Contracts: Guarantee - Part 2
- Lecture 36 - Special Contracts: Agency - Part 1
- Lecture 37 - Special Contracts: Agency - Part 2
- Lecture 38 - Special Contracts: Sale of Goods - Part 1
- Lecture 39 - Special Contracts: Sale of Goods - Part 2
- Lecture 40 - Special Contracts: Sale of Goods - Part 3
- Lecture 41 - Special Contracts: Sale of Goods - Part 4
- Lecture 42 - Special Contracts: Sale of Goods - Part 5
- Lecture 43 - Tendering, Contracts, Public Procurement
- Lecture 44 - Public Private Partnerships: Law and Policy in India - Part 1
- Lecture 45 - Public Private Partnerships: Law and Policy in India - Part 2
- Lecture 46 - Public Private Partnerships: Law and Policy in India - Part 3
- Lecture 47 - Public Private Partnerships: Law and Policy in India - Part 4
- Lecture 48 - Government Contracts - Part 1
- Lecture 49 - Government Contracts - Part 2
- Lecture 50 - Government Contracts - Part 3
- Lecture 51 - Government Contracts - Part 4
- Lecture 52 - Government Contracts - Part 5
- Lecture 53 - Bank Guarantee
- Lecture 54 - Writ Reliefs in Government Contracts - Part 1
- Lecture 55 - Writ Reliefs in Government Contracts - Part 2
- Lecture 56 - Arbitration Clauses in Government Contracts

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Law - NOC:Conflict Management through Mediation

Subject Co-ordinator - Dr. Ashok R. Patil

Co-ordinating Institute - National Law School of India University

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Course Outline and concepts  
Lecture 2 - Need for ADR and Hierarchy of Courts  
Lecture 3 - Conflict and Conflict Management - Part 1  
Lecture 4 - Conflict and Conflict Management - Part 2  
Lecture 5 - Legal Development of ADR in India  
Lecture 6 - Introduction to Week 2  
Lecture 7 - Judicial Process v Mediation  
Lecture 8 - Arbitration v Mediation  
Lecture 9 - Conciliation v Mediation  
Lecture 10 - Lok Adalats v Mediation  
Lecture 11 - Negotiation v Mediation  
Lecture 12 - Introduction to Week 3  
Lecture 13 - Concept of Mediation  
Lecture 14 - Features of mediation  
Lecture 15 - Advantages of mediation  
Lecture 16 - Stages of Mediation  
Lecture 17 - Types of Mediation  
Lecture 18 - Pre-Litigation Mediation  
Lecture 19 - Post-Litigation Mediation  
Lecture 20 - Private Mediation  
Lecture 21 - Challenges in mediation  
Lecture 22 - Introduction to Week 5  
Lecture 23 - Communication in mediation  
Lecture 24 - Paraphrasing, Restating and Reflecting  
Lecture 25 - Summarising  
Lecture 26 - Reframing  
Lecture 27 - Body Language and Perception  
Lecture 28 - Do's and Don't for Mediator  
Lecture 29 - Role of Mediator

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- Lecture 30 - Mediator-Personality
- Lecture 31 - Meditation under Consumer Protection Act, 2019 - Introduction
- Lecture 32 - Meditation under Consumer Protection Act, 2019 - Chapter V
- Lecture 33 - Consumer Protection (Mediation) Rules, 2020
- Lecture 34 - Consumer Protection (Mediation) Regulations, 2020
- Lecture 35 - Mediation under Commercial Courts Act, 2015 - Part 1
- Lecture 36 - Mediation under Commercial Courts Act, 2015 - Part 2
- Lecture 37 - United Nations Convention on International Settlement Agreements Resulting from Mediation, 2018
- Lecture 38 - United Nations Convention on International Settlement Agreements Resulting from Mediation, 2018
- Lecture 39 - Mediation Bill, 2021 - Part 1
- Lecture 40 - Mediation Bill, 2021 - Part 2
- Lecture 41 - Online Dispute Resolution
- Lecture 42 - Online Mediation
- Lecture 43 - Mediation under Companies Act, 2013
- Lecture 44 - Mediation Settlement
- Lecture 45 - Mediation Settlement Illustration/Sample 1
- Lecture 46 - Mediation Settlement Illustration/Sample 2 - Part 1
- Lecture 47 - Mediation Settlement Illustration/Sample 2 - Part 2
- Lecture 48 - Mediation Settlement Illustration/Sample 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Law - NOC:Constitution Law and Public Administration in India

Subject Co-ordinator - Prof. Sairam Bhat

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Constitutional Law and Public Administration in India
- Lecture 2 - Background, History and Framing of the Constitution of India - I
- Lecture 3 - Background, History and Framing of the Constitution of India - II
- Lecture 4 - Sources of the Constitution and Constituent Assembly
- Lecture 5 - Salient Features of the Constitution of India
- Lecture 6 - Schedules of the Indian Constitution
- Lecture 7 - Constitution and Public Policy
- Lecture 8 - Supremacy of the Indian Constitution - I
- Lecture 9 - Supremacy of the Indian Constitution - II
- Lecture 10 - Preamble of the Indian Constitution
- Lecture 11 - Union and Its Territory - I
- Lecture 12 - Union and Its Territory - II
- Lecture 13 - Union and Its Territory - III
- Lecture 14 - Citizenship - I
- Lecture 15 - Citizenship - II
- Lecture 16 - Introduction to Fundamental Rights
- Lecture 17 - Article 12 Definition of State - I
- Lecture 18 - Article 12 Definition of State - II
- Lecture 19 - Right to Equality - I
- Lecture 20 - Right to Equality - II
- Lecture 21 - Rights Against Discrimination - I
- Lecture 22 - Rights Against Discrimination - II
- Lecture 23 - Right to Freedom - I
- Lecture 24 - Right to Freedom - II
- Lecture 25 - Article 20
- Lecture 26 - Article 21
- Lecture 27 - Article 21A and Article 22
- Lecture 28 - Right to Freedom of Religion
- Lecture 29 - Right to Constitutional Remedies - I (Article 32)

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- Lecture 30 - Right to Constitutional Remedies - II (Article 32 and Article 226)
- Lecture 31 - Article 33 - Armed Forces and Fundamental Rights
- Lecture 32 - Directive Principles of State Policy (DPSPs)
- Lecture 33 - DPSPs and Fundamental Duties
- Lecture 34 - Amendment to the Constitution
- Lecture 35 - Different Forms of Governance: Federal, Unitary, Parliamentary, Presidential System
- Lecture 36 - Introduction to Union and State Legislatures
- Lecture 37 - Union and State Legislatures - II
- Lecture 38 - Law Making and Legislative Interpretation
- Lecture 39 - Election Commission and Election Process
- Lecture 40 - Union Executive
- Lecture 41 - State Executive
- Lecture 42 - Introduction to the Indian Judiciary
- Lecture 43 - Supreme Court of India
- Lecture 44 - Judicial Review - I
- Lecture 45 - Judicial Review - II
- Lecture 46 - Constitutional Authorities - I (CAG and EC)
- Lecture 47 - Constitutional Authorities - II (EC)
- Lecture 48 - Constitutional Authorities - III (Public Service Commissions and Law Officers)
- Lecture 49 - Local Self Governance
- Lecture 50 - E-Governance
- Lecture 51 - Administrative Tribunals - I
- Lecture 52 - Administrative Tribunals - II
- Lecture 53 - Administrative Tribunals - III
- Lecture 54 - Role of Public Policy in Public Administration - I
- Lecture 55 - Role of Public Policy in Public Administration - II
- Lecture 56 - Role of Public Policy in Public Administration - III
- Lecture 57 - Delegated Legislation - I
- Lecture 58 - Delegated Legislation - II
- Lecture 59 - Non-Constitutional Bodies - I (CVC)
- Lecture 60 - Non-Constitutional Bodies - II (CBI)
- Lecture 61 - Non-Constitutional Bodies - III (Lokpal and Lokayukta)
- Lecture 62 - Non-Constitutional Bodies - IV (Information Commission)
- Lecture 63 - Non-Constitutional Bodies - V (Disaster Management Authority)
- Lecture 64 - Non-Constitutional Bodies - VI (Planning Commission and RBI)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Managerial Accounting

Subject Co-ordinator - Dr. Varadraj Bapat

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Management Accounting
- Lecture 2 - Double Entry System, Forms of Organisation
- Lecture 3 - Financial Statements
- Lecture 4 - Balance Sheet
- Lecture 5 - Profit and Loss Account
- Lecture 6 - Company Account
- Lecture 7 - Accounting Concepts, Standards, IFRS
- Lecture 8 - Depreciation, Inventory, Goodwill
- Lecture 9 - Inventory Valuation, Cash Flow
- Lecture 10 - Cash Flow Statement Cases
- Lecture 11 - Cash Flow Statement Cases
- Lecture 12 - Cash Flow Statement Cases-Part II
- Lecture 13 - Fund Flow Statement Cases
- Lecture 14 - Common-size, Comparative Statement Analysis
- Lecture 15 - Ratio Analysis
- Lecture 16 - Financial Statements Analysis
- Lecture 17 - Comparative, Common-size and Ratio Analysis
- Lecture 18 - Financial Statements Analysis - Colgate Palmolive Case
- Lecture 19 - Financial Statements Analysis - Dabur India Case
- Lecture 20 - Types of Costs
- Lecture 21 - Accounting for Costs
- Lecture 22 - Cost Allocation, Absorption
- Lecture 23 - Job and Process Accounting
- Lecture 24 - Job and Process Accounting including cost sheet and equivalent production
- Lecture 25 - Equivalent production and Activity Based Costing
- Lecture 26 - Activity Based Costing and Management
- Lecture 27 - Cost Volume Profit Analysis
- Lecture 28 - Relevant and Sunk Cost in Decision Making
- Lecture 29 - New Product, Shut Down and Joint Products

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Budget and Budgetary control
- Lecture 31 - Budgeting and Standard Costing
- Lecture 32 - Standard Costing - Material, Labour and Overhead Variances
- Lecture 33 - Standard Costing - Mix, Yield, Sales and Fixed Overhead Variances
- Lecture 34 - Standard Costing - Mix, Yield and Fixed Overhead Variances
- Lecture 35 - Cost Volume Profit and Break-Even Point Analysis
- Lecture 36 - Cost Volume Profit Analysis - Cost Indifference Point and Leverage
- Lecture 37 - Cash Flow Advanced Cases
- Lecture 38 - Cash Flow Advanced Cases-Part II
- Lecture 39 - Financial Statements Analysis Advanced
- Lecture 40 - Financial Statement- Forecasting and Valuation - Dabur Case
- Lecture 41 - Financial Statement- Forecasting and use of Adjusted data - Pfizer and Merck Case

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Managerial Economics

Subject Co-ordinator - Dr. Trupti Mishra

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Managerial Economics  
Lecture 2 - Introduction to Managerial Economics (Continued...)  
Lecture 3 - Introduction to Managerial Economics (Continued...)  
Lecture 4 - Basic Tools of Economic Analysis and Optimization Techniques  
Lecture 5 - Basic Tools of Economic Analysis and Optimization Techniques (Continued...)  
Lecture 6 - Basic Tools of Economic Analysis and Optimization Techniques (Continued...)  
Lecture 7 - Basic Tools of Economic Analysis and Optimization Techniques (Continued...)  
Lecture 8 - Theory of Demand  
Lecture 9 - Theory of Demand (Continued...)  
Lecture 10 - Theory of Demand (Continued...)  
Lecture 11 - Theory of Demand (Continued...)  
Lecture 12 - Consumer Behaviour  
Lecture 13 - Consumer Behaviour (Continued...)  
Lecture 14 - Elasticity of Supply  
Lecture 15 - Demand Forecasting  
Lecture 16 - Demand Forecasting (Continued...)  
Lecture 17 - Theory of Production  
Lecture 18 - Theory of Production (Continued...)  
Lecture 19 - Theory of Production (Continued...)  
Lecture 20 - Theory of Cost  
Lecture 21 - Theory of Cost (Continued...)  
Lecture 22 - Theory of Cost (Continued...)  
Lecture 23 - Theory of Cost (Continued...)  
Lecture 24 - Theory of Market  
Lecture 25 - Perfect Competition  
Lecture 26 - Perfect Competition (Continued...)  
Lecture 27 - Monopoly  
Lecture 28 - Monopoly (Continued...)  
Lecture 29 - Monopoly (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Monopolistic
- Lecture 31 - Oligopoly
- Lecture 32 - Oligopoly (Continued...)
- Lecture 33 - Oligopoly (Continued...)
- Lecture 34 - Oligopoly (Continued...)
- Lecture 35 - Oligopoly and Game Theory
- Lecture 36 - Oligopoly and Game Theory (Continued...)
- Lecture 37 - Game Theory / Product Pricing
- Lecture 38 - Product Pricing
- Lecture 39 - Product Pricing (Continued...)
- Lecture 40 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Financial Accounting

Subject Co-ordinator - Dr. Varadraj Bapat

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Scope of Accounting
- Lecture 2 - Financial Statements
- Lecture 3 - Balance Sheet - 1
- Lecture 4 - Balance Sheet - 2
- Lecture 5 - Balance Sheet - 3
- Lecture 6 - Balance Sheet - 4
- Lecture 7 - Balance Sheet - 5
- Lecture 8 - Profit and Loss Account - 1
- Lecture 9 - Profit and Loss Account - 2
- Lecture 10 - Profit and Loss Account - 3
- Lecture 11 - Depreciation - 1
- Lecture 12 - Depreciation - 2
- Lecture 13 - Inventory Valuation
- Lecture 14 - Cash Flow Statement - 1
- Lecture 15 - Cash Flow Statement - 2
- Lecture 16 - Cash Flow Statement - 3
- Lecture 17 - Cash Flow Statement - 4
- Lecture 18 - Cash Flow Statement - 5
- Lecture 19 - Corporate Governance
- Lecture 20 - Corporate Governance
- Lecture 21 - Corporate Governance
- Lecture 22 - Accounting Standards and Principles
- Lecture 23 - Evolution of Accounting
- Lecture 24 - Recording of Financial Transactions
- Lecture 25 - Zee Case
- Lecture 26 - Zee Case
- Lecture 27 - Hindalco Case
- Lecture 28 - Hindalco Case
- Lecture 29 - Interpretation and Analysis of Financial Statements

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ratio Analysis and Interpretation - 1
- Lecture 31 - Ratio Analysis and Interpretation - 2
- Lecture 32 - Interpretation and Analysis of Financial Statements
- Lecture 33 - Interpretation and Analysis of Financial Statements
- Lecture 34 - Interpretation and Analysis of Financial Statements
- Lecture 35 - Interpretation and Analysis of Financial Statements
- Lecture 36 - Financial Statement Analysis
- Lecture 37 - Financial Statement Analysis
- Lecture 38 - Financial Statement Analysis
- Lecture 39 - Financial Statement Analysis
- Lecture 40 - Revision of Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Cost Accounting

Subject Co-ordinator - Dr. Varadraj Bapat

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Cost Accounting
- Lecture 2 - Classification of Costs
- Lecture 3 - Marginal Costing
- Lecture 4 - Cost Volume Profit Analysis
- Lecture 5 - Margin of Safety
- Lecture 6 - Application of Breakeven Point Analysis
- Lecture 7 - Sensitivity Analysis
- Lecture 8 - Case of Ayur Pharma
- Lecture 9 - Different Decision Scenarios and Profit Planning
- Lecture 10 - Relevant Costs in Decision Making
- Lecture 11 - Case Study
- Lecture 12 - Case Study
- Lecture 13 - Case Study on Projection
- Lecture 14 - Case Study
- Lecture 15 - Budgeting and Budgetary Control
- Lecture 16 - Functional Budget
- Lecture 17 - Cash Budget
- Lecture 18 - Standard Costing And Variance Analysis
- Lecture 19 - Material Cost Variances
- Lecture 20 - Overhead Variance

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Game Theory

Subject Co-ordinator - Prof.K.S. Mallikarjuna Rao

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Combinatorial Games  
Lecture 2 - Combinatorial Games  
Lecture 3 - Combinatorial Games  
Lecture 4 - Combinatorial Games  
Lecture 5 - Combinatorial Games  
Lecture 6 - Combinatorial Games  
Lecture 7 - Combinatorial Games  
Lecture 8 - Combinatorial Games  
Lecture 9 - Combinatorial Games  
Lecture 10 - Zero-Sum Games  
Lecture 11 - Zero-Sum Games  
Lecture 12 - Zero-Sum Games  
Lecture 13 - Zero-Sum Games  
Lecture 14 - Zero-Sum Games  
Lecture 15 - Zero-Sum Games  
Lecture 16 - Zero-Sum Games  
Lecture 17 - Zero-Sum Games  
Lecture 18 - Non-Zero-Sum Games  
Lecture 19 - Non-Zero-Sum Games  
Lecture 20 - Non-Zero-Sum Games  
Lecture 21 - Iterated elimination of strictly dominated strategies  
Lecture 22 - Lemke-Howson Algorithm - I  
Lecture 23 - Lemke-Howson Algorithm - II  
Lecture 24 - Lemke-Howson Algorithm - III  
Lecture 25 - Evolutionarily Stable Strategies - I  
Lecture 26 - Evolutionarily Stable Strategies - II  
Lecture 27 - Evolutionarily Stable Strategies - III  
Lecture 28 - Fictitious Play  
Lecture 29 - Brown-Von Neumann-Nash Dynamics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Potential Games
- Lecture 31 - Cooperative Games
- Lecture 32 - Cooperative Games
- Lecture 33 - Cooperative Games
- Lecture 34 - Cooperative Games
- Lecture 35 - Cooperative Games
- Lecture 36 - Cooperative Games
- Lecture 37 - Cooperative Games
- Lecture 38 - Cooperative Games
- Lecture 39 - Cooperative Games
- Lecture 40 - The Matching Problem



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Introduction to Stochastic Processes

Subject Co-ordinator - Prof. Manjesh Hanawal

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Sample Space and events
- Lecture 2 - Axioms of Probability
- Lecture 3 - Independence of events and Conditional Probability
- Lecture 4 - Baye's Theorem and Introduction to Random Variables
- Lecture 5 - CDF and it's properties
- Lecture 6 - Continuity of Probability
- Lecture 7 - Discrete and Continuous random variables
- Lecture 8 - Expectation of random variables and its properties
- Lecture 9 - Variance and some inequalities of random variables
- Lecture 10 - Discrete Probability Distributions
- Lecture 11 - Continuous Probability Distributions
- Lecture 12 - Jointly distributed random variables and conditional distributions
- Lecture 13 - Correlation and Covariance
- Lecture 14 - Transformation of random vectors
- Lecture 15 - Gaussian random vector and joint Gaussian distribution
- Lecture 16 - Random Processes
- Lecture 17 - Properties of random Process
- Lecture 18 - Poisson Process
- Lecture 19 - Properties of Poisson Process - Part 1
- Lecture 20 - Properties of Poisson Process - Part 2
- Lecture 21 - Convergence of sequence of random variables - Part 1
- Lecture 22 - Convergence of sequence of random variables - Part 2
- Lecture 23 - Relation between different notions of convergence
- Lecture 24 - Cauchy's criteria of convergence
- Lecture 25 - Convergence in expectation
- Lecture 26 - Law of Large Numbers
- Lecture 27 - Central limit theorem
- Lecture 28 - Chernoff bound
- Lecture 29 - Introduction to Markov property

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transition Probability Matrix
- Lecture 31 - Finite dimensional distribution of Markov chains
- Lecture 32 - Strong Markov Property
- Lecture 33 - Stopping Time
- Lecture 34 - Hitting Times and Recurrence
- Lecture 35 - Mean Number of returns to a state
- Lecture 36 - Communicating classes and class properties
- Lecture 37 - Class Properties (Continued...)
- Lecture 38 - Positive Recurrence and The Invariant Probability Vector
- Lecture 39 - Properties of Invariant Probability Vector
- Lecture 40 - Condition For Transience
- Lecture 41 - Example of Queue
- Lecture 42 - Queue Continued and Example of Page Rank
- Lecture 43 - Introduction to renewal Theory
- Lecture 44 - The Elementary Renewal Theorem
- Lecture 45 - Application to DTMC
- Lecture 46 - Renewal Reward Theorem
- Lecture 47 - Introduction to Continuous Time Markov Chains
- Lecture 48 - Properties of states in CTMC
- Lecture 49 - Embedded markov chain

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Introduction to System Dynamics Modeling

Subject Co-ordinator - Prof. Jayendran Venkateswaran

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Systems Thinking
- Lecture 2 - Systems Thinking and System Dynamics
- Lecture 3 - Causal Loop Diagram (CLD)
- Lecture 4 - Guidelines to build CLD - I
- Lecture 5 - Guidelines to build CLD - II
- Lecture 6 - Guidelines to build CLD - III
- Lecture 7 - Examples of CLD
- Lecture 8 - Study Traffic Congestion using CLD - I
- Lecture 9 - Study Traffic Congestion using CLD - II
- Lecture 10 - Stock and Flow Diagram Brief History
- Lecture 11 - Stock and Flow Diagram
- Lecture 12 - Stock and Flow Diagram
- Lecture 13 - Stock and Flow Diagram
- Lecture 14 - Graphical Integration
- Lecture 15 - Patterns of Behaviour
- Lecture 16 - Dynamics of Positive Feedback systems
- Lecture 17 - Doubling Time in Positive Feedback systems
- Lecture 18 - Introduction to Modeling using Vensim software
- Lecture 19 - Dynamics of Negative Feedback system
- Lecture 20 - Dynamics of Negative Feedback System
- Lecture 21 - Negative Feedback Loop
- Lecture 22 - Dynamics of Negative Feedback System
- Lecture 23 - Zero-Value Goal system, Positive and Negative Loop Systems
- Lecture 24 - Dynamic of Simple Structures
- Lecture 25 - Dynamic of Simple Structures
- Lecture 26 - Dynamic of Simple Structures
- Lecture 27 - Dynamic of Simple Structures
- Lecture 28 - Dynamic of Simple Structures
- Lecture 29 - Dynamic of Simple Structures

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dynamic of Simple Structures
- Lecture 31 - Diffusion Model and parameter estimation - I
- Lecture 32 - Diffusion Model and parameter estimation - II
- Lecture 33 - Bass Diffusion Model
- Lecture 34 - Bass Diffusion Model (Continued...)
- Lecture 35 - Modeling Delays
- Lecture 36 - Modeling Delays
- Lecture 37 - Modeling Delays
- Lecture 38 - Delays
- Lecture 39 - Delays
- Lecture 40 - Delays
- Lecture 41 - Second Order Systems
- Lecture 42 - Second Order Systems
- Lecture 43 - Modeling Oscillations - Part I
- Lecture 44 - Modeling Oscillations - Part II
- Lecture 45 - Modeling Non-linear Relations
- Lecture 46 - Modeling Non-linear Relations
- Lecture 47 - Formulation Non Linear Relationship Table Functions - Part I
- Lecture 48 - Formulation Non Linear Relationship Table Functions - Part II
- Lecture 49 - Stock Management Structure - Part I
- Lecture 50 - Stock Management Structure - Part II
- Lecture 51 - Supply Chain Models - I
- Lecture 52 - Supply Chain Models - II
- Lecture 53 - Supply Chain Models - III
- Lecture 54 - Supply Chain Models - IV
- Lecture 55 - Modeling Example
- Lecture 56 - Testing System Dynamics Models
- Lecture 57 - Testing System Dynamics Models
- Lecture 58 - Testing System Dynamics Models
- Lecture 59 - Model Validation and Policy design
- Lecture 60 - Sensitivity analysis and policy analysis
- Lecture 61 - Modeling Example
- Lecture 62 - System Archetypes
- Lecture 63 - Course Wrap-up

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Bandit Algorithm (Online Machine Learning)

Subject Co-ordinator - Prof. Manjesh Hanawal

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Online Learning - I
- Lecture 2 - Introduction to Online Learning - II
- Lecture 3 - Basics of Statistical Learning
- Lecture 4 - Empirical risk minimization
- Lecture 5 - Consistency Halving algorithm
- Lecture 6 - Online Learnability
- Lecture 7 - Standard Optimal Algorithm
- Lecture 8 - Classification in unrealizability case
- Lecture 9 - Covers Impossibility Result
- Lecture 10 - Weighted Majority
- Lecture 11 - Proof Weighted Majority
- Lecture 12 - Full Information vs Bandit Setting
- Lecture 13 - Adversarial Bandit Setting
- Lecture 14 - Exponential Weights for Exploration and Exploitation Algorithm
- Lecture 15 - Regret Bound of Exp3
- Lecture 16 - Regret Bound of Exp3 (Continued...)
- Lecture 17 - Exp3.P and Exp3.IX
- Lecture 18 - Online Convex Optimisation
- Lecture 19 - Follow the Leader (FTL) Algorithm
- Lecture 20 - Follow the Regularized Leader
- Lecture 21 - Online Gradient Descent
- Lecture 22 - Strongly Convex Function
- Lecture 23 - FoReL with Strongly Convex Regulariser
- Lecture 24 - FoReL with Strongly Convex Regulariser (Continued...)
- Lecture 25 - Euclidean and Entropy Regularizer
- Lecture 26 - Introduction to Stochastic Bandits
- Lecture 27 - Concentration Inequalities
- Lecture 28 - Subgaussian Random Variable
- Lecture 29 - Regret Definition and Regret Decomposition

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Explore and Commit (ETC) Algorithm
- Lecture 31 - Regret Analysis and ETC
- Lecture 32 - Optimism in the Face of Uncertainty
- Lecture 33 - Upper Confidence Bound Algorithm
- Lecture 34 - Regret Analysis of UCB
- Lecture 35 - Problem Dependent and Independent Bounds of UCB
- Lecture 36 - KL-UCB Algorithm
- Lecture 37 - Thompson Sampling - Brief Discussion
- Lecture 38 - Proof Idea of Lower Bounds - 1
- Lecture 39 - Proof Idea of Lower Bounds - 2
- Lecture 40 - Proof of Lower Bound - 1
- Lecture 41 - Proof of Lower Bound - 2
- Lecture 42 - Stochastic Contextual Bandits
- Lecture 43 - Introduction to Stochastic Linear Bandits
- Lecture 44 - Stochastic Linear Bandits
- Lecture 45 - Regret Analysis of SLB - I
- Lecture 46 - Regret Analysis of SLB - II
- Lecture 47 - Regret Analysis of SLB - III
- Lecture 48 - Construction of Confidence Ellipsoids - I
- Lecture 49 - Construction of Confidence Ellipsoids - II
- Lecture 50 - Adversarial Contextual Bandits - I
- Lecture 51 - Adversarial Contextual Bandits - II
- Lecture 52 - Exp4 Algorithm
- Lecture 53 - Regret of Exp4
- Lecture 54 - Adversarial Linear Bandits
- Lecture 55 - Exp3 for Adversarial Linear Bandits
- Lecture 56 - Introduction to Pure Exploration and its lower bounds
- Lecture 57 - Uniform Exploration
- Lecture 58 - KL-LUCB
- Lecture 59 - Lilâ UCB
- Lecture 60 - Lower Bound for Pure Exploration Problem

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Organization Development and Change in 21st Century

Subject Co-ordinator - Prof. Ashish Pandey

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Coping with Change and Transient Competitive Advantage
- Lecture 3 - Sustainable Development, OD and Management of Change
- Lecture 4 - Social Entrepreneurship
- Lecture 5 - Comparison of Various Planned Change Models
- Lecture 6 - Diagnostic for Organization Development and Change
- Lecture 7 - Steps in Successful Organizational Change
- Lecture 8 - Design of Effective Interventions and their prerequisites
- Lecture 9 - Individual Level OD Interventions
- Lecture 10 - Different kinds of Individual level OD Interventions
- Lecture 11 - Group or Team Level OD Interventions
- Lecture 12 - Design of Specific Interventions to Tackle Different Challenges of Different Teams
- Lecture 13 - Organization Level OD Interventions
- Lecture 14 - Discussion on various large group Interventions
- Lecture 15 - Appreciative Inquiry - â Positiveâ Turn of OD
- Lecture 16 - Managing OD and Change through Restructuring Organizations
- Lecture 17 - Different Types of Organization Designs
- Lecture 18 - New Forms of Organization Design
- Lecture 19 - Change in the Organization Design
- Lecture 20 - Change in Organization Culture
- Lecture 21 - Can Organization Culture be Managed?
- Lecture 22 - Organization Development in Digital Transformation
- Lecture 23 - Mergers and Acquisitions - A Special Case of OD
- Lecture 24 - Stages of Mergers and Acquisitions
- Lecture 25 - Transorganizational OD Intervention
- Lecture 26 - OD Interventions through Human Resource Functions
- Lecture 27 - Talent Management as OD Intervention
- Lecture 28 - Organization Learning - Relevance and Possibility
- Lecture 29 - Learning Organization - Experimentation, Knowledge Management and Innovation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Organizational Development - Cultural and Economic Contexts
- Lecture 31 - Organization Development - Global and Trans-organizational Setting
- Lecture 32 - Organizational Development in the Entrepreneurial Firms
- Lecture 33 - OD Interventions in Family Owned Entrepreneurial Firms
- Lecture 34 - Organizational Development in the Not for Profit Organizations (NPOs) and Social Enterprises (SE)
- Lecture 35 - Organizational Development in Non-Industrial Settings
- Lecture 36 - Organizational Development in Educational Institutions



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Managerial Economics

Subject Co-ordinator - Prof. Trupti Mishra

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Economics and Managerial Economics
- Lecture 2 - Introduction to the Managerial Economics- Economics and Managerial economics, Review of Economic
- Lecture 3 - Introduction to the Managerial Economics- Opportunity Cost, Measuring and Maximizing Profit
- Lecture 4 - Introduction to the Managerial Economics- Understanding Incentive and Marginal Analysis
- Lecture 5 - Introduction to the Managerial Economics- Marginal and Incremental Analysis, Model of an Economy
- Lecture 6 - Basic Tools of Economic Analysis and Optimization Techniques- Functional relationship between eco
- Lecture 7 - Basic Tools of Economic Analysis and Optimization Techniques- Important Economic Function (Contir
- Lecture 8 - Basic Tools of Economic Analysis and Optimization Techniques- Slope and its use in Economic Analy
- Lecture 9 - Basic Tools of Economic Analysis and Optimization Techniques- Derivative of various functions
- Lecture 10 - Basic Tools of Economic Analysis and Optimization Techniques- Optimization Technique
- Lecture 11 - Basic Tools of Economic Analysis and Optimization Techniques- Constrained optimization
- Lecture 12 - Basic Tools of Economic Analysis and Optimization Techniques- Regression Technique
- Lecture 13 - Basic Tools of Economic Analysis and Optimization Techniques- Regression Technique (Continued...
- Lecture 14 - Basic Tools of Economic Analysis and Optimization Techniques- Ordinary Least Square (OLS) method
- Lecture 15 - Theory of Demand- Defining Demand, Law of Demand
- Lecture 16 - Theory of Demand- Demand Schedule/Demand Curve/ Demand Function, Factors affecting Demand, Marke
- Lecture 17 - Theory of Demand- Change in Demand Curve, Supply/ Law of Supply, Factors affecting Supply
- Lecture 18 - Theory of Demand- Change/Shift in the Supply, Market Equilibrium, Change in Equilibrium
- Lecture 19 - Theory of Demand- A Shift in both Supply and Demand, Elasticity of Demand, Types of Elasticity o
- Lecture 20 - Theory of Demand- Price elasticity of demand, Degree of price elasticity of demand, Elasticity a
- Lecture 21 - Theory of Demand- Income Elasticity of Demand, Cross-Price Elasticity of Demand, Advertising Ela
- Lecture 22 - Theory of Demand- Numerical for each Elasticity of Demand
- Lecture 23 - Consumer Behaviour- Consumer Preferences, Utility Analysis (Total and Marginal Utility)
- Lecture 24 - Consumer Behaviour- Numerical for Utility analysis, Law of Diminishing Marginal Utility, Indiffe
- Lecture 25 - Consumer Behaviour- Budget line and Consumer equilibrium, Law of Equi-Marginal utility
- Lecture 26 - Consumer Behaviour- Price, Income and Substitution Effects, Consumer Surplus
- Lecture 27 - Elasticity of Supply- Numerical example to understand Consumer Surplus, Elasticity of Supply
- Lecture 28 - Elasticity of Supply- Impact of Tax on Price and Quantity, Price fixed by Law
- Lecture 29 - Demand Forecasting

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Methods of Demand Forecasting- Subjective methods of demand forecasting
- Lecture 31 - Demand Forecasting-Quantitative method of Demand forecasting
- Lecture 32 - Demand Forecasting- Quantitative method of Demand forecasting (Continued...)
- Lecture 33 - Theory of Production- Introduction
- Lecture 34 - Theory of Production- Law of Diminishing Return
- Lecture 35 - Theory of Production- long Run Production Analysis, Return to Scale, Isoquants
- Lecture 36 - Theory of Production- Isocost, Optimal Combination of Inputs, Expansion path, Economic Region of
- Lecture 37 - Theory of Production- Different kind of Production Functions
- Lecture 38 - Theory of Production- Effect of Changes in Input Prices, Law of Diminishing returns, Return to S
- Lecture 39 - Theory of Cost- Cost of Production, Types of Cost
- Lecture 40 - Theory of Cost- Cost-Output Relationship, Short run cost Analysis
- Lecture 41 - Long Run Cost Analysis
- Lecture 42 - Long-Run Marginal Cost Curve
- Lecture 43 - Theory of Cost
- Lecture 44 - Theory of Cost
- Lecture 45 - Theory of Cost
- Lecture 46 - Theory of Cost
- Lecture 47 - Theory of Cost
- Lecture 48 - Theory of Market
- Lecture 49 - Theory of Market
- Lecture 50 - Theory of Market
- Lecture 51 - Theory of Market
- Lecture 52 - Theory of Market
- Lecture 53 - Theory of Market
- Lecture 54 - Theory of Market
- Lecture 55 - Theory of Market
- Lecture 56 - Theory of Market
- Lecture 57 - Theory of Market
- Lecture 58 - Theory of Market
- Lecture 59 - Theory of Market
- Lecture 60 - Theory of Market
- Lecture 61 - Theory of Market
- Lecture 62 - Theory of Market
- Lecture 63 - Theory of Market
- Lecture 64 - Theory of Market
- Lecture 65 - Theory of Market
- Lecture 66 - Theory of Market
- Lecture 67 - Theory of Market
- Lecture 68 - Theory of Market

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Oligopoly and Game Theory
- Lecture 70 - Oligopoly and Game Theory (Continued...)
- Lecture 71 - Oligopoly and Game Theory- Nash Equilibrium
- Lecture 72 - Oligopoly and Game Theory â The Prisonerâs Dilemma and Types of Games
- Lecture 73 - Applications of Game Theory in Economics
- Lecture 74 - Product pricing- Price Discrimination
- Lecture 75 - Product pricing- Price Discrimination (Continued...)
- Lecture 76 - Types of Product pricing
- Lecture 77 - Types of Product pricing (Continued...1)
- Lecture 78 - Types of Product pricing (Continued...2)
- Lecture 79 - Types of Product pricing (Continued...3)
- Lecture 80 - Summary of Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Quality Control and Improvement with MINITAB

Subject Co-ordinator - Prof. Indrajit Mukherjee

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of Quality
- Lecture 2 - Voice of the Customer and Kano Model
- Lecture 3 - Quality Function Deployment
- Lecture 4 - Critical to Quality Characteristics
- Lecture 5 - Data Visualization for Quality Control and Improvement
- Lecture 6 - Importance of Pareto Chart and Cause and Effect Diagram
- Lecture 7 - Design Failure Mode and Effect Analysis
- Lecture 8 - Introduction to Statistical Process Control
- Lecture 9 - X-bar and R Chart
- Lecture 10 - X-bar and S Chart
- Lecture 11 - Individual Moving Range Chart and Attribute Chart
- Lecture 12 - Attribute Control Charts and Process Capability
- Lecture 13 - Process Capability Index
- Lecture 14 - Process Performance and Sigma Level
- Lecture 15 - Process Capability for Attribute data
- Lecture 16 - Basic Statistics and Confidence Interval
- Lecture 17 - Hypothesis Testing
- Lecture 18 - One-sample t Test
- Lecture 19 - Two-sample t Test
- Lecture 20 - Paired t Test and ANOVA
- Lecture 21 - One-way ANOVA
- Lecture 22 - One-way ANOVA (Continued...)
- Lecture 23 - ANCOVA and Nonparametric Test
- Lecture 24 - Linear Regression
- Lecture 25 - Linear Regression (Continued...) and Multiple Regression
- Lecture 26 - Best Subset Regression, Multicollinearity
- Lecture 27 - Multicollinearity, Best Subset Regression, Multiple Regression, Basics on Design of Experiment
- Lecture 28 - Design of Experiment, One-factor-at-a-time experiment
- Lecture 29 - Two-factor asymmetric Design, Symmetric Factorial Design, Two-way ANOVA

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Two-factor symmetric Design, Robust setting, Two-way ANOVA
- Lecture 31 - Measurement System Analysis
- Lecture 32 - Measurement System Analysis (Continued...)
- Lecture 33 - Measurement System Analysis (Continued...), Introduction to Factorial Experiments
- Lecture 34 - Factorial Experiments
- Lecture 35 - Factorial Experiments (Continued...)
- Lecture 36 - Factorial Experiments (Continued...)
- Lecture 37 - Blocking in Factorial Design.
- Lecture 38 - Multiple response Optimization and RSM
- Lecture 39 - Fractional Factorial Design
- Lecture 40 - Taguchi Method

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business and Sustainable Development

Subject Co-ordinator - Prof. Trupti Mishra

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Sustainable Development and Sustainability

Lecture 2 - Evolution of Sustainable Development

Lecture 3 - Importance of Sustainability

Lecture 4 - Sustainability - A mega trend

Lecture 5 - Environment, Human and Economy

Lecture 6 - Robert Solow's Conceptualization of Sustainability

Lecture 7 - Introduction to Firm's Response

Lecture 8 - Sustainable Products

Lecture 9 - Cleaner Production

Lecture 10 - Cleaner Production Illustrations

Lecture 11 - Life Cycle Assessment

Lecture 12 - Understanding LCA Through Examples

Lecture 13 - Design for Environment

Lecture 14 - Sustainability Reporting

Lecture 15 - Current Status of ESG in Indian Companies

Lecture 16 - Corporate Strategy

Lecture 17 - Competitive Environment Strategies

Lecture 18 - Eco-Branding

Lecture 19 - Competitive Environmental Strategy Matrix

Lecture 20 - CSR and Social Sustainability

Lecture 21 - Sustainable Development Goal (SDG)

Lecture 22 - Sustainability Standards

Lecture 23 - Sustainability Standards

Lecture 24 - Green Supply Chain

Lecture 25 - Examples of Green Supply Chain

Lecture 26 - Environmental Regulations and Policy Instruments

Lecture 27 - Market based instruments in India

Lecture 28 - Environmental Laws and Disclosure Regulations

Lecture 29 - Risks and Opportunities

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sustainable financial product and services
- Lecture 31 - Sustainable Value Framework
- Lecture 32 - Course Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Advances in Strategic Human Resource Management

Subject Co-ordinator - Prof. Ashish Pandey

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The Evolution and Role of HR Function
- Lecture 2 - Evolution and Nature of Strategic Human Resource Management
- Lecture 3 - Contributions of and Trends in HR Function
- Lecture 4 - Measuring Effectiveness of HR Function
- Lecture 5 - Competence Maturity Model and People Competence Maturity Model
- Lecture 6 - Organizational Healing: An Introduction
- Lecture 7 - Working with Remote Teams
- Lecture 8 - Restoring Social and Psychological Well-being
- Lecture 9 - Employee Assistance Program
- Lecture 10 - Talent Management: An Introduction
- Lecture 11 - Potential Matrix: A Tool for Talent Management
- Lecture 12 - HR Digitization for Talent Management
- Lecture 13 - Positive Employee Relation: The Introduction
- Lecture 14 - Positive Work Practices in Organization
- Lecture 15 - Humanistic Management Model
- Lecture 16 - Link of Humanistic Model and HR Processes
- Lecture 17 - Process to make organization great place to work
- Lecture 18 - Diversity Management: The Introduction
- Lecture 19 - Significance of a Diverse and Inclusive Workplace
- Lecture 20 - Significance of a Diverse and Inclusive Workplace
- Lecture 21 - Biases in Organization and Ways of their Resolution
- Lecture 22 - Intergenerational Relationships in Organization: The Introduction
- Lecture 23 - Classifications of Generations at Workforce
- Lecture 24 - Types and Attributes of Generations at Workplace
- Lecture 25 - Ways of Synergizing Across Generations
- Lecture 26 - Ways of enhancing Intergeneration Synergy
- Lecture 27 - Intergenerational Relationships in Organization: The Introduction
- Lecture 28 - Classifications of Generations at Workforce
- Lecture 29 - Types and Attributes of Generations at Workplace

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ways of Synergizing Across Generations
- Lecture 31 - Intergenerational Relationships in Organization: The Introduction
- Lecture 32 - Classifications of Generations at Workforce
- Lecture 33 - Types and Attributes of Generations at Workplace
- Lecture 34 - Ways of Synergizing Across Generations
- Lecture 35 - Role and Challenges of Sustainable HRM
- Lecture 36 - Contribution of HRM in Corporate Sustainability and Corporate Social Responsibility
- Lecture 37 - Ways to integrate Corporate Sustainability and Corporate Social Responsibility with HRM
- Lecture 38 - Important HR Metrics and Ratios in HRM Function
- Lecture 39 - HR Analytics explained through Case Examples
- Lecture 40 - Tools for Effective Decision Making and Factors for Success in Future at Work

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Yoga and Positive Psychology for Managing Career and Life

Subject Co-ordinator - Prof. Ashish Pandey

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Why the Course on Managing Self and Career
- Lecture 2 - Present Context of Professional Work
- Lecture 3 - State of Wellbeing of Indian Youth
- Lecture 4 - Link between Self-Management and Career Management
- Lecture 5 - Journey of Positive Psychology
- Lecture 6 - Can there be a Universal Positive Psychology ?
- Lecture 7 - Difference in Good Life and Life Satisfaction
- Lecture 8 - Why Yoga with Positive Psychology ?
- Lecture 9 - Genesis of this Course
- Lecture 10 - Using Stories to Understand Optimal Experiences
- Lecture 11 - Fundamental Questions in Positive Psychology
- Lecture 12 - What Positive Psychology is Not
- Lecture 13 - Positive-Negative Dialects of Well-Being
- Lecture 14 - Positive Psychology: The Second Wave
- Lecture 15 - Positivity and Human Potential in Yogic Traditions
- Lecture 16 - Holistic Life Goals
- Lecture 17 - Embracing Emotions and Positive Behavior
- Lecture 18 - Discovering Dharma
- Lecture 19 - Distinction with Negative Human Potential
- Lecture 20 - Positive Events: 16 Sanskaras
- Lecture 21 - Four Ashrams or Stations in Life
- Lecture 22 - Yagna - Positive Event
- Lecture 23 - Positive Institutions
- Lecture 24 - Family - A Positive Institution
- Lecture 25 - Yoga and Governance
- Lecture 26 - Positive Governance
- Lecture 27 - Macro and Micro Integration in Yogic Perspective
- Lecture 28 - Self and Society
- Lecture 29 - Point for Action and Reflection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Health and Wellbeing
- Lecture 31 - How does wellbeing affect life ?
- Lecture 32 - Yogic Perspectives of Health and Wellbeing
- Lecture 33 - Doshas
- Lecture 34 - Mind-body Complex
- Lecture 35 - Diseases in Yogic Perspective
- Lecture 36 - Panch Kosha or Five Layers of Self
- Lecture 37 - Managing Mind
- Lecture 38 - Factors to Enhance Well-being
- Lecture 39 - Self-Realization - The Ultimate Joy
- Lecture 40 - What is the Indian Worldview ?
- Lecture 41 - Ways of Attaining Well-Being
- Lecture 42 - TattvaBodh and Wisdom
- Lecture 43 - Indriyajaya or Self-Control
- Lecture 44 - Indriyajaya in Positive Psychology
- Lecture 45 - Dharmic Drishti (Vision)
- Lecture 46 - Dharmic Desires and Pursuits
- Lecture 47 - Dharmakriya in Positive Psychology
- Lecture 48 - Sukhayu-Hitayu
- Lecture 49 - Dharmakriya, Sukhayu-Hitayu and Career Success ?
- Lecture 50 - What is our real nature ?
- Lecture 51 - How the Mind Works: A Yogic Perspective
- Lecture 52 - Obstacles in Attaining Wellbeing
- Lecture 53 - Reflection on Functioning of the Mind
- Lecture 54 - How to avoid Klisht Vrittis ?
- Lecture 55 - Crossing Obstacles to Well-Being
- Lecture 56 - Six Inner Treasures
- Lecture 57 - How are the Six Inner Treasures Valuable
- Lecture 58 - Mental, Vital and Physical Consciousness
- Lecture 59 - Major Forms of Yoga in Indian Tradition
- Lecture 60 - Ashtanga Yoga or Raj Yoga
- Lecture 61 - Yoga for Panch Koshas
- Lecture 62 - Three Pillars of Health
- Lecture 63 - Spiritual Significance of Food
- Lecture 64 - Eight Factors about Food
- Lecture 65 - Seasons with Revolving Sun and Impact on Physiology
- Lecture 66 - Contemporary Knowledge about Food and Mental Health
- Lecture 67 - Food and Activities during the Cycle of the Day
- Lecture 68 - Yogasanas to Integrate Body and Emotions

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- Lecture 69 - Interoception, Asanas and Well-Being
- Lecture 70 - Characteristics of Asanas
- Lecture 71 - Process for Moving into Posture
- Lecture 72 - Asanas for Different Body Constitution
- Lecture 73 - Notes on Pranayama
- Lecture 74 - Contemporary Evidences of Prana
- Lecture 75 - Prana Vayu, Nadi System and Chakras
- Lecture 76 - Pranayama Practices and Conscious Breathing
- Lecture 77 - Process and Benefits of Diaphragmatic Breathing
- Lecture 78 - Guidelines for Pranayama
- Lecture 79 - Nadi Shodhana Pranayama (Alternate Nostril Breathing)
- Lecture 80 - Tranquilizing Pranayamas
- Lecture 81 - Organizational Suffering and Dysfunctional Behaviors
- Lecture 82 - Introduction to Pratyahara
- Lecture 83 - Indriya-Pratyahara: Control of the Senses
- Lecture 84 - Methods of Pratyahara
- Lecture 85 - Understanding Emotional Intelligence
- Lecture 86 - Emotional Intelligence and its Relation to Everyday Behavior
- Lecture 87 - How Yoga Helps in Emotional Balance
- Lecture 88 - Positive and Negative Emotions
- Lecture 89 - Dealing with Negative Emotions
- Lecture 90 - How Yoga Helps in Equanimity of Mind
- Lecture 91 - What are the 7 Stages of Wisdom
- Lecture 92 - What Yoga does for Balancing Emotions and Cognitions
- Lecture 93 - How Yoga Impacts Student's Performance: Empirical Studies

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Fundamentals for Entrepreneurs (Part 1: Internal Operation)

Subject Co-ordinator - Prof. Devdip Purkayastha

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1 - Part 1  
Lecture 2 - Module 1 - Part 2  
Lecture 3 - Module 2 - Part 1  
Lecture 4 - Module 2 - Part 2  
Lecture 5 - Module 3 - Part 1  
Lecture 6 - Module 3 - Part 2  
Lecture 7 - Module 3 - Part 3  
Lecture 8 - Module 4 - Part 1  
Lecture 9 - Module 4 - Part 2  
Lecture 10 - Module 5 - Part 1  
Lecture 11 - Module 5 - Part 2  
Lecture 12 - Module 6 - Part 1  
Lecture 13 - Module 6 - Part 2  
Lecture 14 - Module 7 - Part 1  
Lecture 15 - Module 7 - Part 2  
Lecture 16 - Module 8 - Part 1  
Lecture 17 - Module 8 - Part 2  
Lecture 18 - Module 9 - Part 1  
Lecture 19 - Module 9 - Part 2  
Lecture 20 - Module 10

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Supply Chain Digitization

Subject Co-ordinator - Prof. Priyanka Verma, Prof. Sushmita Narayana, Prof. Debabrata Das

Co-ordinating Institute - National Institute of Industrial Engineering

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of Supply Chain Management
- Lecture 2 - Fundamentals of Supply Chain Management
- Lecture 3 - Supply Chain Drivers
- Lecture 4 - Supply Chain Processes - I
- Lecture 5 - Supply Chain Processes - II
- Lecture 6 - Supply Chain Challenges
- Lecture 7 - Need/Strategies
- Lecture 8 - Push Vs Pull
- Lecture 9 - Case Study on Product Segmentation
- Lecture 10 - Case Study on Inventory Segmentation
- Lecture 11 - Link between Corporate and Supply Chain Strategy
- Lecture 12 - Interface between Operations and Finance
- Lecture 13 - Procurement Strategy (Make Vs Buy)
- Lecture 14 - Procurement Strategy (Kraljic Matrix) - I and II
- Lecture 15 - Procurement Strategy (Kraljic Matrix) - I and II
- Lecture 16 - Introduction to Platform Economy
- Lecture 17 - Introduction to Platform Economy - Example
- Lecture 18 - Introduction to Channel Structures and Supply Chain Coordination
- Lecture 19 - Newsvendor Case Example (Deterministic Setting) - I and II
- Lecture 20 - Newsvendor Case Example (Deterministic Setting) - I and II
- Lecture 21 - Newsvendor Case (Probabilistic Setting and Contracts) - I and II
- Lecture 22 - Newsvendor Case (Probabilistic Setting and Contracts) - I and II
- Lecture 23 - Channel Structure Designs in Supply Chains (Brick and Mortar)
- Lecture 24 - Channel Structure Designs in Supply Chains (Dual Channels)
- Lecture 25 - Channel Structure Designs in Supply Chains (Multi and Omni Channels)
- Lecture 26 - Introduction to Analytics and Big Data
- Lecture 27 - Different Types of Analytics and its Applications in Supply Chain Management
- Lecture 28 - Predictive Analytics: Case Study on Predictive Maintenance
- Lecture 29 - Predictive Analytics: Classification Tree Model

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Predictive Analytics: Building Classification Tree Model using Python
- Lecture 31 - Role of AI/ML in Forecasting and Demand Analytics
- Lecture 32 - Demand Forecasting using AI/ML: A Case Study
- Lecture 33 - Demand Forecasting using AI/ML: Regression Tree Model
- Lecture 34 - Demand Forecasting using AI/ML: Building Regression Tree Model using Python
- Lecture 35 - Demand Forecasting using AI/ML: Random Forest Regression Model
- Lecture 36 - Supply Chain Network Optimization: Break even analysis
- Lecture 37 - Supply Chain Network Optimization: Facility location using Centre of Gravity
- Lecture 38 - Supply Chain Network Optimization: Case on Capacitated Plant Location Model
- Lecture 39 - Case on Supply Chain Network Design - I
- Lecture 40 - Case on Supply Chain Network Design - II
- Lecture 41 - Location of Distribution Centers using Clustering Technique: A Case Study
- Lecture 42 - Steps of building K-Means Clustering Algorithm: A Case Study
- Lecture 43 - Location of Distribution Centers: Building K-Means Clustering Model using Python
- Lecture 44 - Measuring Efficiency of Manufacturing Facilities: A DEA Model - I
- Lecture 45 - Measuring Efficiency of Manufacturing Facilities: A DEA Model - II
- Lecture 46 - Role of Product Tracking and Traceability
- Lecture 47 - Track and Trace Systems - I and II
- Lecture 48 - Track and Trace Systems - I and II
- Lecture 49 - ERP, WMS and TMS - I and II
- Lecture 50 - ERP, WMS and TMS - I and II
- Lecture 51 - Introduction to Supply Chain Digital Twin
- Lecture 52 - Supply Chain Digital Twin: Greenfield Analysis - A Case Study - I
- Lecture 53 - Supply Chain Digital Twin: Greenfield Analysis - A Case Study - II
- Lecture 54 - Supply Chain Digital Twin: Network Optimization - A Case Study
- Lecture 55 - Network Optimization with Capacity Constraints and Control Tower
- Lecture 56 - Digital Infrastructure for Supply Chains: Industry 4.0
- Lecture 57 - Industry 4.0 - IIoT, Cloud Computing, Horizontal and Vertical System Integration
- Lecture 58 - Industry 4.0 - Cybersecurity, Big Data Analytics, Simulation, AR, Robots, AM
- Lecture 59 - Blockchain
- Lecture 60 - Supply Chain and Industry 4.0

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Forecasting

Subject Co-ordinator - Prof. Pankaj Dutta

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Business Forecasting
- Lecture 2 - Data Driven Decision Making and Essentials of Predictive Analytics
- Lecture 3 - Data Driven Decision Making and Essentials of Predictive Analytics
- Lecture 4 - Types of Forecasting: Qualitative Approaches and Quantitative Approaches
- Lecture 5 - Components of a Time Series and Measures of Forecast Accuracy
- Lecture 6 - Components of a Time Series and Measures of Forecast Accuracy
- Lecture 7 - Moving Average Methods: Simple, Weighted, and Exponential Moving Average
- Lecture 8 - Moving Average Methods: Simple, Weighted, and Exponential Moving Average
- Lecture 9 - Exponential Smoothing
- Lecture 10 - Trend Projections and Holt Model
- Lecture 11 - Simple Linear Regression and Measure of Goodness and Standard Error
- Lecture 12 - Simple Linear Regression and Measure of Goodness and Standard Error
- Lecture 13 - Simple Linear Regression and Measure of Goodness and Standard Error
- Lecture 14 - Multiple Linear Regression and Multicollinearity
- Lecture 15 - Multiple Linear Regression and Multicollinearity
- Lecture 16 - Multiple Linear Regression and Multicollinearity
- Lecture 17 - Seasonality, Seasonal Index, and Quarterly Average Method
- Lecture 18 - Seasonality, Seasonal Index, and Quarterly Average Method
- Lecture 19 - Seasonality and Trend: Winter's Holt Method
- Lecture 20 - Seasonality and Trend: Winter's Holt Method
- Lecture 21 - Multiplicative Decomposition Method
- Lecture 22 - Autocorrelation Function (ACF) and Partial Autocorrelation Function (PACF)
- Lecture 23 - ARIMA: Auto-Regressive (AR) Process
- Lecture 24 - ARIMA: Moving Average (MA) Process
- Lecture 25 - ARIMA: Auto-Regressive Moving Average (ARMA) Process
- Lecture 26 - Auto-Regressive Integrated Moving Average (ARIMA) Model
- Lecture 27 - Introduction to Machine Learning
- Lecture 28 - Introduction to Machine Learning
- Lecture 29 - Logistic Regression

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- Lecture 30 - Logistic Regression
- Lecture 31 - Human Judgment in Time Series Analysis
- Lecture 32 - Monte Carlo Simulation: Discrete Case
- Lecture 33 - Monte Carlo Simulation: Discrete Case
- Lecture 34 - Monte Carlo Simulation: Continuous case
- Lecture 35 - System Dynamics (Additional Learning)
- Lecture 36 - Predictive Analytics using @Risk Software
- Lecture 37 - Predictive Analytics using @Risk Software
- Lecture 38 - Predictive Analytics using @Risk Software

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Fundamentals for Entrepreneurs (Part 2: External Operation)

Subject Co-ordinator - Prof. Devdip Purkayastha

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Market Research - Part 1
- Lecture 2 - Market Research - Part 2
- Lecture 3 - Customers and Segments - Part 1
- Lecture 4 - Customers and Segments - Part 2
- Lecture 5 - Value Based Marketing - Part 1
- Lecture 6 - Value Based Marketing - Part 2
- Lecture 7 - Marketing Communication - Part 1
- Lecture 8 - Marketing Communication - Part 2
- Lecture 9 - Sales Channels and Distribution - Part 1
- Lecture 10 - Sales Channels and Distribution - Part 2
- Lecture 11 - B2B and B2C Selling - Part 1
- Lecture 12 - B2B and B2C Selling - Part 2
- Lecture 13 - Customer Service Management - Part 1
- Lecture 14 - Customer Service Management - Part 2
- Lecture 15 - Supply Chain Management - Part 1
- Lecture 16 - Supply Chain Management - Part 2
- Lecture 17 - Quadrangle of Success

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Organisation Management

Subject Co-ordinator - Prof. Vinayshil Gautam

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Organization Management, Nature, Scope and Complexity

Lecture 2 - Longitudinal thinking and legacy factor

Lecture 3 - Longitudinal thinking and legacy factor

Lecture 4 - Longitudinal thinking and legacy factor

Lecture 5 - Theory and majors schools of Thought and Framework of Organizational Analysis

Lecture 6 - Theory and majors schools of thought and framework of organizational analysis (Continued...)

Lecture 7 - Theory and majors schools of thought and framework of organizational analysis (Continued...)

Lecture 8 - Systems contingency approach to organization theory and practice; techniques of organizational di

Lecture 9 - Systems contingency approach to organization theory and practice; techniques of organizational di

Lecture 10 - Systems contingency approach to organization theory and practice; techniques of organizational d

Lecture 11 - Theory of organizational structures - nature and consequence of structure

Lecture 12 - Theory of organizational structures - nature and consequence of structure (Continued...)

Lecture 13 - Socio-culture dimension of work and behavior

Lecture 14 - Socio-culture dimension of work and behavior (Continued...)

Lecture 15 - Socio-culture dimension of work and behavior (Continued...)

Lecture 16 - Impact of environment and cultural variables on organization structure & style

Lecture 17 - Impact of environment and cultural variables on organization structure & style (Continued...)

Lecture 18 - Impact of environment and cultural variables on organization structure & style (Continued...)

Lecture 19 - Organization Change and Organisation Development

Lecture 20 - Organization Change and Organisation Development (Continued...)

Lecture 21 - Intervention strategies for organization development - individual, Group and Interpersonal Inter

Lecture 22 - Intervention strategies for organization development - individual, Group & interpersonal interve

Lecture 23 - Intervention strategies for organization development - individual, Group & interpersonal interve

Lecture 24 - Total System Intervention & Stabilizing Change Management by Objectives

Lecture 25 - Total System Intervention & Stabilizing Change Management by Objectives (Continued...)

Lecture 26 - Total System Intervention & Stabilizing Change Management by Objectives (Continued...)

Lecture 27 - Nature of Organisational Processes

Lecture 28 - Nature of Organisational Processes (Continued...)

Lecture 29 - Nature of Organisational Processes (Continued...)

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- Lecture 30 - Environmental analysis Techniques and impact for organizational growth
- Lecture 31 - Environmental analysis Techniques and impact for organizational growth (Continued...)
- Lecture 32 - Environmental analysis Techniques and impact for organizational growth (Continued...)
- Lecture 33 - Issues of Mechnisation, Automation and Computerisation
- Lecture 34 - Issues of Mechnisation, Automation and Computerisation (Continued...)
- Lecture 35 - Organisation Interdependence
- Lecture 36 - Organisation Interdependence (Continued...)
- Lecture 37 - Organisation Interdependence (Continued...)
- Lecture 38 - Organisation Evaluation
- Lecture 39 - Organisation Evaluation (Continued...)
- Lecture 40 - Organisation Evaluation (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Organisation of Engineering Systems and Human Resources Management

Subject Co-ordinator - Prof. Vinayshil Gautam

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the subject and the course

Lecture 2 - Understanding organizations

Lecture 3 - Understanding organizations

Lecture 4 - Concerns of organising engineering business and systems

Lecture 5 - Concerns of organising engineering business and systems (Continued...)

Lecture 6 - Concerns of organising engineering business and systems (Continued...)

Lecture 7 - Structure and process issues in running organisations

Lecture 8 - Structure and process issues in running organisations (Continued...)

Lecture 9 - Design issues in running organisations

Lecture 10 - Design issues in running organisations (Continued...)

Lecture 11 - Operating organizations

Lecture 12 - Operating organizations (Continued...)

Lecture 13 - Operating organizations (Continued...)

Lecture 14 - Cybernetics and systems framework

Lecture 15 - Cybernetics and systems framework (Continued...)

Lecture 16 - Socio-technical systems

Lecture 17 - Socio-technical systems (Continued...)

Lecture 18 - Socio-technical systems (Continued...)

Lecture 19 - Dealing with efficiency and excellence

Lecture 20 - Dealing with efficiency and excellence (Continued...)

Lecture 21 - Dealing with efficiency and excellence (Continued...)

Lecture 22 - Man-machine relationship

Lecture 23 - Man-machine relationship (Continued...)

Lecture 24 - Longitudinal Thinking

Lecture 25 - Longitudinal Thinking (Continued...)

Lecture 26 - Concerns of recruitment, selection, skill formation and redeployment

Lecture 27 - Concerns of recruitment, selection, skill formation and redeployment (Continued...)

Lecture 28 - Concerns of recruitment, selection, skill formation and redeployment (Continued...)

Lecture 29 - Developing teams and leadership

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Developing teams and leadership (Continued...)
- Lecture 31 - Understanding motivation
- Lecture 32 - Understanding motivation (Continued...)
- Lecture 33 - Elements of human resources planning
- Lecture 34 - Elements of human resources planning (Continued...)
- Lecture 35 - Elements of human resources planning (Continued...)
- Lecture 36 - Indian Industrial Law and managing industrial
- Lecture 37 - Indian Industrial Law and managing industrial (Continued...)
- Lecture 38 - Indian Industrial Law and managing industrial (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Economic Growth and Development

Subject Co-ordinator - Prof. Rajshree Bedamatta

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concepts of Economic Growth and Development
- Lecture 2 - Structural features of developed and underdeveloped countries
- Lecture 3 - The Global North and the Global South
- Lecture 4 - Growth versus Development - some indices of economic development
- Lecture 5 - Modern Economic Growth
- Lecture 6 - Strategies of economic development and growth - I
- Lecture 7 - Strategies of economic development and growth - II
- Lecture 8 - Strategies of economic development and growth - III
- Lecture 9 - Strategies of economic development and growth - IV
- Lecture 10 - Strategies of economic development and growth - V
- Lecture 11 - Strategies of economic development and growth - VI
- Lecture 12 - Growth and Inequality
- Lecture 13 - Economic Growth and Public Support
- Lecture 14 - Measures of Inequality
- Lecture 15 - Introduction to Human Development-Putting People First
- Lecture 16 - The Human Development and Capability Approach
- Lecture 17 - Utilitarianism, Basic Needs Approach and the Capability Approach
- Lecture 18 - Measuring Human Development - I
- Lecture 19 - Measuring Human Development - II
- Lecture 20 - Other Human Development Indices
- Lecture 21 - Multidimensional Poverty, MDGs and SDGs
- Lecture 22 - Gender mainstreaming and Gender budgeting
- Lecture 23 - In Conclusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Organizational Behaviour: Individual Dynamics in Organization

Subject Co-ordinator - Prof. Abraham Cyril Issac

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Understanding organizational behaviour:Tracing the evolution - 1
- Lecture 2 - Understanding organizational behaviour:Tracing the evolution - 2
- Lecture 3 - Individual in the organization: The building blocks
- Lecture 4 - Understanding individual differences - 1
- Lecture 5 - Understanding individual differences - 2
- Lecture 6 - Diverse workforce, inclusive mindset - 1
- Lecture 7 - Diverse workforce, inclusive mindset - 2
- Lecture 8 - Perception of diversity and inclusion
- Lecture 9 - Ableism and inclusion
- Lecture 10 - Diversity management
- Lecture 11 - The perceptual process
- Lecture 12 - Factors that influence perception
- Lecture 13 - Perception and decision making
- Lecture 14 - What affects decisions?
- Lecture 15 - Ethical decision making
- Lecture 16 - Affect and emotions
- Lecture 17 - Affective events theory
- Lecture 18 - Emotional intelligence
- Lecture 19 - Understanding stress
- Lecture 20 - Emotions and moods: Application at workplace
- Lecture 21 - Understanding self and personality
- Lecture 22 - Types and theories of personality
- Lecture 23 - Measuring personality
- Lecture 24 - Personality traits relevant to organization
- Lecture 25 - Assessing personality: caveats and concerns
- Lecture 26 - Values and its importance
- Lecture 27 - Sources and types of values
- Lecture 28 - Values that cut across cultures
- Lecture 29 - Person-job fit

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Person-organization fit
- Lecture 31 - Motivation: Basic understanding and definition
- Lecture 32 - Tracing the roots: Early theories - 1
- Lecture 33 - Tracing the roots: Early theories - 2
- Lecture 34 - Keeping up with times: Contemporary theories - 1
- Lecture 35 - Keeping up with times: Contemporary theories - 2
- Lecture 36 - Job Design and job characteristics model
- Lecture 37 - Employee involvement
- Lecture 38 - Motivating the employees: Strategies for organization - 1
- Lecture 39 - Motivating the employees: Strategies for organization - 2
- Lecture 40 - Organizational justice and employee motivation
- Lecture 41 - Defining learning
- Lecture 42 - How do individuals learn?
- Lecture 43 - Theories of learning - 1
- Lecture 44 - Theories of learning - 2
- Lecture 45 - Learning in an organizational setting
- Lecture 46 - Understanding creativity
- Lecture 47 - Stages of individual creativity
- Lecture 48 - Creativity and problem solving
- Lecture 49 - Defining psychological capital
- Lecture 50 - Using Psychological capital and mindfulness at work
- Lecture 51 - Understanding knowledge sharing
- Lecture 52 - Understanding knowledge hiding - what it is and what it is not
- Lecture 53 - Individual factors affecting knowledge hiding
- Lecture 54 - Integrating knowledge sharing and hiding behavior
- Lecture 55
- Lecture 56 - Understanding employee voice and silence
- Lecture 57 - Individual factors affecting voice behavior
- Lecture 58 - Individual factors affecting silence
- Lecture 59 - Can silence be strategic?
- Lecture 60 - Strategies for fostering safe environment at work

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Strategic Marketing - Contemporary Issues

Subject Co-ordinator - Prof. Jayanta Chatterjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Strategic Marketing  
Lecture 2 - Strategic Marketing  
Lecture 3 - Strategic Marketing  
Lecture 4 - Strategic Marketing  
Lecture 5 - Strategic Marketing  
Lecture 6 - Strategic Marketing  
Lecture 7 - Strategic Marketing  
Lecture 8 - Strategic Marketing  
Lecture 9 - Strategic Marketing  
Lecture 10 - Strategic Marketing  
Lecture 11 - Strategic Marketing  
Lecture 12 - Strategic Marketing  
Lecture 13 - Strategic Marketing  
Lecture 14 - Strategic Marketing  
Lecture 15 - Strategic Marketing  
Lecture 16 - Strategic Marketing  
Lecture 17 - Strategic Marketing  
Lecture 18 - Strategic Marketing  
Lecture 19 - Strategic Marketing  
Lecture 20 - Strategic Marketing  
Lecture 21 - Strategic Marketing  
Lecture 22 - Strategic Marketing  
Lecture 23 - Strategic Marketing  
Lecture 24 - Strategic Marketing  
Lecture 25 - Strategic Marketing  
Lecture 26 - Strategic Marketing  
Lecture 27 - Strategic Marketing  
Lecture 28 - Strategic Marketing  
Lecture 29 - Strategic Marketing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Strategic Marketing  
Lecture 31 - Strategic Marketing  
Lecture 32 - Strategic Marketing  
Lecture 33 - Strategic Marketing  
Lecture 34 - Strategic Marketing  
Lecture 35 - Strategic Marketing  
Lecture 36 - Strategic Marketing  
Lecture 37 - Strategic Marketing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Strategy: An Introduction to game Theory

Subject Co-ordinator - Prof. Aditya K. Jagannatham, Dr. Vimal Kumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction Examples
- Lecture 2 - Prisonersâ Dilemma
- Lecture 3 - Best Response and Nash Equilibrium
- Lecture 4 - Another Example
- Lecture 5 - Dominant Strategies
- Lecture 6 - Stag Hunt â Coordination and Bank Runs
- Lecture 7 - Battle of Sexes and Multiple Nash Equilibria
- Lecture 8 - Tragedy of Commons
- Lecture 9 - Tragedy of Commons
- Lecture 10 - Cournot Duopoly
- Lecture 11 - Cournot Duopoly
- Lecture 12 - Mixed Strategies
- Lecture 13 - Battle of Sexes
- Lecture 14 - Battle of Sexes
- Lecture 15 - Paying Taxes
- Lecture 16 - Portfolio Management Game
- Lecture 17 - Rationality, Choice and Common Knowledge
- Lecture 18 - Iterated Elimination of Domination Strategies
- Lecture 19 - Auction
- Lecture 20 - Auction
- Lecture 21 - Traffic at Equilibrium and Braesss Paradox
- Lecture 22 - Linear Markets
- Lecture 23 - Extensive Form Games
- Lecture 24 - Game Tree and Information Sets
- Lecture 25 - Strategies in Extensive form Games
- Lecture 26 - Extensive form Games with Simultaneous Moves and Their Normal Form Representation
- Lecture 27 - Sub Game Perfect Equilibrium Part-I
- Lecture 28 - Sub Game Perfect Equilibrium Part-II
- Lecture 29 - The Art of War

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ultimatum Game
- Lecture 31 - Stackelberg Model
- Lecture 32 - Bayesian Games
- Lecture 33 - Bayesian Game
- Lecture 34 - Bayesian Nash Equilibrium
- Lecture 35 - Yield vs Fight
- Lecture 36 - Yield vs. Fight
- Lecture 37 - Bayesian Cournot Game
- Lecture 38 - Bayesian Games with mixed strategies
- Lecture 39 - Auctions
- Lecture 40 - Sealed Bid First Price Auction
- Lecture 41 - Expected Revenue
- Lecture 42 - Bayesian Second Price Auction
- Lecture 43 - Expected Revenue
- Lecture 44 - All Pay Auction
- Lecture 45 - A Hawk-Dove Game
- Lecture 46 - Evolutionary Biology
- Lecture 47 - Evolutionary stable Strategy (ESS)
- Lecture 48 - ESS and NE
- Lecture 49 - Repeated Games
- Lecture 50 - Finitely Repeated Game having Multiple Equilibriums
- Lecture 51 - Chain-Store Paradox
- Lecture 52 - Infinitely Repeated Game
- Lecture 53 - Non Cooperative Bargaining
- Lecture 54 - Axiomatic Bargaining
- Lecture 55 - Extensive Form Game with Incomplete Information
- Lecture 56 - Introduction to perfect Bayesian Equilibrium
- Lecture 57 - Obtaining PBE
- Lecture 58 - Gift Game

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Managing Services

Subject Co-ordinator - Prof. Jayanta Chatterjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Service?
- Lecture 2 - Evolving Service Markets
- Lecture 3 - The Service Customers
- Lecture 4 - Product Service Systems
- Lecture 5 - The Service Act
- Lecture 6 - Seamless Service
- Lecture 7 - Service Management Elements
- Lecture 8 - Core Vs. Supplementary Services
- Lecture 9 - Intangibility of Services
- Lecture 10 - Response to IHIP Challenges
- Lecture 11 - Process & Promotion
- Lecture 12 - Process Issues in Service
- Lecture 13 - Challenges of Services-1
- Lecture 14 - Service Uniqueness-2
- Lecture 15 - Consumer in the Services Flow-1
- Lecture 16 - Service Consumer Behavior-2
- Lecture 17 - Customer Co Creation of Services-1
- Lecture 18 - Customer Co Creation of Services-2
- Lecture 19 - Current Service Map to New Service Design
- Lecture 20 - Current Service Map to New Service Design.
- Lecture 21 - Case Study on Service Excellence-1
- Lecture 22 - Case Study on Service Excellence-2
- Lecture 23 - Services Excellence - Culture
- Lecture 24 - People in Services
- Lecture 25 - Position - Value Proposition-1
- Lecture 26 - Position - Value Proposition-2
- Lecture 27 - Branding Services-1
- Lecture 28 - Distributing Services
- Lecture 29 - Distributing Services

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Network of Services
- Lecture 31 - Strategy for Service Businesses
- Lecture 32 - Strategy for Service Businesses.
- Lecture 33 - Strategy for Service Businesses..
- Lecture 34 - Pricing - Basic Concepts
- Lecture 35 - Service Pricing
- Lecture 36 - Service Pricing.
- Lecture 37 - Service Quality-I
- Lecture 38 - Service Quality-II
- Lecture 39 - Service Quality-III
- Lecture 40 - Service Complaints and Recovery Strategies
- Lecture 41 - Loyalty - Relationship-I
- Lecture 42 - Loyalty - Relationship-II
- Lecture 43 - Strategy Canvas - Service Portfolio Analysis
- Lecture 44 - Loyalty - Relationship
- Lecture 45 - Managing Partner Relationships
- Lecture 46 - Global Service Ecosystem - Contemporary Issues
- Lecture 47 - Service Ecosystem - Service Innovation
- Lecture 48 - Services as Systems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Quantitative Finance

Subject Co-ordinator - Dr. Raghu Nandan Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 2 (Continued) - Part 1

Lecture 2 (Continued) - Part 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

Lecture 21

Lecture 22

Lecture 23

Lecture 24

Lecture 25

Lecture 26

Lecture 27

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Lecture 28  
Lecture 29  
Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42  
Lecture 43  
Lecture 44  
Lecture 45  
Lecture 46  
Lecture 47  
Lecture 48

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Marketing Management-I

Subject Co-ordinator - Prof. Jayanta Chatterjee, Dr. Shashi Shekhar Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Defining Marketing
- Lecture 2 - Core Concepts in Marketing
- Lecture 3 - Case Studies
- Lecture 4 - Marketing of Services
- Lecture 5 - Evolution of Marketing
- Lecture 6 - Contemporary Issues in Modern Marketing Practices
- Lecture 7 - Introduction to Competitor Analysis
- Lecture 8 - Marketing Objectives
- Lecture 9 - Strategy and Core Competency
- Lecture 10 - PESTEL Framework
- Lecture 11 - Competitive Analysis
- Lecture 12 - Case Study
- Lecture 13 - Introduction To Marketing Information System
- Lecture 14 - Components of a Marketing Information System
- Lecture 15 - Marketing Research Process
- Lecture 16 - MDP and MRP
- Lecture 17 - Exploratory Research
- Lecture 18 - Exploratory Research (Continued...)
- Lecture 19 - Causal Research
- Lecture 20 - Measurement and Scaling
- Lecture 21 - Questionnaire and Sampling
- Lecture 22 - Sampling Techniques
- Lecture 23 - Data Collection, Preparation and Analysis
- Lecture 24 - Multivariate Data Analysis
- Lecture 25 - Introduction to Consumer Behaviour and Need Recognition
- Lecture 26 - Information Search
- Lecture 27 - Socio-Cultural Influences on the Consumer Buying Process
- Lecture 28 - Psychological Influences on Consumer Buying Process
- Lecture 29 - Evaluation of Alternatives

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Purchase and Post Purchase Evaluation
- Lecture 31 - Service Consumption
- Lecture 32 - Structural Models of Attitude
- Lecture 33 - Industrial Buyer Behaviour - I
- Lecture 34 - Industrial Buyer Behaviour - II
- Lecture 35 - Industrial Marketing Program and Buying Process
- Lecture 36 - Three Dimension of Industrial Buyer Behaviour
- Lecture 37 - Consumer Decision-Making Process Revisited
- Lecture 38 - Identifying and Choosing Opportunities
- Lecture 39 - Market Segmentation - I
- Lecture 40 - Market Segmentation - II
- Lecture 41 - Segmentation and Targeting
- Lecture 42 - Segmentation and Post Segmentation Strategies
- Lecture 43 - Introduction to Marketing Strategy
- Lecture 44 - Positioning
- Lecture 45 - Segmentation and Targeting in B2B Market
- Lecture 46 - Crafting the Positioning and Branding Effectively

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Marketing Management-II

Subject Co-ordinator - Prof. Jayanta Chatterjee, Dr. Shashi Shekhar Mishra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Brief Recap of Basic Concepts from Marketing Management 1 - I
- Lecture 2 - Brief Recap of Basic Concepts from Marketing Management 1 - II
- Lecture 3 - Product - An Important Component of the 4P
- Lecture 4 - New Product Development - I
- Lecture 5 - New Product Development - II
- Lecture 6 - Entrepreneurial Marketing
- Lecture 7 - Screening New Product Ideas
- Lecture 8 - Diffusion of Innovation
- Lecture 9 - Product Life Cycle and Introduction to Strategy
- Lecture 10 - Strategy for New Product Introduction - I
- Lecture 11 - Strategy for New Product Introduction - II
- Lecture 12 - Marketing Strategies for Different Stages in PLC
- Lecture 13 - Introduction to Brand, Branding and Brand Equity
- Lecture 14 - Strategic Brand Management Process
- Lecture 15 - Brand Building - I
- Lecture 16 - Brand Building - II
- Lecture 17 - Secondary Associations of a Brand and Advantages of Brand
- Lecture 18 - Measuring Brand Equity and other Brand Related Constructs
- Lecture 19 - Global Dimensions of Brands
- Lecture 20 - Brand Message and Advantage of Brand
- Lecture 21 - Branding Strategies - I
- Lecture 22 - Branding Strategies - II
- Lecture 23 - Strategic Brand Management
- Lecture 24 - Creating a Powerful Brand
- Lecture 25 - Introduction to Pricing
- Lecture 26 - Considerations for Setting the Price
- Lecture 27 - Determining the Demand and Cost Estimation
- Lecture 28 - Cost Estimation and Break Even Analysis
- Lecture 29 - Different Methods of Pricing - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Different Methods of Pricing - II
- Lecture 31 - Introduction to Distribution
- Lecture 32 - Types of Channel and their Dynamics
- Lecture 33 - Different Channel Options
- Lecture 34 - Integrated Marketing Channel
- Lecture 35 - Retailing and Wholesaling - I
- Lecture 36 - Retailing and Wholesaling - II
- Lecture 37 - Retail Marketing Management
- Lecture 38 - Choosing Retail Location and Layout
- Lecture 39 - Introduction to Integrated Marketing Communications
- Lecture 40 - Models of Communication
- Lecture 41 - Designing and Implementing Marketing Communication
- Lecture 42 - Digital Marketing Communication
- Lecture 43 - Introduction to Services Marketing
- Lecture 44 - Characteristics of Services
- Lecture 45 - Failure of Service and Solutions
- Lecture 46 - Service Quality
- Lecture 47 - Recap of Important Concepts - I
- Lecture 48 - Recap of Important Concepts - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Project Management

Subject Co-ordinator - Prof. Raghunandan Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Project Management
- Lecture 2 - Introduction to Agile Project Management
- Lecture 3 - Project Management Process for a Project - I
- Lecture 4 - Project Management Process for a Project - II
- Lecture 5 - Project Management Process for a Project - III
- Lecture 6 - Project Stakeholder and Risk Management
- Lecture 7 - Project Risk Management
- Lecture 8 - Solving Project Management Decision Problems
- Lecture 9 - Project Risk Management Analysis - I
- Lecture 10 - Project Risk Management Analysis - II
- Lecture 11 - Analytic Hierarchy Process for Project Selection
- Lecture 12 - Decision Tree Analysis
- Lecture 13 - Decision Tree Analysis and Risk Management
- Lecture 14 - Application of Utility Theory in Project Management - I
- Lecture 15 - Application of Utility Theory in Project Management - II
- Lecture 16 - Application of Utility Theory in Project Management - III
- Lecture 17 - Application of Utility Theory in Project Management - IV
- Lecture 18 - Other Criteria used for Project Selection
- Lecture 19 - Work Breakdown Structure in Project Management
- Lecture 20 - Activity Networks used in Project Management
- Lecture 21 - Concept of Critical Path Method (CPM) and Introduction to PERT
- Lecture 22 - Program Evaluation Review Technique (PERT) - I
- Lecture 23 - Program Evaluation Review Technique (PERT) - II
- Lecture 24 - Aspects and applications of CPM and PERT
- Lecture 25 - Concepts of a Project Life Cycle
- Lecture 26 - Discounting Rates and Project Pricing
- Lecture 27 - Concept of Forward Rates and Payback Time
- Lecture 28 - Important Example of PERT Network involving Probabilistic time and variance
- Lecture 29 - Scheduling and Crashing of Jobs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Resource levelling and resource constraint
- Lecture 31 - Detailed Explanation on Crashing of Jobs
- Lecture 32 - Project scheduling and Crashing - An Example
- Lecture 33 - Earned Value Management
- Lecture 34 - Key components of Earned Value Management
- Lecture 35 - Introduction to Graphical Evaluation and Review Technique (GERT) - I
- Lecture 36 - Graphical Evaluation and Review Technique (GERT) - II
- Lecture 37 - Graphical Evaluation and Review Technique (GERT) - III
- Lecture 38 - Graphical Evaluation and Review Technique (GERT) - IV
- Lecture 39 - Graphical Evaluation and Review Technique (GERT) - V
- Lecture 40 - Q-GERT

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Systems Engineering: Theory and Practice

Subject Co-ordinator - Dr. Deepu Philip

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Systems Engineering - What is, origin and examples
- Lecture 2 - Systems Engineering as a profession
- Lecture 3 - Systems Engineering Management (SEM)
- Lecture 4 - SEM - Lifecycle Integration
- Lecture 5 - Systems Engineering - Modern Version
- Lecture 6 - Overview of Systems Engineering Process
- Lecture 7 - System Design Process
- Lecture 8 - Systems View Point
- Lecture 9 - Complex Systems and System Development Process
- Lecture 10 - System Environments
- Lecture 11 - System Interfaces and Interactions
- Lecture 12 - System Development Process
- Lecture 13 - System Engineering Life Cycle Stages
- Lecture 14 - System Engineering Life Cycle Stages (Continued...)
- Lecture 15 - Requirement Analysis
- Lecture 16 - Requirement Analysis (Continued...)
- Lecture 17 - Unmanned Aerial Systems - A Systems Engineering Case Study
- Lecture 18 - Discussion about Systems Engineering and System Thinking with Professor Ian Angell
- Lecture 19 - Demonstration of real life systems by the Indian Army
- Lecture 20 - Need Analysis
- Lecture 21 - Functional Analysis
- Lecture 22 - Functional Flow Block Diagram
- Lecture 23 - Quality Function Deployment
- Lecture 24 - Timeline Analysis Sheet and Requirement Allocation Sheet
- Lecture 25 - Design Synthesis
- Lecture 26 - Design Synthesis (Continued...)
- Lecture 27 - Design Synthesis Tools

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Total Quality Management - I

Subject Co-ordinator - Prof. Raghunandan Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Quality and its Dimensions
- Lecture 2 - Quality and Variability
- Lecture 3 - History of Quality Control
- Lecture 4 - Management Aspects of Quality - I
- Lecture 5 - Management aspects of Quality - II
- Lecture 6 - Introduction to Concepts of Probability
- Lecture 7 - Six Sigma Overview
- Lecture 8 - DMAIC for Problem Solving
- Lecture 9 - DMAIC exmaples and DMADV
- Lecture 10 - Quality Improvement
- Lecture 11 - 7 Old Tools for Quality Assurance
- Lecture 12 - 7 New Tools for Quality Assurance
- Lecture 13 - CPM, PDPC and Introduction To House of Quality
- Lecture 14 - Building the House of Quality
- Lecture 15 - Introduction to Acceptance Sampling
- Lecture 16 - The Operating Characteristic Curve
- Lecture 17 - The OC curve and Sampling Plans
- Lecture 18 - Double Sampling
- Lecture 19 - Sequential Sampling, Military Standard and Introduction to R
- Lecture 20 - Basic Understanding of R and Introduction to Control Charts
- Lecture 21 - Basics of X bar and R chart
- Lecture 22 - Usage of X bar chart and R chart
- Lecture 23 - Variable Sample Size in X bar and R chart
- Lecture 24 - Patterns in Charts
- Lecture 25 - S chart and OC curve
- Lecture 26 - S square chart and MR chart
- Lecture 27 - Attribute charts- The p chart
- Lecture 28 - np control chart
- Lecture 29 - Estimating control limits with varying sample size

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - OC curve, c and u charts
- Lecture 31 - u, g and h chart
- Lecture 32 - Introduction to Process Capability Analysis
- Lecture 33 - PCR calculation and Gauge Capability
- Lecture 34 - Introduction to ISO 9000

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Management of New Products and Services

Subject Co-ordinator - Prof. Jayanta Chatterjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Similarities and Differences
- Lecture 2 - Theoretical Foundations I Competitive Strategy
- Lecture 3 - Theoretical Foundations II Product Strategy
- Lecture 4 - Theoretical Foundations III Understanding Customer Behaviour
- Lecture 5 - Theoretical Foundations IV Product Life Cycle (PLC) and Chasm
- Lecture 6 - Theoretical Foundations V Product Platforms and Portfolios
- Lecture 7 - Theoretical Foundations VI Understanding Customers (STP)
- Lecture 8 - STP continued
- Lecture 9 - Understanding Product Platforms
- Lecture 10 - The Idea Generation process
- Lecture 11 - Creating Customer Value Proposition
- Lecture 12 - Lean Product Process
- Lecture 13 - Estimating Marketing and Sales Potential
- Lecture 14 - Introduction to New Product Forecasting Techniques
- Lecture 15 - Diffusion process and Product Life Cycle
- Lecture 16 - Technology Adoption Life Cycle and Crossing the Chasm
- Lecture 17 - Managing New Products in Large Organizations
- Lecture 18 - Introduction to the Stage Gate model
- Lecture 19 - What is a Lean Startup
- Lecture 20 - The Business Model Canvas
- Lecture 21 - Introduction to Intellectual Property Rights
- Lecture 22 - Taking the Product to the Market - Deployment Strategies

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Total Quality Management-II

Subject Co-ordinator - Prof. Raghunandan Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Statistics
- Lecture 2 - Introduction to Probability Theory
- Lecture 3 - Distribution of a Random Variable - I
- Lecture 4 - Distribution of a Random Variable - II
- Lecture 5 - Part-I
- Lecture 6 - Part-II
- Lecture 7 - Confidence Interval III and the introduction to Hypothesis Testing
- Lecture 8 - Hypothesis Testing
- Lecture 9 - The Analysis of Variance (ANOVA) - I
- Lecture 10 - The Analysis of Variance (ANOVA) - II
- Lecture 11 - The Analysis of Variance (ANOVA) - III
- Lecture 12 - The Analysis of Variance (ANOVA) - IV
- Lecture 13 - The Analysis of Variance (ANOVA) - V
- Lecture 14 - The Analysis of Variance (ANOVA) - VI
- Lecture 15 - The Analysis of Variance (ANOVA) - VII and Introduction to Factorial Design
- Lecture 16 - Factorial Designs - I
- Lecture 17 - Factorial Designs - II
- Lecture 18 - Factorial Designs - III
- Lecture 19 - Factorial Designs - IV
- Lecture 20 - Factorial Designs - V
- Lecture 21 - Factorial Designs - VI
- Lecture 22 - Factorial Designs - VII
- Lecture 23 - Factorial Designs - VIII
- Lecture 24 - Two level Fractional Factorial Design - I
- Lecture 25 - Two level Fractional Factorial Design - II
- Lecture 26 - Two level Fractional Factorial Design - III
- Lecture 27 - Two level Fractional Factorial Design - IV
- Lecture 28 - Two level Fractional Factorial Design - V
- Lecture 29 - Two level Fractional Factorial Design - VI

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Two level Fractional Factorial Design - VII
- Lecture 31 - Additional Design and Analysis Topics for Factorial and Fractional Factorial Designs - I
- Lecture 32 - Additional Design and Analysis Topics for Factorial and Fractional Factorial Designs - II
- Lecture 33 - Confounding in the  $3^k$  Factorial Design - I
- Lecture 34 - Confounding in the  $3^k$  Factorial Design - II
- Lecture 35 - Fractional Replication of the  $3^k$  Factorial Design
- Lecture 36 - Fitting Regression Models - I
- Lecture 37 - Fitting Regression Models - II
- Lecture 38 - Fitting Regression Models - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Practitioners Course In Descriptive, Predictive and Prescriptive Analyt

Subject Co-ordinator - Dr. Amandeep Singh, Dr. Deepu Philip

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Analytics for Decision Making Support

Lecture 3 - Decision Needs and Analytics

Lecture 4 - Systems, Models and Modeling Process

Lecture 5 - Types of Models

Lecture 6 - Data and its Types

Lecture 7 - Overview of Probability

Lecture 8 - Statistics and Analytics (Private)

Lecture 9 - Descriptive Statistics & Graphical Tools (Private)

Lecture 10 - Frequency Distribution and Histogram

Lecture 11 - Stem and Leaf Plot

Lecture 12 - Box Plots

Lecture 13 - Business Intelligence and Analytics

Lecture 14 - Normal Distribution

Lecture 15 - Sampling

Lecture 16 - Sampling Techniques

Lecture 17 - Hypothesis Testing

Lecture 18 - Hypothesis Testing continued

Lecture 19 - Machine Learning

Lecture 20 - Correlation

Lecture 21 - Correlation continued

Lecture 22 - Regression

Lecture 23 - Analysis of Variance (ANOVA) - Part 1

Lecture 24 - Analysis of Variance (ANOVA) - Part 2

Lecture 25 - Machine Learning - Part 2

Lecture 26 - Machine Learning - Part 3

Lecture 27 - Machine Learning - Part 4

Lecture 28 - Machine Learning - Part 5

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Microeconomics: Theory and Applications

Subject Co-ordinator - Prof. Deep Mukerjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Major themes in Microeconomics - Part 1
- Lecture 3 - Major themes in Microeconomics - Part 2
- Lecture 4 - Basic differential calculus
- Lecture 5 - Demand Function
- Lecture 6 - Comparative Statics and Marshallian Consumer Theory
- Lecture 7 - Marshallian Consumer Theory (Continued...)
- Lecture 8 - Optimization Theory and Techniques - Part 1
- Lecture 9 - Optimization Theory and Techniques - Part 2
- Lecture 10 - Practice Session
- Lecture 11 - Indifference Curves - Part 1
- Lecture 12 - Indifference Curves - Part 2
- Lecture 13 - Consumer Equilibrium - Part 1
- Lecture 14 - Consumer Equilibrium - Part 2
- Lecture 15 - Income consumption curve (ICC) and related issues
- Lecture 16 - Price consumption curves and related issues
- Lecture 17 - Slutsky Equation
- Lecture 18 - Price Change and Consumer Welfare - Part 1
- Lecture 19 - Price Change and Consumer Welfare - Part 2
- Lecture 20 - Price Change and Consumer Welfare - Part 3
- Lecture 21 - Intertemporal Choice - Part 1
- Lecture 22 - Intertemporal Choice - Part 2
- Lecture 23 - Introduction to Risk
- Lecture 24 - Consumer Choice Involving Risk - Part 1
- Lecture 25 - Consumer Choice Involving Risk - Part 2
- Lecture 26 - Neoclassical Production Function
- Lecture 27 - Isoquants - Part 1
- Lecture 28 - Isoquants - Part 2
- Lecture 29 - Cobb-Douglass production function

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Firm's Optimization Problems - Part 1
- Lecture 31 - Firm's Optimization Problems - Part 2
- Lecture 32 - Cost Function - Part 1
- Lecture 33 - Cost function - Part 2
- Lecture 34 - Short-run Cost Curves
- Lecture 35 - Long-run Cost Curves
- Lecture 36 - Short-run Equilibrium of firm
- Lecture 37 - Short-run equilibrium of firm and supply function
- Lecture 38 - Long-run equilibrium of a competitive firm - Part 1
- Lecture 39 - Long-run equilibrium of a competitive firm - Part 2
- Lecture 40 - Long-run Equilibrium of Competitive Industry
- Lecture 41 - Welfare Analysis of Competitive Market
- Lecture 42 - Welfare Analysis of Government Intervention on Competitive Market - Part 1
- Lecture 43 - Welfare Analysis of Government Intervention in Competitive Market - Part 2
- Lecture 44 - Monopoly - Part 1
- Lecture 45 - Monopoly - Part 2
- Lecture 46 - Discriminating Monopoly
- Lecture 47 - Practice session (Monopoly)
- Lecture 48 - Oligopoly - Part 1
- Lecture 49 - Oligopoly - Part 2
- Lecture 50 - Model for Cartel Behaviour
- Lecture 51 - Practice session (Oligopoly)
- Lecture 52 - Externality and Market Failure - Part 1
- Lecture 53 - Externality and Market Failure - Part 2
- Lecture 54 - Linear Programming - Part 1
- Lecture 55 - Linear Programming - Part 2
- Lecture 56 - Linear Programming - Part 3
- Lecture 57 - Linear Programming - Part 4
- Lecture 58 - Linear Regression - Part 1
- Lecture 59 - Linear Regression - Part 2
- Lecture 60 - Linear Regression - Part 3
- Lecture 61 - Linear Regression - Part 4



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Data Analysis and Decision Making-I

Subject Co-ordinator - Prof. Raghunandan Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Data Representation and Frequency  
Lecture 3 - Frequency Table and Mean  
Lecture 4 - Descriptive Statistics  
Lecture 5 - Introduction To Probability  
Lecture 6 - Conditional Probability  
Lecture 7 - Baye'S Theorem And Distributions  
Lecture 8 - Binomial Distribution  
Lecture 9 - Hypergeometric, Poisson, Normal Distribution  
Lecture 10 - Distribution Function  
Lecture 11 - Normal Distribution  
Lecture 12 - Sampling  
Lecture 13 - Some Distributions  
Lecture 14 - More on Distributions  
Lecture 15 - Estimators  
Lecture 16 - MLE  
Lecture 17 - Statistical Inference  
Lecture 18 - Hypothesis Testing  
Lecture 19 - Hypothesis Testing  
Lecture 20 - Hypothesis Testing  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26 - Forecasting  
Lecture 27 - Forecasting  
Lecture 28 - Data Properties  
Lecture 29 - Multivariate Statistical Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multivariate Statistical Analysis
- Lecture 31 - Multivariate Statistical Analysis
- Lecture 32 - Multivariate Statistical Analysis
- Lecture 33 - Multivariate Distribution
- Lecture 34 - Multivariate Extreme Value Distribution
- Lecture 35 - Mle Estimates
- Lecture 36 - Mle Estimates
- Lecture 37 - Copula Theory
- Lecture 38 - PCA
- Lecture 39 - PCA
- Lecture 40 - Factor Analysis
- Lecture 41 - Factor Analysis
- Lecture 42 - Introduction to Utility Theory
- Lecture 43 - Utility Analysis
- Lecture 44 - Decision Sciences
- Lecture 45 - Utility Functions
- Lecture 46 - Exponential Utility Function
- Lecture 47 - Risk Concepts
- Lecture 48 - Utility Theory Axioms
- Lecture 49 - Utility Analysis
- Lecture 50 - Chebyshev'S Inequality
- Lecture 51 - Loss Function
- Lecture 52 - Loss Function
- Lecture 53 - Loss Function and MLR
- Lecture 54 - MLR
- Lecture 55 - Loss Function
- Lecture 56 - Cannonical Correlation
- Lecture 57 - cannonical Correlation (Continued...)
- Lecture 58 - Structural Equation Modeling (SEM)
- Lecture 59 - SEM
- Lecture 60 - SEM

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Economics of Health and Health Care

Subject Co-ordinator - Prof. Deep Mukerjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Health
- Lecture 2 - Health Economics Map and Health Expenditure
- Lecture 3 - Utility
- Lecture 4 - Indifference Curve
- Lecture 5 - Budget Line
- Lecture 6 - Theory of Demand
- Lecture 7 - Theory of Supply
- Lecture 8 - Price Elasticity of Demand
- Lecture 9 - Income Elasticity of Demand and Price Elasticity of Supply
- Lecture 10 - Production Function
- Lecture 11 - Relationship Between AP, MP and Law of Diminishing Marginal Returns
- Lecture 12 - Long Run Production Function and Isoquant
- Lecture 13 - Returns to Scale
- Lecture 14 - Iso-Cost Curve and Co-production
- Lecture 15 - Introduction to Cost Theory
- Lecture 16 - Break-even Point and Long Run Cost Curve
- Lecture 17 - Cost-Volume-Profit Analysis
- Lecture 18 - Costing in a Hospital System
- Lecture 19 - Choice in Healthcare
- Lecture 20 - Measurements based on Choices
- Lecture 21 - Grossman's Demand Model
- Lecture 22 - Market Structures and Perfect Competition
- Lecture 23 - Market Imperfection
- Lecture 24 - Ideal Healthcare Market Conditions
- Lecture 25 - Imperfect in Healthcare Markets
- Lecture 26 - Building Blocks of Health Systems and Health Financing
- Lecture 27 - Mechanisms of Health Financing
- Lecture 28 - Introduction to health insurance
- Lecture 29 - Important concepts of health insurance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strategies for Private Health Insurance companies
- Lecture 31 - Types of health insurance and Death Spiral
- Lecture 32 - Third Party Administrator.
- Lecture 33 - Managed Care Organizations
- Lecture 34 - Reinsurance
- Lecture 35 - What is Economic Evaluation?
- Lecture 36 - Cost Minimization Analysis and Cost Effectiveness Analysis
- Lecture 37 - Cost-utility Analysis
- Lecture 38 - Cost-Benefit Analysis
- Lecture 39 - Types of Goods- Excludability and Rivalry in Consumption
- Lecture 40 - Public Goods, Common Resources and decision making based on Cost-Benefit Analysis
- Lecture 41 - Tragedy of Commons and Evaluation Framework
- Lecture 42 - Fundamental concepts of economic externalities
- Lecture 43 - External cost, external benefit and efficient output
- Lecture 44 - External cost, external benefit and efficient output
- Lecture 45 - Economics of Health and Healthcare
- Lecture 46 - Development Indices
- Lecture 47 - Social Determinants of Health
- Lecture 48 - Fundamental Concepts and Theories Related to Population, Health and Development
- Lecture 49 - Population Composition and demographic Dividend
- Lecture 50 - Theories Related to Fertility, Population Growth and Socio-Economic Advancements
- Lecture 51 - Underwriting

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Simulation of Business Systems: An Applied Approach

Subject Co-ordinator - Dr. Deepu Philip

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Simulation
- Lecture 2 - Terminologies in Simulation
- Lecture 3 - How to Built Simulation Model
- Lecture 4 - Components of Discrete Event Simulation
- Lecture 5 - A Simple Example
- Lecture 6 - Terminologies and Like Approaches
- Lecture 7 - Monte-Carlo Simulation
- Lecture 8 - How to build Simulation? - Major considerations
- Lecture 9 - Basic Simulation terms and Illustrative examples
- Lecture 10 - Steps in a Simulation Study
- Lecture 11 - An introduction to ARENA
- Lecture 12 - Simulation experiments using ARENA
- Lecture 13 - Probability and Statistics for simulation
- Lecture 14 - Pareto Analysis
- Lecture 15 - Frequency Distribution
- Lecture 16 - Simulation of Tandem Queues using ARENA
- Lecture 17 - Simulation with ARENA
- Lecture 18 - Simulation with ARENA
- Lecture 19 - Simulation with ARENA
- Lecture 20 - Stem and Leaf Display
- Lecture 21 - Tecnomatix
- Lecture 22 - Tecnomatix
- Lecture 23 - Tecnomatix
- Lecture 24 - Probability Distributions - I
- Lecture 25 - Probability Distributions - II
- Lecture 26 - Valid Model for Input Data

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Management of Field Sales

Subject Co-ordinator - Prof. Jayanta Chatterjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Management of Field Sales
- Lecture 2 - Sales Role and Activities
- Lecture 3 - Value added selling and Non Verbal Messages
- Lecture 4 - Communication Styles in Field Sales
- Lecture 5 - Managing Product Life cycle
- Lecture 6 - From Product To Benefit
- Lecture 7 - The Sales Process
- Lecture 8 - Prospecting
- Lecture 9 - From Prospecting to Preparing the Sales Call
- Lecture 10 - The Buying Process
- Lecture 11 - Approaching the Customer with Adaptive Selling
- Lecture 12 - Interactive Sales Presentation
- Lecture 13 - Consultative Questioning Strategy
- Lecture 14 - Account Evaluation - Long Term Approach
- Lecture 15 - Negotiating Buyer Concerns
- Lecture 16 - Sales Force Structure
- Lecture 17 - Leading the Sales Force
- Lecture 18 - Sales Force Motivation
- Lecture 19 - Forecasting Sales and Developing Budgets
- Lecture 20 - Understanding Sales Analytics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Data Analysis and Decision Making-II

Subject Co-ordinator - Prof. Raghunandan Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Utility Analysis  
Lecture 2 - Utility Analysis  
Lecture 3 - Utility Analysis  
Lecture 4 - Utility Analysis  
Lecture 5 - Utility Analysis  
Lecture 6 - Utility Analysis  
Lecture 7 - Utility Analysis  
Lecture 8 - Utility Analysis  
Lecture 9 - Decisions and Utility Analysis  
Lecture 10 - Safety first principle  
Lecture 11 - Loss Function  
Lecture 12 - Loss Function  
Lecture 13 - Balanced Loss Function  
Lecture 14 - DEA  
Lecture 15 - DEA  
Lecture 16 - DEA  
Lecture 17 - DEA  
Lecture 18 - Decision Trees  
Lecture 19 - Decision Trees  
Lecture 20 - Decision Trees  
Lecture 21 - AHP  
Lecture 22 - AHP  
Lecture 23 - AHP  
Lecture 24 - AHP  
Lecture 25 - AHP  
Lecture 26 - ELECTRE  
Lecture 27 - ELECTRE  
Lecture 28 - ELECTRE  
Lecture 29 - ELECTRE

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - ELECTRE  
Lecture 31 - TOPSIS  
Lecture 32 - TOPSIS  
Lecture 33 - TOPSIS  
Lecture 34 - TOPSIS  
Lecture 35 - TOPSIS  
Lecture 36 - VIKOR  
Lecture 37 - VIKOR  
Lecture 38 - VIKOR  
Lecture 39 - VIKOR  
Lecture 40 - VIKOR  
Lecture 41 - MAUT  
Lecture 42 - MAUT  
Lecture 43 - MAUT  
Lecture 44 - multi-objective optimization  
Lecture 45 - reliability based optimization  
Lecture 46 - Optimization  
Lecture 47 - Goal programming  
Lecture 48 - GERT  
Lecture 49 - Demand model  
Lecture 50 - Bass model  
Lecture 51 - GERT  
Lecture 52 - GERT  
Lecture 53 - GERT  
Lecture 54 - AIS  
Lecture 55 - AIS  
Lecture 56 - AIS  
Lecture 57 - AIS  
Lecture 58 - ANN  
Lecture 59 - Metaheuristics techniques  
Lecture 60 - General Concepts



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Advanced Green Manufacturing Systems

Subject Co-ordinator - Dr. Deepu Philip, Dr. Amandeep Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Significance of manufacturing
- Lecture 2 - Productivity in manufacturing
- Lecture 3 - Product lifecycle
- Lecture 4 - Introduction to optimization
- Lecture 5 - Mathematical modeling example
- Lecture 6 - Rules of modeling
- Lecture 7 - Modeling with continuous variable - Part 1
- Lecture 8 - Modeling with continuous variable - Part 2
- Lecture 9 - Value Engineering Green Plan
- Lecture 10 - Value Engineering Green Plan
- Lecture 11 - Value Engineering Green Plan
- Lecture 12 - Value Engineering Green Plan - FAST diagramming
- Lecture 13 - Value Engineering - Case Study
- Lecture 14 - Value Engineering Green Plan - Paired comparison technique
- Lecture 15 - Creativity Techniques
- Lecture 16 - Frugal Innovation
- Lecture 17 - Green Quality Function Deployment - Part 1
- Lecture 18 - Green Quality Function Deployment - Part 2
- Lecture 19 - Solving optimization problems
- Lecture 20 - Solving optimization problems using MS Excel
- Lecture 21 - MS Excel Solver demonstration
- Lecture 22 - Solving optimization problems using MS Excel
- Lecture 23 - Design of Experiments for Factor Selection
- Lecture 24 - Fundamental Techniques of Experimentation
- Lecture 25 - Simple Comparative Experiments
- Lecture 26 - ANOVA - Part 1
- Lecture 27 - ANOVA - Part 2
- Lecture 28 - ANOVA - Part 3
- Lecture 29 - Design for Environment - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design for Environment - Part 2
- Lecture 31 - Design for Environment - Part 3
- Lecture 32 - Design for Environment - Part 4
- Lecture 33 - Life Cycle Assessment, EIO-LCA tool
- Lecture 34 - Life Cycle Assessment, process based software
- Lecture 35 - Introduction to Factorial Experiments
- Lecture 36 - Statistical Analysis in Factorial Experiments
- Lecture 37 - Numerical Analysis in Factorial Experiments - Part 1
- Lecture 38 - Numerical Analysis in Factorial Experiments - Part 2
- Lecture 39 - Overview of Optimization Methods - Part 1
- Lecture 40 - Overview of Optimization Methods - Part 2
- Lecture 41 - Green Factory through Green Unit Processes - Part 1
- Lecture 42 - Green Factory through Green Unit Processes - Part 2
- Lecture 43 - Green Factory Simulation - Part 1
- Lecture 44 - Green Factory Simulation - Part 2
- Lecture 45 - Green Factory Simulation - Part 3
- Lecture 46 - Advanced Green Manufacturing Systems course summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Data Analysis and Decision Making-III

Subject Co-ordinator - Prof. Raghunandan Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Linear Programming  
Lecture 3 - Linear Programming  
Lecture 4 - Utility Analysis  
Lecture 5 - Utility Analysis  
Lecture 6 - Utility Theory  
Lecture 7 - Utility Theory  
Lecture 8 - Utility Analysis  
Lecture 9 - Safety First Principle  
Lecture 10 - Safety First Principle (Continued...)  
Lecture 11 - Optimization  
Lecture 12 - Optimization  
Lecture 13 - Optimization  
Lecture 14 - Optimization  
Lecture 15 - Simplex Method  
Lecture 16 - Simplex Method  
Lecture 17 - Simplex Method  
Lecture 18 - Simplex Method  
Lecture 19 - Optimization  
Lecture 20 - Simplex Method  
Lecture 21 - Simplex Method  
Lecture 22 - Simplex Method  
Lecture 23 - Simplex Method  
Lecture 24 - Optimization  
Lecture 25 - Optimization  
Lecture 26 - Optimization  
Lecture 27 - Simplex Method  
Lecture 28 - Simplex Method  
Lecture 29 - Simplex Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transportation Problem
- Lecture 31 - Transportation Problem
- Lecture 32 - Transportation Problem
- Lecture 33 - Transportation Problem
- Lecture 34 - Transportation Problem
- Lecture 35 - Loss Function
- Lecture 36 - DEA
- Lecture 37 - DEA
- Lecture 38 - DEA
- Lecture 39 - Gomory Cutting Plane Algorithm
- Lecture 40 - Gomory Cutting Plane Algorithm
- Lecture 41 - Integer Programming
- Lecture 42 - Integer Programming
- Lecture 43 - Integer Programming
- Lecture 44 - Quadratic Programming
- Lecture 45 - Portfolio Optimization
- Lecture 46 - Chance Constraint Problem
- Lecture 47 - Branch and Bound
- Lecture 48 - Branch and Bound
- Lecture 49 - Branch and Bound
- Lecture 50 - Branch and Bound
- Lecture 51 - Quadratic Programming
- Lecture 52 - Steepest Descent
- Lecture 53 - Reliability Based Optimization
- Lecture 54 - Reliability Based Optimization
- Lecture 55 - Reliability Based Optimization
- Lecture 56 - Sequential Optimization and Reliability Assessment
- Lecture 57 - Reliability/Stochastic Optimization
- Lecture 58 - Reliability/Stochastic Optimization
- Lecture 59 - Robustness
- Lecture 60 - Robustness

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Artificial Intelligence (AI) for Investments

Subject Co-ordinator - Prof. Abhinava Tripathi

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
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Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 43  
Lecture 44

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Brand Management

Subject Co-ordinator - Prof. Abhishek Kumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Brands and Marketplace  
Lecture 2 - Brands and Marketplace (Continued...)  
Lecture 3 - Product Vs Brand  
Lecture 4 - Product Vs Brand (Continued...)  
Lecture 5 - Brand Management - The Activity  
Lecture 6 - Brand Management - The Activity (Continued...)  
Lecture 7 - Brand Associations as Raw Material  
Lecture 8 - Brand Associations as Raw Material (Continued...)  
Lecture 9 - Mining Brand Associations  
Lecture 10 - Mining Brand Associations (Continued...)  
Lecture 11 - Unearthing Brand Iceberg  
Lecture 12 - Unearthing Brand Iceberg (Continued...)  
Lecture 13 - Brand Personality  
Lecture 14 - Brand Personality (Continued...)  
Lecture 15 - Brand Identity  
Lecture 16 - Brand Identity (Continued...)  
Lecture 17 - Brand Positioning and Repositioning - Part A  
Lecture 18 - Brand Positioning and Repositioning - Part A (Continued...)  
Lecture 19 - Brand Positioning and Repositioning - Part B  
Lecture 20 - Brand Positioning and Repositioning - Part B (Continued...)  
Lecture 21 - Brand Positioning and Repositioning (Continued...)  
Lecture 22 - Evolution of Brand Manager System  
Lecture 23 - Evolution of Brand Manager System (Continued...)  
Lecture 24 - Evolution of Brand Manager System - Part B (Continued...)  
Lecture 25 - Brand Extensions  
Lecture 26 - Brand Extensions (Continued...)  
Lecture 27 - Brand Architecture - Part 1  
Lecture 28 - Brand Architecture - Part 1 (Continued...)  
Lecture 29 - Brand Architecture - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Brand Architecture - Part 2 (Continued...)
- Lecture 31 - Relationship Between Pricing and Brand Positioning
- Lecture 32 - Relationship Between Pricing and Brand Positioning (Continued...)
- Lecture 33 - Pricing - A Tool for Brand Management
- Lecture 34 - Pricing - A Tool for Brand Management (Continued...)
- Lecture 35 - Marketing Brand Equity
- Lecture 36 - Marketing Brand Equity (Continued...)
- Lecture 37 - Financial Brand Equity
- Lecture 38 - Financial Brand Equity (Continued...)
- Lecture 39 - Brands Serving Psycho-Socio Functions
- Lecture 40 - Brand Management - Glossary



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Advanced Business Decision Support Systems

Subject Co-ordinator - Prof. Deepu Philip, Dr. Amandeep Singh Oberoi, Dr. Prabal Pratap Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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Lecture 43

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Advanced Algorithmic Trading and Portfolio Management

Subject Co-ordinator - Prof. Abhinava Tripathi

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Advanced Financial Instruments for Sustainable Business and Decentraliz

Subject Co-ordinator - Prof. Abhinava Tripathi

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Multivariate Procedures with R

Subject Co-ordinator - Prof. Narendra K Sharma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - R Software and its Installation
- Lecture 2 - Help, Documentation, Examples, Packages and Libraries
- Lecture 3 - Command Line and Data Editor
- Lecture 4 - Introduction to R Studio
- Lecture 5 - R as a Calculator
- Lecture 6 - Calculation with Data Vectors and Built-in Function
- Lecture 7 - Matrix Operations
- Lecture 8 - Matrix Operations
- Lecture 9 - Univariate Data-Central Tendency and Variability
- Lecture 10 - Bivariate Data
- Lecture 11 - Missing Data Handling
- Lecture 12 - Measuring Central Tendency with Missing Data
- Lecture 13 - Measuring Variation with Missing Data
- Lecture 14 - Coefficient of Variation and Summary
- Lecture 15 - Boxplots and Grouped Boxplots
- Lecture 16 - Bar Diagram, Subdivided and Multiple Bar Diagrams
- Lecture 17 - Pie Diagram, Histogram and Multiple Histogram
- Lecture 18 - Scatter Plots, Smooth Scatter Plots and Matrix Plots
- Lecture 19 - Three Dimensional Plots, Star Plots and Chernoff Faces
- Lecture 20 - Continuous and Discrete
- Lecture 21 - Probability Functions
- Lecture 22 - Probability Functions for Continuous Bivariate and Multivariate Random Variables
- Lecture 23 - Theoretical Properties
- Lecture 24 - Application in R Software
- Lecture 25 - Bivariate Normal and Multivariate Normal Distributions in R
- Lecture 26 - Chi Square ( $\chi^2$ ), t and F Distribution
- Lecture 27 - Point and Interval Estimation
- Lecture 28 - Maximum Likelihood Estimation
- Lecture 29 - Basics of Tests of Hypothesis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Test and Confidence Interval for Mean in One Sample with Known Variance in Univariate Data
- Lecture 31 - Test and Confidence Interval for Mean in One Sample with Unknown Variance in Univariate Data
- Lecture 32 - Tests for Mean in Two Samples with Univariable Data
- Lecture 33 - Analysis of Variance and Homogeneity of Variances with Univariate Data
- Lecture 34 - Tests for Mean Vector with Multivariate Data in One Sample
- Lecture 35 - Tests for Mean Vector with Multivariate Data in Two Sample
- Lecture 36 - Centering, Scaling and Z-Scores
- Lecture 37 - Introduction and Basic Concepts
- Lecture 38 - Estimation of Parameters
- Lecture 39 - Model Fitting with R Software
- Lecture 40 - Test of Hypothesis and Confidence Interval Estimation on Individual Regression Coefficients
- Lecture 41 - Analysis of Variance and Implementation in R Software
- Lecture 42 - Goodness of Fit and Testing of Normality
- Lecture 43 - Logistic Regression Model
- Lecture 44 - Introduction to Classification
- Lecture 45 - Bayes Procedure for Classification
- Lecture 46 - Classification Procedure for Multivariate Normal Distributions
- Lecture 47 - Classification Procedure and Analysis in R
- Lecture 48 - Basic Concepts and Definitions
- Lecture 49 - Hierarchical Classification
- Lecture 50 - Hierarchical Classification and Analysis with R
- Lecture 51 - Hierarchical Classification with Examples in R
- Lecture 52 - Concepts and Theoretical Setup
- Lecture 53 - Principle Component and Its Graphical Analysis in R
- Lecture 54 - Canonical Variables and Concepts
- Lecture 55 - Statistical Analysis of Canonical Variables
- Lecture 56 - Canonical Variables Analysis in R

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Econometric Modelling

Subject Co-ordinator - Dr. Rudra P. Pradhan

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Econometric Modelling
- Lecture 2 - Structure of Econometric Modelling
- Lecture 3 - Univariate Econometric Modelling
- Lecture 4 - Bivariate Econometric Modelling
- Lecture 5 - Bivariate Econometric Modelling (Continued...)
- Lecture 6 - Probability
- Lecture 7 - Bivariate Econometric Modelling
- Lecture 8 - Bivariate Econometric Modelling (Continued...)
- Lecture 9 - Reliability BEM
- Lecture 10 - Reliability BEM (Continued...1)
- Lecture 11 - Reliability BEM (Continued...2)
- Lecture 12 - ANOVA for Bivariate Econometric Modelling
- Lecture 13 - Trivariate Econometric Modelling
- Lecture 14 - Trivariate Econometric Modelling (Continued...)
- Lecture 15 - Reliability of Trivariate Econometric Modelling
- Lecture 16 - Multivariate Econometric Modelling
- Lecture 17 - Multivariate Econometric Modelling (Continued...)
- Lecture 18 - Matrix Approach to Econometric Modelling
- Lecture 19 - Matrix Approach to Econometric Modelling (Continued...)
- Lecture 20 - Multicollinearity Problem
- Lecture 21 - Multicollinearity Problem (Continued...)
- Lecture 22 - Autocorrelation Problem
- Lecture 23 - Autocorrelation Problem (Continued...)
- Lecture 24 - Heteroscedasticity Problem
- Lecture 25 - Heteroscedasticity Problem (Continued...)
- Lecture 26 - Dummy Modelling
- Lecture 27 - Dummy Modelling (Continued...)
- Lecture 28 - LOGIT and PROBIT Model
- Lecture 29 - LOGIT and PROBIT Model (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Panel Data Modelling
- Lecture 31 - Panel Data Modelling (Continued...)
- Lecture 32 - Simultaneous Equation Modelling
- Lecture 33 - Simultaneous Equation Modelling (Continued...)
- Lecture 34 - Structural Equation Modelling
- Lecture 35 - Structural Equation Modelling (Continued...)
- Lecture 36 - Time Series Modelling
- Lecture 37 - Time Series Modelling (Continued...)
- Lecture 38 - Unit Root
- Lecture 39 - Cointegration
- Lecture 40 - Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Organizational Behaviour

Subject Co-ordinator - Dr. Susmita Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Understanding Organizational Behaviour
- Lecture 2 - Effectiveness in Organizations
- Lecture 3 - Social System and Organizational Culture
- Lecture 4 - Social System and Organizational Culture (Continued...)
- Lecture 5 - Individual differences and work behaviour
- Lecture 6 - Personality
- Lecture 7 - Personality (Continued...)
- Lecture 8 - Attitudes
- Lecture 9 - Attitudes (Continued...)
- Lecture 10 - Attitudes (Continued...)
- Lecture 11 - Perceptions and Attributions
- Lecture 12 - Perceptions and Attributions (Continued...)
- Lecture 13 - Motivation
- Lecture 14 - Motivation (Continued...)
- Lecture 15 - Job Design, Work and Motivation
- Lecture 16 - Job Design, Work and Motivation (Continued...)
- Lecture 17 - Evaluation, Feedback and Rewards
- Lecture 18 - Evaluation, Feedback and Rewards (Continued...)
- Lecture 19 - Managing Misbehaviour
- Lecture 20 - Stress
- Lecture 21 - Counseling
- Lecture 22 - Informal and Formal Groups
- Lecture 23 - Teams and Teambuilding
- Lecture 24 - Managing Conflict and Negotiation
- Lecture 25 - Managing Conflict and Negotiation (Continued...)
- Lecture 26 - Power and Politics
- Lecture 27 - Empowerment and Participation
- Lecture 28 - Assertive Behaviour and Transactional Analysis
- Lecture 29 - Communication

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Communication (Continued...)
- Lecture 31 - Decision Making
- Lecture 32 - Decision Making (Continued...)
- Lecture 33 - Leadership
- Lecture 34 - Leadership (Continued...)
- Lecture 35 - Leadership (Continued...)
- Lecture 36 - Organizational structure and Design
- Lecture 37 - Organizational structure and Design (Continued...)
- Lecture 38 - Organizational structure and Design (Continued...)
- Lecture 39 - Change and Innovation
- Lecture 40 - Change and Innovation (Continued...)
- Lecture 41 - Organizational behaviour across cultures

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Security Analysis and Portfolio Management

Subject Co-ordinator - Dr. Jitendra Mahakud, Dr. Chandra Sekhar Mishra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Investment Management
- Lecture 2 - Markets for Investment
- Lecture 3 - Risk and Return
- Lecture 4 - Risk and Return (Continued...)
- Lecture 5 - Organization and Function of Equity and Debt Markets
- Lecture 6 - Mutual Funds
- Lecture 7 - Market Efficiency - Concepts and forms of efficiency
- Lecture 8 - Testing Market Efficiency
- Lecture 9 - Financial Statement Analysis
- Lecture 10 - Financial Statement Analysis (Continued...)
- Lecture 11 - Valuation of Equity Shares - I
- Lecture 12 - Valuation of Equity Shares - II
- Lecture 13 - Economic Analysis - I
- Lecture 14 - Economic Analysis - II
- Lecture 15 - Industry Analysis - I
- Lecture 16 - Industry Analysis - II
- Lecture 17 - Company Analysis - I
- Lecture 18 - Company Analysis - II
- Lecture 19 - Technical Analysis - I
- Lecture 20 - Technical Analysis - II
- Lecture 21 - Introduction to Portfolio Management
- Lecture 22 - Introduction to Portfolio Management (Continued...)
- Lecture 23 - Capital Market Theory - I
- Lecture 24 - Capital Market Theory - II
- Lecture 25 - Arbitrage Pricing Theory
- Lecture 26 - Multifactor Pricing Model
- Lecture 27 - Markowitz Optimal Portfolio Selection Model
- Lecture 28 - Other Optimal Portfolio Selection Models
- Lecture 29 - Equity Portfolio Management Strategies - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equity Portfolio Management Strategies - II
- Lecture 31 - Introduction to Bond Analysis
- Lecture 32 - Bond Pricing and Yield
- Lecture 33 - Interest Rate
- Lecture 34 - Bond Price Volatility
- Lecture 35 - Bond Portfolio Management Strategies - I
- Lecture 36 - Bond Portfolio Management Strategies - II
- Lecture 37 - Derivatives - I
- Lecture 38 - Derivatives - II
- Lecture 39 - Portfolio Performance Evaluation - I
- Lecture 40 - Portfolio Performance Evaluation - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Six Sigma

Subject Co-ordinator - Prof. Tapan P. Bagchi

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Concepts in Quality Management - I  
Lecture 2 - Concepts in Quality Management - II  
Lecture 3 - Concepts in Quality Management - III  
Lecture 4 - Initiating Six Sigma  
Lecture 5 - Review of Probability and Statistics - I  
Lecture 6 - Review of Probability and Statistics - II  
Lecture 7 - Review of Probability and Statistics - III  
Lecture 8 - Review of Probability and Statistics - IV  
Lecture 9 - QM Systems Overview  
Lecture 10 - Cost of Quality and TQM Tools  
Lecture 11 - QFD and ISO 9000  
Lecture 12 - QS 9000 and Awards  
Lecture 13 - Competing Through Service Quality  
Lecture 14 - Introduction to Project Management  
Lecture 15 - Project Life Cycle  
Lecture 16 - Critical Path Method  
Lecture 17 - Measurement System Analysis  
Lecture 18 - Acceptance Sampling  
Lecture 19 - Design of Sampling Plans  
Lecture 20 - MIL-STD-105E Sampling Plan  
Lecture 21 - Introduction to SPC  
Lecture 22 - Control Chart Examples  
Lecture 23 - Control Charts by Excel  
Lecture 24 - Process Capability  
Lecture 25 - Quality Function Deployment  
Lecture 26 - Design of Experiments - Overview  
Lecture 27 - Planning for DOE  
Lecture 28 - Factor Effect Calculations  
Lecture 29 - ANOVA in DOE

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Benchmarking in Six Sigma
- Lecture 31 - How to Benchmark
- Lecture 32 - Six Sigma in Supply Chains
- Lecture 33 - Taguchi Methods
- Lecture 34 - Robust Design
- Lecture 35 - The Journey to Six Sigma
- Lecture 36 - A Case Study of Defect Reduction
- Lecture 37 - DFM & Reliability
- Lecture 38 - Failure Modes & Effects Analysis (FMEA)
- Lecture 39 - Implementing Six Sigma
- Lecture 40 - Getting Results From Six Sigma

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - International Business Communication

Subject Co-ordinator - Prof. A. Malic

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Definitions & Concepts
- Lecture 3 - Communicative Competence - I
- Lecture 4 - Communicative Competence - II
- Lecture 5 - Communicative Competence - III
- Lecture 6 - Intercultural Communication - I
- Lecture 7 - Intercultural Communication - II
- Lecture 8 - Intercultural Communication - III
- Lecture 9 - Intercultural Communication - Thought and Speech
- Lecture 10 - Intercultural Communication - Thought and Speech (Continued...)
- Lecture 11 - Intercultural Communication
- Lecture 12 - Nonverbal Communication
- Lecture 13 - Barriers to Communication
- Lecture 14 - Barriers to Communication (Continued...)
- Lecture 15 - Barriers to Communication (Continued...) & Listening
- Lecture 16 - Listening (Continued...)
- Lecture 17 - Communication Rules
- Lecture 18 - Communication Style
- Lecture 19 - Interpersonal Communication
- Lecture 20 - Interpersonal Communication (Continued...)
- Lecture 21 - Relational Communication
- Lecture 22 - Relational Communication (Continued...)
- Lecture 23 - Organizational Communication
- Lecture 24 - Organizational Communication (Continued...)
- Lecture 25 - Collaboration
- Lecture 26 - Communication in Groups and Teams
- Lecture 27 - Communication in Groups and Teams (Continued...1)
- Lecture 28 - Communication in Groups and Teams (Continued...2)
- Lecture 29 - Persuasive Communication

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Persuasive Communication (Continued...)
- Lecture 31 - Negotiation and Conflict Management
- Lecture 32 - Negotiation and Conflict Management (Continued...)
- Lecture 33 - Leadership
- Lecture 34 - Written Communication in International Business
- Lecture 35 - Role of Technology in international Business Communication
- Lecture 36 - Moving to Another Culture
- Lecture 37 - Re-entry
- Lecture 38 - Crisis Communication
- Lecture 39 - Ethics in Business Communication
- Lecture 40 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Consumer Behaviour

Subject Co-ordinator - Dr. Sangeeta Sahney

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Study of Consumer Behaviour
- Lecture 2 - Introduction to the Study of Consumer Behaviour (Continued...)
- Lecture 3 - Market Research and Consumer Behaviour
- Lecture 4 - Market Research and Consumer Behaviour (Continued...)
- Lecture 5 - Market Segmentation and Positioning
- Lecture 6 - Market Segmentation and Positioning (Continued...)
- Lecture 7 - The Consumer Decision Making Process
- Lecture 8 - The Consumer Decision Making Process (Continued...)
- Lecture 9 - Models of Consumers and Models of Consumer Behaviour
- Lecture 10 - Models of Consumers and Models of Consumer Behaviour (Continued...)
- Lecture 11 - Models of Consumers and Models of Consumer Behaviour (Continued...)
- Lecture 12 - Models of Consumers and Models of Consumer Behaviour (Continued...)
- Lecture 13 - Consumer Needs and Motivation, Emotions and Mood, Consumer Involvement
- Lecture 14 - Consumer Needs and Motivation, Emotions and Mood, Consumer Involvement (Continued...)
- Lecture 15 - Consumer Needs and Motivation, Emotions and Mood, Consumer Involvement (Continued...)
- Lecture 16 - Consumer Needs and Motivation, Emotions and Mood, Consumer Involvement (Continued...)
- Lecture 17 - Consumer Needs and Motivation, Emotions and Mood, Consumer Involvement (Continued...)
- Lecture 18 - Consumer Learning
- Lecture 19 - Consumer Learning (Continued...)
- Lecture 20 - Consumer Learning (Continued...)
- Lecture 21 - Consumer Learning (Continued...)
- Lecture 22 - Personality, Self Concept and Self Image
- Lecture 23 - Personality, Self Concept and Self Image (Continued...)
- Lecture 24 - Consumer Perception, Risk and Imagery
- Lecture 25 - Consumer Perception, Risk and Imagery (Continued...)
- Lecture 26 - Consumer Perception, Risk and Imagery (Continued...)
- Lecture 27 - Consumer Attitudes
- Lecture 28 - Consumer Attitudes (Continued...)
- Lecture 29 - Consumer Attitudes (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Consumer Communication
- Lecture 31 - Consumer Communication (Continued...)
- Lecture 32 - Consumer Groups and Reference Groups
- Lecture 33 - Family and Family Life Cycle
- Lecture 34 - Social Class and Mobility, Lifestyle Analysis
- Lecture 35 - Culture, Sub-Culture and Cross-Culture
- Lecture 36 - Culture, Sub-Culture and Cross-Culture (Continued...)
- Lecture 37 - Interpersonal Communication and Influence
- Lecture 38 - Opinion Leadership
- Lecture 39 - Diffusion of Innovation
- Lecture 40 - Diffusion of Innovation (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - International Finance

Subject Co-ordinator - Dr. Arun K. Misra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - International Financial Environment
- Lecture 2 - International Financial Transactions
- Lecture 3 - Gold Standard
- Lecture 4 - Purchasing Power Parity
- Lecture 5 - Floating and Fixed Exchange Rate Regimes
- Lecture 6 - Currency Boards and Currency Basket Systems
- Lecture 7 - Features of Foreign Exchange Market
- Lecture 8 - Exchange Rate Arithmetic
- Lecture 9 - Understanding Merchant Rates
- Lecture 10 - Foreign Exchange Forward Contracts
- Lecture 11 - Value at Risk for Foreign Exchange Market
- Lecture 12 - International Parity Conditions and Movement Exchange Rate
- Lecture 13 - Exchange Rate Determination and Forecasting
- Lecture 14 - Development of Foreign Exchange Market in India
- Lecture 15 - Foreign Exchange Exposures
- Lecture 16 - Transaction Exposure Management
- Lecture 17 - Foreign Exchange Futures Market for Transaction Exposure Management
- Lecture 18 - Foreign Currency Options
- Lecture 19 - Interest Rate Swaps
- Lecture 20 - Currency Swaps
- Lecture 21 - Operating Exposure Assessment
- Lecture 22 - Operating Exposure Management
- Lecture 23 - International Capital Structure and Capital Assets Pricing Model
- Lecture 24 - International Capital Budgeting
- Lecture 25 - Evaluation of Foreign Direct Investment
- Lecture 26 - Cross Listing of Shares
- Lecture 27 - International Financial Integration
- Lecture 28 - World Trade Organisation
- Lecture 29 - India's Forex Reserves Composition and Determinants of Optimum Reserves

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Movement of Exchange Rates in India
- Lecture 31 - International Trade Theory
- Lecture 32 - International Bond Market
- Lecture 33 - India's Foreign Trade - Direction and Composition
- Lecture 34 - Financial Stability
- Lecture 35 - Test-1
- Lecture 36 - Money and Forex Market Interaction
- Lecture 37 - Test-2
- Lecture 38 - Characteristics of Indian Foreign Exchange Market
- Lecture 39 - Test-3
- Lecture 40 - Test-4

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Applied Multivariate Statistical Modeling

Subject Co-ordinator - Dr. J. Maiti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to multivariate statistical modeling
- Lecture 2 - Introduction to multivariate statistical modeling (Continued...)
- Lecture 3 - Univariate descriptive statistics
- Lecture 4 - Sampling distribution
- Lecture 5 - Estimation
- Lecture 6 - Estimation (Continued...)
- Lecture 7 - Hypothesis testing
- Lecture 8 - Multivariate descriptive statistics
- Lecture 9 - Multivariate descriptive statistics (Continued...)
- Lecture 10 - Multivariate normal distribution
- Lecture 11 - Multivariate normal distribution (Continued...)
- Lecture 12 - Multivariate Inferential Statistics
- Lecture 13 - Multivariate Inferential Statistics (Continued...)
- Lecture 14 - ANOVA (Analysis of Variance)
- Lecture 15 - Analysis of Variance (Continued...)
- Lecture 16 - Multivariate Analysis of Variance (MANOVA)
- Lecture 17 - MANOVA (Continued...)
- Lecture 18 - Tutorial - ANOVA
- Lecture 19 - Tutorial ANOVA (Continued...)
- Lecture 20 - MANOVA - Case Study
- Lecture 21 - Multiple Regression  $\hat{\beta}$  Introduction
- Lecture 22 - MLR - Sampling distribution of regression coefficients
- Lecture 23 - MLR - Model adequacy tests
- Lecture 24 - MLR - Test of assumptions
- Lecture 25 - MLR - Model diagnostics
- Lecture 26 - MLR - Case Study
- Lecture 27 - Multivariate Linear Regression
- Lecture 28 - Multivariate Linear Regression - Estimation
- Lecture 29 - Multivariate Linear Regression - Model Adequacy tests

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Principal Component Analysis (PCA)
- Lecture 31 - PCA - Model Adequacy & Interpretation
- Lecture 32 - Regression Modeling using SPSS
- Lecture 33 - Factor Analysis
- Lecture 34 - Factor Analysis - Estimation & Model Adequacy testing
- Lecture 35 - Factor Analysis - Model Adequacy, rotation, factor scores & case study
- Lecture 36 - Cluster Analysis
- Lecture 37 - Cluster Analysis (Continued...)
- Lecture 38 - Introduction to Structural Equation Modeling (SEM)
- Lecture 39 - SEM - Measurement Model
- Lecture 40 - SEM - Structural Model
- Lecture 41 - Correspondence Analysis
- Lecture 42 - Correspondence Analysis (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Nanotechnology - Economics, Management, Entrepreneurship

Subject Co-ordinator - Prof. P.K.J. Mohapatra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Market Equilibrium
- Lecture 3 - Elasticity of Demand
- Lecture 4 - Demand Forecasting
- Lecture 5 - Production
- Lecture 6 - Exercises on Economics
- Lecture 7 - Cost - Volume - Profit Relationships
- Lecture 8 - Cost Management Systems and Activity Costing Systems
- Lecture 9 - Relevant Information and Decision Making
- Lecture 10 - Cost Allocation
- Lecture 11 - Exercises on Economics (Continued...)
- Lecture 12 - Double - Entry Bookkeeping
- Lecture 13 - Job Costing
- Lecture 14 - Process Costing
- Lecture 15 - The Master Budget
- Lecture 16 - Flexible Budget and Variance Analysis
- Lecture 17 - Financial Statements
- Lecture 18 - Financial Statements (Continued...)
- Lecture 19 - Analysis of Financial Statements
- Lecture 20 - Exercises (Continued...)
- Lecture 21 - Time Value of Money
- Lecture 22 - Comparison of Alternatives
- Lecture 23 - Comparison of Alternatives (Continued...)
- Lecture 24 - Comparison of Alternatives (Continued...)
- Lecture 25 - Depreciation Accounting
- Lecture 26 - Depreciation Accounting (Continued...)
- Lecture 27 - Exercises
- Lecture 28 - Evolution of Management Thoughts
- Lecture 29 - Functions of Management

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Functions of Management (Continued...)
- Lecture 31 - Functions of Management (Continued...)
- Lecture 32 - Directing
- Lecture 33 - Product Development
- Lecture 34 - Forecasting Revisited
- Lecture 35 - Forecasting Revisited (Continued...)
- Lecture 36 - Forecasting Revisited (Continued...)
- Lecture 37 - Capacity Planning
- Lecture 38 - Capacity Planning (Continued...) and Plant Location
- Lecture 39 - Product Service Strategies and Plant Layout
- Lecture 40 - Plant Layout (Continued...) and Production Planning and Control
- Lecture 41 - Production Planning and Control (Continued...)
- Lecture 42 - Inventory Management
- Lecture 43 - Inventory Management (Continued...)
- Lecture 44 - Supply Chain Management
- Lecture 45 - Supply Chain Management (Continued...) and Marketing Management
- Lecture 46 - Marketing Management (Continued...)
- Lecture 47 - Forms of Ownership
- Lecture 48 - Starting a New Company and Small - scale Industrial Undertakings
- Lecture 49 - Capital Financing
- Lecture 50 - Entrepreneurship - Final Words

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Principles of Human Resource Management

Subject Co-ordinator - Prof. A Malik

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to HRM
- Lecture 2 - Job Analysis and Design
- Lecture 3 - Employee testing and selection
- Lecture 4 - Performance appraisal
- Lecture 5 - Performance evaluation and feedback
- Lecture 6 - The Training process
- Lecture 7 - General and Specific Training and Evaluation of Training
- Lecture 8 - Career Management and planning
- Lecture 9 - Career Development
- Lecture 10 - Compensation
- Lecture 11 - Pay for performance systems
- Lecture 12 - Pay and Reward systems
- Lecture 13 - Benefits
- Lecture 14 - Separation and Administration of Benefits
- Lecture 15 - Business Ethics
- Lecture 16 - Ethical Aspects of HRM Activities
- Lecture 17 - Employee Health
- Lecture 18 - Employee Wellbeing in the Workplace
- Lecture 19 - Organized Labor
- Lecture 20 - Managing the Labor Relations Process
- Lecture 21 - International HRM
- Lecture 22 - Global Employment Law, Industrial Relations and International Ethics
- Lecture 23 - Challenges to International HRM
- Lecture 24 - Strategic HRM
- Lecture 25 - Multilevel Model of Strategic HRM
- Lecture 26 - Strategic HRM in a Networked World
- Lecture 27 - Sustainable HRM
- Lecture 28 - HR Measurement and Accountability
- Lecture 29 - Types of Score Cards

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Discipline in Organizations
- Lecture 31 - Dealing with Difficult Employees
- Lecture 32 - Using HRM to Prevent the Need for Discipline

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Commodity Derivatives and Risk Management

Subject Co-ordinator - Dr. Prabina Rajib

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Commodity Derivatives and Risk Management
- Lecture 2 - Introduction to Commodity Derivatives and Risk Management (Continued...)
- Lecture 3 - Futures Contract Specifications
- Lecture 4 - Futures Contract Specifications (Continued...)
- Lecture 5 - Futures Contract - Mark-to-Market Margin
- Lecture 6 - Commodity Options and Commodity Spreads
- Lecture 7 - Pricing and Valuations of Futures Contract
- Lecture 8 - Pricing and Valuations of Futures Contract (Continued...)
- Lecture 9 - Convenience Field, Contango-Backwardation
- Lecture 10 - Commodity Basic Risk - Part I
- Lecture 11 - Commodity Basic Risk - Part II
- Lecture 12 - Minimum Variance Hedge Ratio - Part I
- Lecture 13 - Minimum Variance Hedge Ratio - Part II
- Lecture 14 - Commodity Indexes - Part I
- Lecture 15 - Commodity Indexes - Part II
- Lecture 16 - Agri-Commodity Price Risk Management - Part I
- Lecture 17 - Agri-Commodity Price Risk Management - Part II
- Lecture 18 - Seasonality in Agri-Commodity, Contango and Backwardation - Part I
- Lecture 19 - Seasonality in Agri-Commodity, Contango and Backwardation - Part II
- Lecture 20 - Commodity Prices Determination - Part I
- Lecture 21 - Commodity Prices Determination - Part II
- Lecture 22 - Crude Oil Derivatives - Part I
- Lecture 23 - Crude Oil Price Determination
- Lecture 24 - Spot-Futures Relationship in Crude Oil - Part I
- Lecture 25 - Spot-Futures Relationship in Crude Oil - Part II
- Lecture 26 - Hedging of Crude Oil and Refined Product Price Risk - Part I
- Lecture 27 - Hedging of Crude Oil and Refined Product Price Risk - Part II
- Lecture 28 - Introduction to Gold and Gold Derivatives
- Lecture 29 - LBMA, Gold Spot Price and Gold Derivatives

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - OTC Contracts on Gold and Gold Dehedge
- Lecture 31 - Spot Trading of Electricity in India - Part I
- Lecture 32 - Spot Trading of Electricity in India - Part II
- Lecture 33 - Weather Derivatives - Part I
- Lecture 34 - Weather Derivatives - Part II
- Lecture 35 - Introduction to Carbon Credit Market
- Lecture 36 - Carbon Derivatives
- Lecture 37 - Physical Market for Freight, Freight Exchanges, Freight Indexes
- Lecture 38 - Hedging Freight rate Risk with Freight Rate Derivatives
- Lecture 39 - Metal Derivatives and London Metal Exchange (LME)
- Lecture 40 - Real Estate Derivatives

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Strategic Communication for Sustainable Development

Subject Co-ordinator - Prof. A Malik

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Models for Public Participation in Sustainable Development
- Lecture 3 - Role of Communication in Sustainable Development
- Lecture 4 - Sustainability Communication
- Lecture 5 - Approaches to Sustainability Communication
- Lecture 6 - Approaches to Sustainability Communication
- Lecture 7 - Sociological Perspectives on Sustainability Communication
- Lecture 8 - Psychological Perspectives on Sustainability Communication
- Lecture 9 - Psychological Perspectives on Sustainability Communication (Continued...)
- Lecture 10 - Steyn and Puth's Model for Communication Strategy
- Lecture 11 - Application of Steyn and Puth's Model to Development
- Lecture 12 - Tools of Strategic Communication for Sustainable Development
- Lecture 13 - Role of Strategic Communication for Sustainable Development
- Lecture 14 - Role of Stakeholders in Strategic Communication for Sustainable Development
- Lecture 15 - Systems Approach to Identifying Decisive Information
- Lecture 16 - Adapting CSR Communication Strategies to Sustainable Development
- Lecture 17 - Strategic Conversations
- Lecture 18 - Creating a Strategic Communication Plan
- Lecture 19 - Communication for Behavioral Impact (COMBI) for Sustainable Development
- Lecture 20 - Media and Sustainability Communication
- Lecture 21 - ICTs in Sustainable Development
- Lecture 22 - Community Informatics
- Lecture 23 - Challenges to the use of ICTs in Sustainable Development Efforts
- Lecture 24 - Wrap up and Conclusion

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Consumer Behaviour

Subject Co-ordinator - Prof. Srabanti Mukherjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Consumer Behaviour
- Lecture 2 - The Changing Patterns of Consumer Behaviour
- Lecture 3 - Dimensions of Consumerism
- Lecture 4 - Use of Market Segmentation in Consumer Behaviour
- Lecture 5 - Process of Motivation
- Lecture 6 - Theories of Motivation
- Lecture 7 - Consumer Involvement
- Lecture 8 - Case Study on Motivation and Involvement
- Lecture 9 - Concept and Levels of Perception
- Lecture 10 - Process of Perception
- Lecture 11 - Theories of Personality - I
- Lecture 12 - Theories of Personality - II
- Lecture 13 - Brand Personality and Self concept
- Lecture 14 - Theories of Learning
- Lecture 15 - Attitude Formation - I
- Lecture 16 - Attitude Formation - II
- Lecture 17 - Changing Attitude
- Lecture 18 - Exercise on Attitude Formation and Change
- Lecture 19 - Values
- Lecture 20 - AIO Classification
- Lecture 21 - VALS - I Typology
- Lecture 22 - VALS - TM Typology
- Lecture 23
- Lecture 24
- Lecture 25 - Group Influences on Consumption
- Lecture 26 - Role of Celebrity Endorsement
- Lecture 27 - Concept of Family and Family Life Cycle
- Lecture 28 - Family Buying Decisions
- Lecture 29 - Diffusion of Innovations - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diffusion of Innovations - II
- Lecture 31 - Influencing Factors for Adoption and Opinion Leadership
- Lecture 32 - Consumer Decision Making
- Lecture 33 - Consumer Black Box Model
- Lecture 34 - Models of Consumer Behaviour - I
- Lecture 35 - Models of Consumer Behaviour - II
- Lecture 36 - Models of Consumer Behaviour - III
- Lecture 37 - Models of Consumer Behaviour - IV
- Lecture 38 - Organisational Buying Behaviour - I
- Lecture 39 - Organisational Buying Behaviour - II
- Lecture 40 - Dimensions of Consumer Research



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Foundation Course in Managerial Economics

Subject Co-ordinator - Prof. Barnali Nag

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Principles of Economics
- Lecture 2 - Demand - Supply Framework
- Lecture 3 - Determinants of Demand
- Lecture 4 - Supply Curve, Determinants of Supply Curve
- Lecture 5 - Demand Supply Equilibrium
- Lecture 6 - Elasticity of Demand and Supply
- Lecture 7 - Determinants of Elasticity of Demand
- Lecture 8 - Elasticity and Revenue
- Lecture 9 - Elasticity of Supply
- Lecture 10 - Demand Supply and Government Policies
- Lecture 11 - Demand Supply and Government Policies (Continued...)
- Lecture 12 - Taxes and Demand and Supply Framework
- Lecture 13 - Elasticity and Taxes
- Lecture 14 - Efficiency and Market Equilibrium
- Lecture 15 - Production and Cost
- Lecture 16 - Costs
- Lecture 17 - Cost Curves
- Lecture 18 - LR and SR Cost Curves
- Lecture 19 - Market Structures
- Lecture 20 - Perfect Competition
- Lecture 21 - Perfect Competition and Profit Maximization
- Lecture 22 - Supply Curve of Firm in Perfect Competition
- Lecture 23 - Supply Curve of Market in Perfect Competition
- Lecture 24 - Market Supply (Continued...)
- Lecture 25 - Monopoly
- Lecture 26 - Monopoly - Determination of Price and Quality
- Lecture 27 - Monopoly - Supply and Efficiency
- Lecture 28 - Price Discrimination
- Lecture 29 - Public Policy and Regulation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Monopolistic Competition
- Lecture 31 - Monopolistic Competition - Determining P and K
- Lecture 32 - Monopolistic Competition - Efficiency and Welfare
- Lecture 33 - Monopolistic Competition - Advertising
- Lecture 34 - Oligopoly
- Lecture 35 - Oligopoly - Determining P and Q
- Lecture 36 - Oligopoly - P and Q Outcomes with Example
- Lecture 37 - Difference between Market Outcomes
- Lecture 38 - Oligopoly - Game Theory
- Lecture 39 - Oligopoly - Game Theory (Continued...)
- Lecture 40 - Oligopoly Pricing
- Lecture 41 - Public Policy in Oligopoly

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Knowledge Management

Subject Co-ordinator - Prof. K. B. L. Srivastava

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to KM
- Lecture 2 - Introduction to KM (Continued...)
- Lecture 3 - Why KM ?
- Lecture 4 - KM System Life Cycle (KSLC)
- Lecture 5 - Aligning KM and business strategy
- Lecture 6 - Process and models of KM cycle
- Lecture 7 - Process and models of KM cycle (Continued...)
- Lecture 8 - Knowledge creation and architecture
- Lecture 9 - Capturing tacit knowledge
- Lecture 10 - Capturing tacit knowledge (Continued...)
- Lecture 11 - Knowledge codification
- Lecture 12 - Knowledge codification
- Lecture 13 - System development
- Lecture 14 - System development
- Lecture 15 - Knowledge transfer and knowledge sharing
- Lecture 16 - Knowledge infrastructure
- Lecture 17 - Knowledge infrastructure (Continued...)
- Lecture 18 - Knowledge audit
- Lecture 19 - The knowledge team
- Lecture 20 - The knowledge team (Continued...)
- Lecture 21 - Analysis, design of KM system
- Lecture 22 - Analysis, design of KM system
- Lecture 23 - Developing the KM system
- Lecture 24 - Prototyping and deployment
- Lecture 25 - Prototyping and deployment
- Lecture 26 - Inferences from data
- Lecture 27 - Inferences from data
- Lecture 28 - Data mining
- Lecture 29 - Data Management

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Knowledge portals
- Lecture 31 - Evaluation of KM effectiveness
- Lecture 32 - Metrics
- Lecture 33 - Legal issues
- Lecture 34 - Ethical Issues
- Lecture 35 - Managerial issues
- Lecture 36 - KM. Experiences form Indian companies
- Lecture 37 - KM practices of select industries
- Lecture 38 - KM practices of select industries
- Lecture 39 - Linking KM with innovation and learning organization
- Lecture 40 - Future of KM

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Services Marketing: A Practical Approach

Subject Co-ordinator - Dr. Biplab Datta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Why Study Services Marketing Management?
- Lecture 3 - The Service System
- Lecture 4 - Characteristics of Services
- Lecture 5 - Understanding the Macro-Environment - I
- Lecture 6 - Understanding the Macro-Environment - II
- Lecture 7 - Understanding the Macro-Environment - III and Understanding the Micro-Environment - I
- Lecture 8 - Understanding the Micro-Environment - II
- Lecture 9 - Services Marketing Process
- Lecture 10 - Exploring Marketing Opportunities - I
- Lecture 11 - Exploring Marketing Opportunities - II
- Lecture 12 - Segmenting the Market, Targeting and Positioning
- Lecture 13 - Services Marketing Research
- Lecture 14 - Understanding Consumer Behaviour
- Lecture 15 - New Service Development
- Lecture 16 - The Service Product
- Lecture 17 - Service Quality - I
- Lecture 18 - Service Quality - II
- Lecture 19 - Designing the Service Process - I
- Lecture 20 - Designing the Service Process - II
- Lecture 21 - Developing Service Personnel
- Lecture 22 - Educating Customers
- Lecture 23 - Managing Service Delivery Channels
- Lecture 24 - Managing Channel Conflict
- Lecture 25 - Managing Demand and Capacity - I
- Lecture 26 - Managing Demand and Capacity - II
- Lecture 27 - Designing the Physical Evidence
- Lecture 28 - Managing Integrated Marketing Communications - I
- Lecture 29 - Managing Integrated Marketing Communications - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pricing the Service
- Lecture 31 - Managing Customers
- Lecture 32 - Managing Service Recovery
- Lecture 33 - Providing Service Guarantees
- Lecture 34 - Consumer Protection
- Lecture 35 - Case Study - I
- Lecture 36 - Case Study - II
- Lecture 37 - Case Study - III
- Lecture 38 - Case Study - IV
- Lecture 39 - Case Study - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Ethics

Subject Co-ordinator - Dr. Susmita Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is Business Ethics? Why Business Ethics is important?

Lecture 2 - Business Ethics in different organizational contexts

Lecture 3 - Globalization

Lecture 4 - Sustainability

Lecture 5 - What is Corporation?

Lecture 6 - Corporate Social Responsibility

Lecture 7 - Stakeholder theory of the firm

Lecture 8 - Corporate accountability

Lecture 9 - Corporate citizenship

Lecture 10 - Normative ethical theories and descriptive ethical theories, western modernist ethical theories

Lecture 11 - Western modernist ethical theories (Continued...)

Lecture 12 - Alternative perspectives on ethical theories

Lecture 13 - Indian perspective on Ethics

Lecture 14 - Models of ethical decision making and individual influences on ethical decision making

Lecture 15 - Situational influences on ethical decision making

Lecture 16 - Case Study 1

Lecture 17 - What is Business Ethics Management?

Lecture 18 - Setting standards of ethical behavior

Lecture 19 - Managing stakeholder relationship

Lecture 20 - Assessing ethical performance

Lecture 21 - Organizing for business ethics

Lecture 22 - Shareholders as stakeholders

Lecture 23 - Ethical issues in corporate governance

Lecture 24 - Shareholders as citizens of corporation

Lecture 25 - Shareholding for sustainability

Lecture 26 - Financial Management

Lecture 27 - Models of organizations

Lecture 28 - Firm-employee relationship

Lecture 29 - Firm-employee relationship (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Globalization and employment
- Lecture 31 - Towards sustainable employment
- Lecture 32 - Case Study 2
- Lecture 33 - Consumers as stakeholders
- Lecture 34 - Ethical issues, marketing and the consumer
- Lecture 35 - Globalization and consumers
- Lecture 36 - Consumers and corporate citizenship
- Lecture 37 - Sustainable consumption
- Lecture 38 - Suppliers and competitors as stakeholders
- Lecture 39 - Ethical issues and competitors
- Lecture 40 - Globalization, suppliers and competitors
- Lecture 41 - The corporate citizen in the business community
- Lecture 42 - Sustainability and business relationship
- Lecture 43 - Civil society and business ethics
- Lecture 44 - Ethical issues and CSOs
- Lecture 45 - Globalization and CSOs
- Lecture 46 - Corporate citizenship and civil society
- Lecture 47 - Civil society, business and sustainability
- Lecture 48 - Government, regulation and business ethics
- Lecture 49 - Ethical issues in the relation between business and government
- Lecture 50 - Globalization and business-government relations
- Lecture 51 - Corporate citizenship and regulation
- Lecture 52 - Governments, business and sustainability
- Lecture 53 - Case Study 3
- Lecture 54 - Environment and business ethics
- Lecture 55 - Ethics of pollution control
- Lecture 56 - Ethics of conserving depletable resources
- Lecture 57 - Sustainability
- Lecture 58 - Information technology and business ethics
- Lecture 59 - Data identity and security
- Lecture 60 - Computer crimes and IPR
- Lecture 61 - TRIPS in India



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Gender Justice and Workplace Security

Subject Co-ordinator - Prof. Dipa Dube

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Gender Justice
- Lecture 2 - Introduction to Gender Justice (Continued...)
- Lecture 3 - Introduction to Gender Justice (Continued...)
- Lecture 4 - Introduction to Gender Justice (Continued...)
- Lecture 5 - International and Constitutional Perspectives
- Lecture 6 - International Perspectives
- Lecture 7 - Constitutional Perspectives
- Lecture 8 - Constitutional Perspectives (Continued...)
- Lecture 9 - Constitutional Perspectives (Continued...)
- Lecture 10 - Women at workplace
- Lecture 11 - Women at workplace (Continued...)
- Lecture 12 - Women at workplace (Continued...)
- Lecture 13 - Women at workplace (Continued...)
- Lecture 14 - Gender Violence- Within and Beyond
- Lecture 15 - Gender Violence- Within and Beyond (Continued...)
- Lecture 16 - Gender Violence- Within and Beyond (Continued...)
- Lecture 17 - Gender Violence- Within and Beyond (Continued...)
- Lecture 18 - Gender Violence- Within and Beyond (Continued...)
- Lecture 19 - Role of different agencies
- Lecture 20 - Role of different agencies (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Corporate Social Responsibility

Subject Co-ordinator - Prof. Aradhna Malik

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the Course  
Lecture 2 - What is CSR?  
Lecture 3 - Why CSR?  
Lecture 4 - Theories of CSR  
Lecture 5 - Theories of CSR (Continued...)  
Lecture 6 - Theories of CSR (Continued...)  
Lecture 7 - Evolution of CSR  
Lecture 8 - Evolution of CSR (Continued...)  
Lecture 9 - CSR-Global Timeline  
Lecture 10 - CSR-Global Timeline (Continued...)  
Lecture 11 - CSR in India  
Lecture 12 - CSR in India (Continued...)  
Lecture 13 - Who are Stakeholders?  
Lecture 14 - The Stakeholder Approach  
Lecture 15 - Stakeholders and CSR  
Lecture 16 - Stakeholders Theory Perspectives  
Lecture 17 - Stakeholder Theory in Action  
Lecture 18 - Stakeholder Identification  
Lecture 19 - Stakeholder Salience  
Lecture 20 - Stakeholder Management  
Lecture 21 - Stakeholder Dialogue  
Lecture 22 - Management of Stakeholder Diaglogue  
Lecture 23 - Planning of CSR Activities  
Lecture 24 - CSR Design and Implementation  
Lecture 25 - CSR Design and Implementation  
Lecture 26 - CSR Activities  
Lecture 27 - CSR Design and Implementation  
Lecture 28 - CSR Activities  
Lecture 29 - Bases for Evaluation of CSR Activities

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Measurement of CSR
- Lecture 31 - An Example of CSR Evaluation
- Lecture 32 - CSR in India
- Lecture 33 - What is Corporate Governance?
- Lecture 34 - Theories of Corporate Governance
- Lecture 35 - Why Corporate Governance?
- Lecture 36 - Models and Systems of Corporate Governance
- Lecture 37 - Implementing Corporate Governance
- Lecture 38 - Board of Directors
- Lecture 39 - Board of Directors (Continued...)
- Lecture 40 - Principles of Corporate Governance
- Lecture 41 - Corporate Governance and Corporate Social Responsibility
- Lecture 42 - Corporate Governance and Corporate Social Responsibility (Continued...)
- Lecture 43 - What is Corporate Citizenship?
- Lecture 44 - Stages of Corporate Citizenship
- Lecture 45 - Why Corporate Citizenship?
- Lecture 46 - Corporate Citizenship and CSR
- Lecture 47 - What is Sustainable Development?
- Lecture 48 - Corporate Sustainability and CSR
- Lecture 49 - Integration of Corporate Sustainability with CSR
- Lecture 50 - Integration of Corporate Sustainability with CSR (Continued...)
- Lecture 51 - SDG Compass
- Lecture 52 - SDG Compass (Continued...)
- Lecture 53 - CSR Public Policies
- Lecture 54 - CSR Public Policies
- Lecture 55 - Consumer Social Responsibility (CnSR)
- Lecture 56 - Corporate Social Irresponsibility (CSiR)
- Lecture 57 - Future of CSR
- Lecture 58 - Wrap-Up

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Decision Modeling

Subject Co-ordinator - Prof. Biswajit Mahanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Decision Analysis
- Lecture 2 - Payoff Matrix
- Lecture 3 - Decision Making Under Risk
- Lecture 4 - Value of Information
- Lecture 5 - Probability Concepts
- Lecture 6 - Bayes Theorem
- Lecture 7 - Decision Tree
- Lecture 8 - Decision Problem with Experimentation
- Lecture 9 - Decision Problem with Experimentation (Continued...)
- Lecture 10 - Decision Problem Example
- Lecture 11 - Introduction to Waiting Lines
- Lecture 12 - Poisson and Exponential Distribution
- Lecture 13 - Birth and Death Process
- Lecture 14 - M/M/1 Queuing Model
- Lecture 15 - Queuing Examples
- Lecture 16 - Queuing Examples (Continued...)
- Lecture 17 - M/D/1 and M/M/s Queuing Models
- Lecture 18 - M/M/s and M/M/infinity Models
- Lecture 19 - Finite Queue Space and Queuing Cost Models
- Lecture 20 - Queuing Cost, Priority and Networking Models
- Lecture 21 - Introduction to Simulation
- Lecture 22 - Discrete-Event and Monte-Carlo Simulation
- Lecture 23 - Pseudo random Numbers
- Lecture 24 - Simulation Examples
- Lecture 25 - Generation of Random Variates
- Lecture 26 - Simulation Examples (Continued...)
- Lecture 27 - Monte-Carlo Simulation and Output Analysis
- Lecture 28 - Variance Reduction and Simulation Software
- Lecture 29 - Continuous Simulation and System Dynamics

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- Lecture 30 - System Dynamics Example
- Lecture 31 - Introduction to Graph Theory
- Lecture 32 - Introduction (Continued...)
- Lecture 33 - Operations on a Graph, Tree and Spanning Tree
- Lecture 34 - Minimal Spanning Tree
- Lecture 35 - Cutsets
- Lecture 36 - Fundamental Circuits and Network Simplex Method
- Lecture 37 - Maximal Flow Problems
- Lecture 38 - Maximal Flow Problems (Continued...)
- Lecture 39 - Shortest Path Problems
- Lecture 40 - Shortest Path Problems (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:E-Business

Subject Co-ordinator - Prof. Mamata Jenamani

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Types of e-business transactions
- Lecture 3 - Business Models on the web
- Lecture 4 - Business Models on the web (Continued...)
- Lecture 5 - Innovative E-Business models for Bricks and Mortar firms
- Lecture 6 - Inter and Intra Organizational Business Processes
- Lecture 7 - Information system foundations
- Lecture 8 - Types of business information system
- Lecture 9 - Decision support for the management
- Lecture 10 - Enterprise Resource planning
- Lecture 11 - Connecting with stakeholders
- Lecture 12 - E-procurement - Reengineering the traditional procurement process
- Lecture 13 - E-procurement - New paradigms in the procurement process
- Lecture 14 - E-procurement - e-procurement Implementation issues and risks
- Lecture 15 - Customer relationship management
- Lecture 16 - E-Marketing
- Lecture 17 - E-Marketing (Continued...)
- Lecture 18 - Supply Chain Management - I - The Information flow
- Lecture 19 - Supply Chain Management - II - Tntegration
- Lecture 20 - Supply Chain Management - III - Interoperability
- Lecture 21 - Supply Chain Management - IV - Logistics and distribution
- Lecture 22 - Supply Chain Management - V - E-Commerce supply chain
- Lecture 23 - Components of E-Business Infrastructure
- Lecture 24 - Internet and the Web
- Lecture 25 - Networking resources
- Lecture 26 - Hardware and software resources
- Lecture 27 - Data resources
- Lecture 28 - Security categories
- Lecture 29 - Security terminologies

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- Lecture 30 - Digital signature
- Lecture 31 - Protocols for security
- Lecture 32 - Impact of security protocol on server performance
- Lecture 33 - Digital Payment systems
- Lecture 34 - Interoperability of information system
- Lecture 35 - Electronic data interchange (EDI)
- Lecture 36 - Fundamentals of web services
- Lecture 37 - Fundamentals of cloud based systems
- Lecture 38 - Automatic data capture using RFID
- Lecture 39 - Automatic data capture using RFID and its applications
- Lecture 40 - Automatic data capture using RFID and its applications (Continued...)
- Lecture 41 - GPS and GIS in supply chain
- Lecture 42 - Sensors and IOT
- Lecture 43 - Business Analytics and Big data
- Lecture 44 - Decision support Concepts
- Lecture 45 - Understanding the web log - I
- Lecture 46 - Understanding the web log - II
- Lecture 47 - Using the Web log
- Lecture 48 - User behaviour modelling from web log
- Lecture 49 - User behaviour modelling from web log (Continued...)
- Lecture 50 - E-Business Capacity Planning
- Lecture 51 - E-Business Capacity Planning (Continued...)
- Lecture 52 - Introduction to Recommender System
- Lecture 53 - Content Based Recommender System
- Lecture 54 - Collaborative Filtering Based Recommender System
- Lecture 55 - Association and Demographics Based Recommended System
- Lecture 56 - Dynamic Pricing
- Lecture 57 - Introduction to Auction
- Lecture 58 - Economic Considerations in Auction
- Lecture 59 - Winner Determination Problem
- Lecture 60 - Online auction issues

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Design and Analysis of Experiments

Subject Co-ordinator - Prof. Jhareswar Maiti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Factorial Experiments
- Lecture 31 - Statistical Analysis of Factorial Experiments
- Lecture 32 - Estimation of parameters and model adequacy test for factorial experiment
- Lecture 33 - Full\_Factorial\_Single\_Replicate
- Lecture 34 - General\_Full\_factorial\_design
- Lecture 35 - Blocking\_Factorial\_design
- Lecture 36 - Two\_level\_Factorial\_Experiment
- Lecture 37 - Statistical analysis of  $2^k$  factorial design
- Lecture 38 -  $2_k$  Factorial Design Single Replicate
- Lecture 39 -  $2_k$  Factorial Design Centre Points
- Lecture 40 -  $2_k$  Factorial Design Optimality Issues
- Lecture 41 -  $2_k$  Factorial Design - Issues with Coded Design Variables
- Lecture 42 - Blocking and Confounding in  $2_k$  Factorial Design
- Lecture 43 - Blocking and Confounding in  $2_k$  Factorial Design (Continued...)
- Lecture 44 - Blocking and Confounding in  $2_k$  Factorial Design (Continued...)
- Lecture 45 - Fractional factorial design
- Lecture 46 - Fractional factorial design
- Lecture 47 - Fractional factorial design
- Lecture 48 - Alias Structure in Fractional factorial design
- Lecture 49 - General  $2^{(k-p)}$  Fractional Factorial Design
- Lecture 50 - Fractional factorial design
- Lecture 51 - Plackett-Burman Designs
- Lecture 52 - Response Surface Methodology (RSM) - First Order Model
- Lecture 53 - Response Surface Methodology (RSM) - First Order Model (Continued...)
- Lecture 54 - Experimental Design for Fitting Response Surfaces
- Lecture 55 - Response Surface Methodology (RSM)
- Lecture 56 - Analysis of Second Order Response Surface
- Lecture 57 - ANOVA using MINITAB
- Lecture 58 - Factorial Design using MINITAB
- Lecture 59 - Fractional Factorial Design using MINITAB
- Lecture 60 - Response Surface Methodology using MINITAB

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Quality Design and Control

Subject Co-ordinator - Prof. Pradip Kumar Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - History and Evolution of Quality Control and Management  
Lecture 2 - History and Evolution of Quality Control and Management  
Lecture 3 - History and Evolution of Quality Control and Management  
Lecture 4 - History and Evolution of Quality Control and Management  
Lecture 5 - History and Evolution of Quality Control and Management  
Lecture 6 - Management of Quality - I  
Lecture 7 - Management of Quality - I  
Lecture 8 - Management of Quality - I  
Lecture 9 - Management of Quality - I  
Lecture 10 - Management of Quality - I  
Lecture 11 - Management of Quality - II  
Lecture 12 - Management of Quality - II  
Lecture 13 - Management of Quality - II  
Lecture 14 - Management of Quality - II  
Lecture 15 - Management of Quality - II  
Lecture 16 - Statistical Process Control - I  
Lecture 17 - Statistical Process Control - I  
Lecture 18 - Statistical Process Control - I  
Lecture 19 - Statistical Process Control - I  
Lecture 20 - Statistical Process Control - I  
Lecture 21 - Statistical Process Control - II  
Lecture 22 - Statistical Process Control - II (Continued...)  
Lecture 23 - Statistical Process Control - II (Continued...)  
Lecture 24 - Statistical Process Control - II (Continued...)  
Lecture 25 - Statistical Process Control - II (Continued...)  
Lecture 26 - Process Capability Analysis  
Lecture 27 - Process Capability Analysis (Continued...)  
Lecture 28 - Process Capability Analysis (Continued...)  
Lecture 29 - Process Capability Analysis (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Process Capability Analysis (Continued...)
- Lecture 31 - Acceptance Sampling - I
- Lecture 32 - Acceptance Sampling - I
- Lecture 33 - Acceptance Sampling - I
- Lecture 34 - Acceptance Sampling - I (Continued...)
- Lecture 35 - Acceptance Sampling - I (Continued...)
- Lecture 36 - Acceptance Sampling - II
- Lecture 37 - Acceptance Sampling - II (Continued...)
- Lecture 38 - Acceptance Sampling - II (Continued...)
- Lecture 39 - Acceptance Sampling - II (Continued...)
- Lecture 40 - Acceptance Sampling - II (Continued...)
- Lecture 41 - Design for Reliability - I
- Lecture 42 - Design for Reliability - I (Continued...)
- Lecture 43 - Design for Reliability - I (Continued...)
- Lecture 44 - Design for Reliability - I (Continued...)
- Lecture 45 - Design for Reliability - I (Continued...)
- Lecture 46 - Design for Reliability - II
- Lecture 47 - Design for Reliability - II (Continued...)
- Lecture 48 - Design for Reliability - II (Continued...)
- Lecture 49 - Design for Reliability - II (Continued...)
- Lecture 50 - Design for Reliability - II (Continued...)
- Lecture 51 - Quality by Experimental Design
- Lecture 52 - Quality by Experimental Design (Continued...)
- Lecture 53 - Quality by Experimental Design (Continued...)
- Lecture 54 - Quality by Experimental Design (Continued...)
- Lecture 55 - Quality by Experimental Design (Continued...)
- Lecture 56 - Robust Design and Taguchi Method
- Lecture 57 - Robust Design and Taguchi Method (Continued...)
- Lecture 58 - Robust Design and Taguchi Method (Continued...)
- Lecture 59 - Robust Design and Taguchi Method (Continued...)
- Lecture 60 - Robust Design and Taguchi Method (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Analytics for Management Decision

Subject Co-ordinator - Dr. Rudra P. Pradhan

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16 - Statistical inference

Lecture 17 - Testing of Hypothesis

Lecture 18 - Testing of Hypothesis (Continued...)

Lecture 19 - Confidence Interval

Lecture 20 - Confidence Interval 2

Lecture 21

Lecture 22

Lecture 23

Lecture 24

Lecture 25

Lecture 26

Lecture 27

Lecture 28

Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30
- Lecture 31 - Dummy Modelling
- Lecture 32 - Dummy Modelling (Continued...)
- Lecture 33 - Panel Data Model
- Lecture 34 - Panel Data Model (Continued...)
- Lecture 35 - Time Series Forecasting
- Lecture 36 - Time Series Forecasting (Continued...)
- Lecture 37 - Machine Learning
- Lecture 38 - Machine Learning (Continued...)
- Lecture 39 - Data Mining
- Lecture 40 - Simulation
- Lecture 41 - Basics
- Lecture 42 - Linear Programming 1
- Lecture 43 - Linear Programming 2
- Lecture 44 - Special Issues of Linear Programming
- Lecture 45 - Simplex Method of Linear Programming
- Lecture 46
- Lecture 47
- Lecture 48
- Lecture 49
- Lecture 50
- Lecture 51
- Lecture 52
- Lecture 53
- Lecture 54
- Lecture 55
- Lecture 56 - Introduction to decision theory
- Lecture 57 - Decision making under uncertainty
- Lecture 58 - Decision making under certainty
- Lecture 59 - Decision tree
- Lecture 60 - The value of information and utility theory

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Soft Skills for Business Negotiations and Marketing Strategies

Subject Co-ordinator - Prof. Uttam Kumar Bannerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42  
Lecture 43  
Lecture 44  
Lecture 45  
Lecture 46  
Lecture 47 - Basics of negotiation  
Lecture 48 - Process sequence phase frequency  
Lecture 49 - Managing the process, tricks of countering  
Lecture 50 - Barriers to agreements, ending of negotiation  
Lecture 51 - Common mistakes  
Lecture 52  
Lecture 53  
Lecture 54  
Lecture 55  
Lecture 56

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Research Writing

Subject Co-ordinator - Prof. Aradhna Malik

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - What is research writing
- Lecture 3 - The Writing Process
- Lecture 4 - The Writing Process - 2
- Lecture 5 - Finding what to read
- Lecture 6 - Reading research documents
- Lecture 7 - Paying attention to what you read
- Lecture 8 - Reviewing Literature
- Lecture 9 - Reviewing Literature (Continued...)
- Lecture 10 - Elements of writing
- Lecture 11 - Reviewing literature
- Lecture 12 - Literature review
- Lecture 13 - Shaping your appeal
- Lecture 14 - Outlining
- Lecture 15 - Organizing an argument
- Lecture 16 - Methodology
- Lecture 17 - Tools for writing up literature reviews and methodology
- Lecture 18 - Presenting quantitative data
- Lecture 19 - Presenting qualitative data
- Lecture 20 - Writing the results section
- Lecture 21 - Discussion of Results
- Lecture 22 - Writing the conclusion section
- Lecture 23 - Academic Integrity
- Lecture 24 - Using and acknowledging sources
- Lecture 25 - Writers Block
- Lecture 26 - Revising
- Lecture 27 - Mistakes and Fallacies
- Lecture 28 - Editing and Proofreading
- Lecture 29 - Choosing a journal to publish in

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Responding to reviewer comments

Lecture 31 - Wrap up

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Engineering Econometrics

Subject Co-ordinator - Dr. Rudra P. Pradhan

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Engineering Econometrics
- Lecture 2 - Introduction to Engineering Econometrics (Continued...)
- Lecture 3 - Introduction to Engineering Econometrics (Continued...)
- Lecture 4 - Introduction to Engineering Econometrics (Continued...)
- Lecture 5 - Introduction to Engineering Econometrics (Continued...)
- Lecture 6 - Exploring Data on Spreadsheets
- Lecture 7 - Exploring Data on Spreadsheets (Continued...)
- Lecture 8 - Exploring Data on Spreadsheets (Continued...)
- Lecture 9 - Exploring Data on Spreadsheets (Continued...)
- Lecture 10 - Exploring Data on Spreadsheets (Continued...)
- Lecture 11 - Descriptive Econometrics
- Lecture 12 - Descriptive Econometrics (Continued...)
- Lecture 13 - Descriptive Econometrics (Continued...)
- Lecture 14 - Descriptive Econometrics (Continued...)
- Lecture 15 - Descriptive Econometrics (Continued...)
- Lecture 16 - Linear Regression Modelling
- Lecture 17 - Linear Regression Modelling (Continued...)
- Lecture 18 - Linear Regression Modelling (Continued...)
- Lecture 19 - Linear Regression Modelling (Continued...)
- Lecture 20 - Linear Regression Modelling (Continued...)
- Lecture 21 - Linear Regression Modelling (Continued...)
- Lecture 22 - Linear Regression Modelling (Continued...)
- Lecture 23 - Modelling Diagnostics
- Lecture 24 - Modelling Diagnostics (Continued...)
- Lecture 25 - Modelling Diagnostics (Continued...)
- Lecture 26 - Multicollinearity problem - III
- Lecture 27 - Autocorrelation problem - I
- Lecture 28 - Autocorrelation problem - II
- Lecture 29 - Heteroskedasticity problem - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heteroskedasticity problem - II
- Lecture 31 - Model Specification- Choosing the Independent Variables
- Lecture 32 - Model Specification- Choosing the Independent Variables
- Lecture 33 - Non-Linear Regression Modelling - Dummy-Variable Regression Modelling
- Lecture 34 - Non-Linear Regression Modelling - Interactive Regression Modelling
- Lecture 35 - Non-Linear Regression Modelling - Polynomial (Curvilinear) Regression Model
- Lecture 36 - Non-Linear Regression Modelling - Model Transformation
- Lecture 37 - Extension of Dummy Regression Modelling
- Lecture 38 - Extension of Dummy Regression Modelling - Dummy Independent Variable Modelling
- Lecture 39 - Extension of Dummy Regression Modelling - Dummy Dependent Variable Modelling
- Lecture 40 - Extension of Dummy Regression Modelling - Dummy Independent Variable Modelling
- Lecture 41 - Time Series Modelling - Basics
- Lecture 42 - Time Series Modelling - Trend Analysis
- Lecture 43 - Time Series Modelling - Trend Analysis (Least Squares Method)
- Lecture 44 - Time Series Modelling - Forecasting
- Lecture 45 - Time Series Modelling - Stationarity
- Lecture 46 - Time Series Modelling - Volatility Modelling
- Lecture 47 - Time Series Modelling - Volatility Modelling
- Lecture 48 - Time Series Modelling - Volatility Modelling
- Lecture 49 - Time Series Modelling - Volatility Modelling
- Lecture 50 - Time Series Modelling - Volatility Modelling
- Lecture 51 - Time Series Modelling - VAR modelling
- Lecture 52 - Time Series Modelling - VAR modelling
- Lecture 53 - Panel Data Modelling
- Lecture 54 - Panel Data Modelling (Continued...)
- Lecture 55 - Panel Data Modelling (Continued...)
- Lecture 56 - Panel Data Modelling
- Lecture 57 - Fitting Models to Data
- Lecture 58 - Fitting Models to Data (Continued...)
- Lecture 59 - Fitting Models to Data (Continued...)
- Lecture 60 - Fitting Models to Data (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Industrial Safety Engineering

Subject Co-ordinator - Prof. Jhareswar Maiti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Industrial Safety Engineering
- Lecture 2 - Key concepts and terminologies
- Lecture 3 - Key concepts and terminologies-Safety domain ontology
- Lecture 4 - Key concepts and terminologies-Risk Assessment and Control
- Lecture 5 - Safety Engineering and Accident causing mechanisms
- Lecture 6 - Preliminary Hazard List
- Lecture 7 - Preliminary Hazard Analysis
- Lecture 8 - Hazard and operability study (HAZOP)
- Lecture 9 - Failure Modes and Effects Analysis (FMEA)- Identification of Failure Modes
- Lecture 10 - Failure Modes and Effects Analysis (FMEA) (Continued...)
- Lecture 11 - Application of Hazard Identification Techniques
- Lecture 12 - Fault Tree Analysis (FTA) - Construction
- Lecture 13 - Fault Tree Analysis (FTA) - Gate by Gate method
- Lecture 14 - Fault Tree Analysis (FTA) - Cut-set method
- Lecture 15 - Fault Tree Analysis (FTA) - Importance measures
- Lecture 16 - Event Tree Analysis (ETA)
- Lecture 17 - Bowtie Tool
- Lecture 18 - Bow-tie
- Lecture 19 - Bow-tie
- Lecture 20 - Bow-tie
- Lecture 21 - Bow-tie
- Lecture 22 - Risk Assessment
- Lecture 23 - Consequence Assessment
- Lecture 24 - Energy Control Model and Hazard Control Hierarchy
- Lecture 25 - Safety Function Deployment
- Lecture 26 - Ranking of Design Solutions
- Lecture 27 - Quantification of Basic Events for Non-repairable Components
- Lecture 28 - Quantification of Basic Events
- Lecture 29 - Quantification of Basic Events

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quantification of Basic Events
- Lecture 31 - Quantification of Basic Events
- Lecture 32 - Quantification of Basic Events
- Lecture 33 - Quantification of Basic Events
- Lecture 34 - Computation of combined process parameters
- Lecture 35 - Computation of combined process parameters
- Lecture 36 - Quantification of Systems Safety and Reliability Block Diagram
- Lecture 37 - Systems Safety Quantification
- Lecture 38 - Systems Safety Quantification
- Lecture 39 - Systems Safety Quantification
- Lecture 40 - Systems Safety Quantification
- Lecture 41 - Human Error, Classification and Causes
- Lecture 42 - Human Error, Classification and Causes (Continued...)
- Lecture 43 - Human Error Identification
- Lecture 44 - Human Reliability Assessment
- Lecture 45 - Human Error Quantification from Expertsâ opinions â Fuzzy Set Approach
- Lecture 46 - Accident Investigation
- Lecture 47 - Accident Investigation and Analysis
- Lecture 48 - Control Chart Analysis
- Lecture 49 - Accident Data Analysis
- Lecture 50 - Accident Data Analysis
- Lecture 51 - Occupational Health and Safety Management Systems(OH&SMS) and OHSAS 18001 - Part I
- Lecture 52 - Occupational Health and Safety Management Systems(OH&SMS) and OHSAS 18001 - Part II
- Lecture 53 - Occupational Health and Safety Management Systems(OH&SMS) and OHSAS 18001 - Part III
- Lecture 54 - Safety Performance Indicators - Part I
- Lecture 55 - Safety Performance Indicators - Part II
- Lecture 56 - Energy Isolations
- Lecture 57 - Virtual Reality - Introduction
- Lecture 58 - Geometry of virtual world
- Lecture 59 - VR roadmap - A case study
- Lecture 60 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Management of Inventory Systems

Subject Co-ordinator - Prof. PK Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Inventory and Materials Management
- Lecture 2 - Introduction to Inventory and Materials Management (Continued...)
- Lecture 3 - Introduction to Inventory and Materials Management (Continued...)
- Lecture 4 - Introduction to Inventory and Materials Management (Continued...)
- Lecture 5 - Introduction to Inventory and Materials Management (Continued...)
- Lecture 6 - Inventory Problems and Selective Inventory Management
- Lecture 7 - Inventory Problems and Selective Inventory Management (Continued...)
- Lecture 8 - Inventory Problems and Selective Inventory Management (Continued...)
- Lecture 9 - Inventory Problems and Selective Inventory Management (Continued...)
- Lecture 10 - Inventory Problems and Selective Inventory Management (Continued...)
- Lecture 11 - Static Inventory Problem under Risk
- Lecture 12 - Static Inventory Problem under Risk (Continued...)
- Lecture 13 - Static Inventory Problem under Risk (Continued...)
- Lecture 14 - Static Inventory Problem under Risk (Continued...)
- Lecture 15 - Static Inventory Problem under Risk (Continued...)
- Lecture 16 - Static Inventory Problems under Uncertainty
- Lecture 17 - Static Inventory Problems under Uncertainty (Continued...)
- Lecture 18 - Static Inventory Problems under Uncertainty (Continued...)
- Lecture 19 - Static Inventory Problems under Uncertainty (Continued...)
- Lecture 20 - Static Inventory Problems under Uncertainty (Continued...)
- Lecture 21 - Dynamic Inventory Problems under Certainty
- Lecture 22 - Dynamic Inventory Problems under Certainty (Continued...)
- Lecture 23 - Dynamic Inventory Problems under Certainty (Continued...)
- Lecture 24 - Dynamic Inventory Problems under Certainty (Continued...)
- Lecture 25 - Dynamic Inventory Problems under Certainty (Continued...)
- Lecture 26 - Dynamic Inventory Problems under Risk
- Lecture 27 - Dynamic Inventory Problems under Risk (Continued...)
- Lecture 28 - Dynamic Inventory Problems under Risk (Continued...)
- Lecture 29 - Dynamic Inventory Problems under Risk (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dynamic Inventory Problems under Risk (Continued...)
- Lecture 31 - MRP, MRP-II and DRP
- Lecture 32 - MRP, MRP-II and DRP (Continued...)
- Lecture 33 - MRP, MRP-II and DRP (Continued...)
- Lecture 34 - MRP, MRP-II and DRP (Continued...)
- Lecture 35 - MRP, MRP-II and DRP (Continued...)
- Lecture 36 - JIT-based Approaches for Materials Management
- Lecture 37 - JIT-based Approaches for Materials Management (Continued...)
- Lecture 38 - JIT-based Approaches for Materials Management (Continued...)
- Lecture 39 - JIT-based Approaches for Materials Management (Continued...)
- Lecture 40 - JIT-based Approaches for Materials Management (Continued...)
- Lecture 41 - Basics of Purchasing Management
- Lecture 42 - Basics of Purchasing Management (Continued...)
- Lecture 43 - Basics of Purchasing Management (Continued...)
- Lecture 44 - Basics of Purchasing Management (Continued...)
- Lecture 45 - Basics of Purchasing Management (Continued...)
- Lecture 46 - Theory of Constraints and Materials Management
- Lecture 47 - Theory of Constraints and Materials Management (Continued...)
- Lecture 48 - Theory of Constraints and Materials Management (Continued...)
- Lecture 49 - Theory of Constraints and Materials Management (Continued...)
- Lecture 50 - Theory of Constraints and Materials Management (Continued...)
- Lecture 51 - Value Engineering/Analysis and Stores Management
- Lecture 52 - Value Engineering/Analysis and Stores Management (Continued...)
- Lecture 53 - Value Engineering/Analysis and Stores Management (Continued...)
- Lecture 54 - Value Engineering/Analysis and Stores Management (Continued...)
- Lecture 55 - Value Engineering/Analysis and Stores Management (Continued...)
- Lecture 56 - Logistics and Supply Chain Management
- Lecture 57 - Logistics and Supply Chain Management (Continued...)
- Lecture 58 - Logistics and Supply Chain Management (Continued...)
- Lecture 59 - Logistics and Supply Chain Management (Continued...)
- Lecture 60 - Logistics and Supply Chain Management (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Selected Topics in Decision Modeling

Subject Co-ordinator - Prof. Biswajit Mahanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Dynamic Programming
- Lecture 2 - Stagecoach Problem
- Lecture 3 - An Investment Problem
- Lecture 4 - An Investment Problem (Continued...)
- Lecture 5 - Further Examples
- Lecture 6 - Machine Allocation and Cargo Loading Problem
- Lecture 7 - Knapsack Problem
- Lecture 8 - Probabilistic Dynamic Programming
- Lecture 9 - Probabilistic Dynamic Programming (Continued...)
- Lecture 10 - Dijkstra's Algorithm
- Lecture 11 - Integer Programming
- Lecture 12 - Integer Programming
- Lecture 13 - Integer Programming
- Lecture 14 - Integer Linear Programming
- Lecture 15 - Cutting Plane Method
- Lecture 16 - Exhaustive Enumeration and Branch and Bound Techniques
- Lecture 17 - Branch and Bound Technique
- Lecture 18 - Assignment and Travelling Salesman Problem
- Lecture 19 - Travelling Salesman Problem (Continued...)
- Lecture 20 - Heuristic Methods for Integer Programming
- Lecture 21 - Non-Linear Programming
- Lecture 22 - Single-Variable Unconstrained Optimization
- Lecture 23 - Multi-variable Unconstrained NLP
- Lecture 24 - Solving Unconstrained NLP
- Lecture 25 - Numerical Methods for Unconstrained NLP
- Lecture 26 - Constrained NLP
- Lecture 27 - Constrained NLP
- Lecture 28 - Constrained NLP
- Lecture 29 - Quadratic Programming

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- Lecture 30 - Example problems on Constrained NLP
- Lecture 31 - Introduction to Metaheuristics
- Lecture 32 - Genetic Algorithms
- Lecture 33 - Genetic Algorithm Process
- Lecture 34 - Genetic Algorithm Process (Continued...)
- Lecture 35 - Genetic Algorithm Examples
- Lecture 36 - Simulated Annealing
- Lecture 37 - Tabu Search
- Lecture 38 - Particle Swarm Optimization
- Lecture 39 - Multi-Objective Optimization
- Lecture 40 - NSGA-II Examples

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Ethics in Engineering Practice

Subject Co-ordinator - Dr. Susmita Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Ethical Reasoning and Engineering Ethics
- Lecture 2 - Introduction to Ethical Reasoning and Engineering Ethics (Continued...)
- Lecture 3 - Introduction to Ethical Reasoning and Engineering Ethics (Continued...)
- Lecture 4 - Professional practice in engineering
- Lecture 5 - Professional practice in engineering (Continued...)
- Lecture 6 - Central Professional responsibilities of engineers
- Lecture 7 - Central Professional responsibilities of engineers (Continued...)
- Lecture 8 - Workplace Rights and Responsibilities
- Lecture 9 - Workplace Rights and Responsibilities (Continued...)
- Lecture 10 - Ethics as Design doing Justice to Moral Problems
- Lecture 11 - Ethics as Design doing Justice to Moral Problems (Continued...)
- Lecture 12 - Intellectual Property Rights and Ethics
- Lecture 13 - Intellectual Property Rights and Ethics (Continued...)
- Lecture 14 - Trade related Intellectual Property Rights
- Lecture 15 - Trade related Intellectual Property Rights in India
- Lecture 16 - A brief on Paris Convention, 1967 and The Berne Contract, 1971
- Lecture 17 - Computer Software and Digital Information
- Lecture 18 - Computer Software and Digital Information (Continued...)
- Lecture 19 - Engineers, Nuclear Testing and Weapons
- Lecture 20 - Engineers, Nuclear Testing and Weapons (Continued...)
- Lecture 21 - Responsibility to Environment
- Lecture 22 - Responsibility to Environment (Continued...)
- Lecture 23 - Environmental Ethics and Spirituality
- Lecture 24 - Engineering as Social Experimentation
- Lecture 25 - Research Ethics
- Lecture 26 - Research Ethics (Continued...)
- Lecture 27 - Engineers as Managers Consultants and Leaders
- Lecture 28 - Engineers as Managers Consultants and Leaders (Continued...)
- Lecture 29 - Engineers as Managers Consultants and Leaders (Continued...)

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- Lecture 30 - Key Questions - Ethical Conduct of Engineers
- Lecture 31 - Key Questions - Ethical Conduct of Engineers (Continued...)
- Lecture 32 - Key Questions - Central Professional Responsibilities of Engineers
- Lecture 33 - Key Questions - Central Professional Responsibilities of Engineers (Continued...)
- Lecture 34 - Key Questions - Relating to Rights and Responsibilities regarding IPR
- Lecture 35 - Key Questions - Relating to Rights and Responsibilities regarding IPR (Continued...)
- Lecture 36 - Key Questions - Relating to Rights and Responsibilities regarding IPR (Continued...)
- Lecture 37 - Key Questions - Related to Engineers Rights and Duties and Ethics
- Lecture 38 - Key Questions - Related to Engineers Rights and Duties and Ethics (Continued...)
- Lecture 39 - Leadership Styles and Ethical Conduct
- Lecture 40 - Leadership Styles and Ethical Conduct (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Managing Change in Organizations

Subject Co-ordinator - Prof. Kbl Srivastava

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Nature of Change Management (1)
- Lecture 2 - Nature of Change Management (2)
- Lecture 3 - Types of Change
- Lecture 4 - Types of Change (Continued...)
- Lecture 5 - Types of Change (Continued...)
- Lecture 6 - Need for Change
- Lecture 7 - Need for Change (Continued...)
- Lecture 8 - Scope of Change
- Lecture 9 - Scope of Change (Continued...)
- Lecture 10 - Scope of Change (Continued...)
- Lecture 11 - Diagnosing Organisational Change
- Lecture 12 - Diagnosing Organisational Change (Continued...)
- Lecture 13 - Diagnosing Organisational Change (Continued...)
- Lecture 14 - Resistance to Change
- Lecture 15 - Managing Resistance
- Lecture 16 - Approaches to Implementing Change
- Lecture 17 - Approaches to Implementing Change (Continued...)
- Lecture 18 - Approaches to Implementing Change (Continued...)
- Lecture 19 - Approaches to Implementing Change (Continued...)
- Lecture 20 - Approaches to Implementing Change (Continued...)
- Lecture 21 - Implementing Change
- Lecture 22 - Vision and Change
- Lecture 23 - Vision and Change (Continued...)
- Lecture 24 - Vision and Change (Continued...)
- Lecture 25 - Vision and Change (Continued...)
- Lecture 26 - Communication and Change
- Lecture 27 - Communication and Change (Continued...)
- Lecture 28 - Communication and Change (Continued...)
- Lecture 29 - Sustaining Change

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- Lecture 30 - Evaluating Change
- Lecture 31 - Innovation and Change
- Lecture 32 - Innovation and Change (Continued...)
- Lecture 33 - Organizational Learning
- Lecture 34 - Learning Organization and Change
- Lecture 35 - Learning Organization and Change (Continued...)
- Lecture 36 - Turnaround Strategy
- Lecture 37 - Strategic Convergence and Learning from Change
- Lecture 38 - Change Effectiveness
- Lecture 39 - Change Management Cases and Examples
- Lecture 40 - Change Management Example, Trends and Dynamics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Financial Institutions and Markets

Subject Co-ordinator - Dr. Jitendra Mahakud

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Financial System
- Lecture 2 - Equilibrium in Financial Markets
- Lecture 3 - Efficiency of Financial Markets
- Lecture 4 - Measures of Financial Development
- Lecture 5 - Financial Development and Economic Growth
- Lecture 6 - Systematic risks in financial system
- Lecture 7 - Unsystematic risks in financial system
- Lecture 8 - Return concepts in financial system
- Lecture 9 - Fundamental analysis of financial assets
- Lecture 10 - Technical analysis of financial assets
- Lecture 11 - Theories of interest rate determination - I
- Lecture 12 - Theories of interest rate determination - II
- Lecture 13 - Term structure theories of interest rate - I
- Lecture 14 - Term structure theories of interest rate - II
- Lecture 15 - Term structure theories of interest rate - III
- Lecture 16 - Financial market regulation
- Lecture 17 - RBI- structure and objective functions
- Lecture 18 - Monetary policy instruments
- Lecture 19 - Challenges and reforms in monetary policy and central bank autonomy
- Lecture 20 - SEBI, IROA and PFRDA
- Lecture 21 - Commercial banks
- Lecture 22 - Commercial banks
- Lecture 23 - Commercial bank performance
- Lecture 24 - Basel Accords
- Lecture 25 - Measure of risk in commercial banks
- Lecture 26 - Provident fund and pension fund
- Lecture 27 - Insurance companies
- Lecture 28 - Mutual funds - I
- Lecture 29 - Mutual funds - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - NBFCs - I
- Lecture 31 - NBFCs - II
- Lecture 32 - Venture capital
- Lecture 33 - Merchant banks
- Lecture 34 - Credit Rating Agencies
- Lecture 35 - Non-banking statutory financial organization
- Lecture 36 - Call Money Market - I
- Lecture 37 - Call Money Market - II
- Lecture 38 - Treasury Bills Market
- Lecture 39 - Miscellaneous short-term money market - I
- Lecture 40 - Miscellaneous short-term money market - II
- Lecture 41 - Bond Analysis - I
- Lecture 42 - Bond Analysis - II
- Lecture 43 - Bond Analysis - III
- Lecture 44 - Bond Analysis - IV
- Lecture 45 - Bond market in India
- Lecture 46 - Stock market - I
- Lecture 47 - Stock market - II
- Lecture 48 - Stock market - III
- Lecture 49 - Stock market - IV
- Lecture 50 - Stock market - V
- Lecture 51 - Derivatives Market - I
- Lecture 52 - Derivatives Market - II
- Lecture 53 - Derivatives Market - III
- Lecture 54 - Derivatives Market - IV
- Lecture 55 - Derivatives Market - V
- Lecture 56 - Foreign Exchange Market - I
- Lecture 57 - Foreign Exchange Market - II
- Lecture 58 - Foreign Exchange Market - III
- Lecture 59 - Foreign Exchange Market - IV
- Lecture 60 - Foreign Exchange Market - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Sales and Distribution Management

Subject Co-ordinator - Dr. Sangeeta Sahney

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Sales Management
- Lecture 2 - Sales Management, Personal Selling, and Salesmanship
- Lecture 3 - Functions of Sales Executive and Roles played by Sales Managers
- Lecture 4 - Duties and Responsibilities of Sales Managers and the Effective Sales Executive
- Lecture 5 - Skills required in Sales Managers and Qualities in a Sales Managers
- Lecture 6 - Determining Sales related Marketing Policies
- Lecture 7 - Determining Sales related Marketing Policies
- Lecture 8 - Strategic Planning, Sales Objectives, Strategies and Tactics
- Lecture 9 - The Sales Organization
- Lecture 10 - The Sales Organization
- Lecture 11 - The Sales Department Relations
- Lecture 12 - The Sales Department Relations
- Lecture 13 - Planning, Sales forecasting and Budgeting
- Lecture 14 - Planning, Sales forecasting and Budgeting
- Lecture 15 - Planning, Sales forecasting and Budgeting
- Lecture 16 - Buyer-Seller Dyads
- Lecture 17 - Diversity of Personal-Selling Situations
- Lecture 18 - Theories of Selling
- Lecture 19 - Theories of Selling
- Lecture 20 - The Selling Process
- Lecture 21 - The Selling Process
- Lecture 22 - Sales Force Management
- Lecture 23 - Sales Force Management
- Lecture 24 - Sales Force Management
- Lecture 25 - Sales Force Management
- Lecture 26 - Sales Force Management
- Lecture 27 - Sales Force Management
- Lecture 28 - Sales Force Management
- Lecture 29 - Sales Force Management

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sales Force Management
- Lecture 31 - Sales Force Management
- Lecture 32 - Sales Quotas
- Lecture 33 - Sales Quotas
- Lecture 34 - Sales Territory
- Lecture 35 - Sales Territory
- Lecture 36 - Distribution Channel Management
- Lecture 37 - Distribution Channel Management
- Lecture 38 - Channel Systems, Channel Management, Logistics and Marketing Channels - Part I
- Lecture 39 - Channel Systems, Channel Management, Logistics and Marketing Channels - Part II
- Lecture 40 - International Sales and Channel Management

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Six Sigma

Subject Co-ordinator - Prof. Jitesh J Thakkar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Brief overview of the course
- Lecture 2 - Quality concepts and definition
- Lecture 3 - History of continuous improvement
- Lecture 4 - Six Sigma Principles and Focus Areas - Part 1
- Lecture 5 - Six Sigma Principles and Focus Areas - Part 2
- Lecture 6 - Six Sigma Applications
- Lecture 7 - Quality Management
- Lecture 8 - Fundamentals of Total Quality Management
- Lecture 9 - Cost of quality
- Lecture 10 - Voice of customer
- Lecture 11 - Quality Function Deployment (QFD)
- Lecture 12 - Management and Planning Tools - Part 1
- Lecture 13 - Management and Planning Tools - Part 2
- Lecture 14 - Six Sigma Project Identification, Selection and Definition
- Lecture 15 - Process characteristics and Monitoring
- Lecture 16 - Process characteristics and analysis
- Lecture 17 - Process Mapping
- Lecture 18 - Data Collection and Summarization - Part 1
- Lecture 19 - Data Collection and Summarization - Part 2
- Lecture 20 - Measurement systems
- Lecture 21 - Measurement systems analysis
- Lecture 22 - Fundamentals of statistics
- Lecture 23 - Probability theory
- Lecture 24 - Process capability analysis
- Lecture 25 - Process capability analysis
- Lecture 26 - Process capability analysis
- Lecture 27 - Non-normal process capability analysis
- Lecture 28 - Hypothesis testing
- Lecture 29 - Hypothesis Testing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hypothesis Testing
- Lecture 31 - Hypothesis Testing
- Lecture 32 - Correlation and Regression Analysis
- Lecture 33 - Regression Analysis
- Lecture 34 - One-Way ANOVA
- Lecture 35 - Two-Way ANOVA
- Lecture 36 - Multi-vari Analysis
- Lecture 37 - Failure Mode Effect Analysis (FMEA)
- Lecture 38 - Introduction to Design of Experiment
- Lecture 39 - Randomized Block Design
- Lecture 40 - Randomized Block Design
- Lecture 41 - Factorial Design
- Lecture 42 - Factorial Design
- Lecture 43 - Fractional Factorial Design
- Lecture 44 - Fractional Factorial Design
- Lecture 45 - Taguchi Method
- Lecture 46 - Taguchi Method
- Lecture 47 - Seven QC Tools
- Lecture 48 - Statistical Process Control
- Lecture 49 - Statistical Process Control
- Lecture 50 - Operating Characteristic (OC) Curve for Variable Control charts
- Lecture 51 - Statistical Process Control
- Lecture 52 - Operating Characteristic (OC) Curve for Attribute Control charts
- Lecture 53 - Statistical Process Control
- Lecture 54 - Acceptance Sampling
- Lecture 55 - Acceptance Sampling Plans for Attributes
- Lecture 56 - Design of Acceptance Sampling Plans for Attributes
- Lecture 57 - Acceptance Sampling Plans for Variables
- Lecture 58 - Acceptance Sampling
- Lecture 59 - Design for Six Sigma (DFSS)
- Lecture 60 - Design for Six Sigma (DFSS)
- Lecture 61 - Team Management
- Lecture 62 - Six Sigma
- Lecture 63 - Six Sigma

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Performance and Reward Management

Subject Co-ordinator - Dr. Susmita Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Understanding meaning of performance management and reward systems management with performance ma
- Lecture 2 - Understanding meaning of performance management and reward systems management with performance ma
- Lecture 3 - Understanding meaning of performance management and reward systems management with performance ma
- Lecture 4 - Understanding meaning of performance management and reward systems management with performance ma
- Lecture 5 - Understanding meaning of performance management and reward systems management with performance ma
- Lecture 6 - Developing an understanding as to why performance management and reward management are of strateg
- Lecture 7 - Developing an understanding as to why performance management and reward management are of strateg
- Lecture 8 - Developing an understanding as to why performance management and reward management are of strateg
- Lecture 9 - Developing an understanding as to why performance management and reward management are of strateg
- Lecture 10 - Developing an understanding as to why performance management and reward management are of strate
- Lecture 11 - Implementation of a performance management system, definining performance and choosing a measure
- Lecture 12 - Implementation of a performance management system, definining performance and choosing a measure
- Lecture 13 - Implementation of a performance management system, definining performance and choosing a measure
- Lecture 14 - Implementation of a performance management system, definining performance and choosing a measure
- Lecture 15 - Implementation of a performance management system, definining performance and choosing a measure
- Lecture 16 - Implementing a performance management system in your organization
- Lecture 17 - Implementing a performance management system in your organization (Continued...)
- Lecture 18 - Implementing a performance management system in your organization (Continued...)
- Lecture 19 - Implementing a performance management system in your organization (Continued...)
- Lecture 20 - Implementing a performance management system in your organization (Continued...)
- Lecture 21 - Role of performance management in employee development, addressing performance management skills
- Lecture 22 - Role of performance management in employee development, addressing performance management skills
- Lecture 23 - Role of performance management in employee development, addressing performance management skills
- Lecture 24 - Role of performance management in employee development, addressing performance management skills
- Lecture 25 - Role of performance management in employee development, addressing performance management skills
- Lecture 26 - Overview, reward system, understanding total, strategic and international reward
- Lecture 27 - Overview, reward system, understanding total, strategic and international reward (Continued...)
- Lecture 28 - Overview, reward system, understanding total, strategic and international reward (Continued...)
- Lecture 29 - Overview, reward system, understanding total, strategic and international reward (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Overview, reward system, understanding total, strategic and international reward (Continued...)
- Lecture 31 - Understanding linkage between performance management and reward, an overview of various types of
- Lecture 32 - Understanding linkage between performance management and reward, an overview of various types of
- Lecture 33 - Understanding linkage between performance management and reward, an overview of various types of
- Lecture 34 - Understanding linkage between performance management and reward, an overview of various types of
- Lecture 35 - Understanding linkage between performance management and reward, an overview of various types of
- Lecture 36 - Understanding linkage between performance management and reward, an overview of various types of
- Lecture 37 - Valuing and grading jobs, understanding pay levels, job evaluation schemes, equal pay, market ra
- Lecture 38 - Valuing and grading jobs, understanding pay levels, job evaluation schemes, equal pay, market ra
- Lecture 39 - Valuing and grading jobs, understanding pay levels, job evaluation schemes, equal pay, market ra
- Lecture 40 - Valuing and grading jobs, understanding pay levels, job evaluation schemes, equal pay, market ra
- Lecture 41 - Valuing and grading jobs, understanding pay levels, job evaluation schemes, equal pay, market ra
- Lecture 42 - Rewarding Special Groups, rewarding directors and senior executives, sales and customer service
- Lecture 43 - Rewarding Special Groups, rewarding directors and senior executives, sales and customer service
- Lecture 44 - Rewarding Special Groups, rewarding directors and senior executives, sales and customer service
- Lecture 45 - Rewarding Special Groups, rewarding directors and senior executives, sales and customer service
- Lecture 46 - Rewarding Special Groups, rewarding directors and senior executives, sales and customer service
- Lecture 47 - Rewarding Special Groups, rewarding directors and senior executives, sales and customer service
- Lecture 48 - Understanding relevance of employee benefits and pension schemes, employee benefits, flexible be
- Lecture 49 - Understanding relevance of employee benefits and pension schemes, employee benefits, flexible be
- Lecture 50 - Understanding relevance of employee benefits and pension schemes, employee benefits, flexible be
- Lecture 51 - Understanding relevance of employee benefits and pension schemes, employee benefits, flexible be
- Lecture 52 - Understanding relevance of employee benefits and pension schemes, employee benefits, flexible be
- Lecture 53 - Developing and Implementing Reward Systems
- Lecture 54 - Developing and Implementing Reward Systems (Continued...)
- Lecture 55 - Developing and Implementing Reward Systems (Continued...)
- Lecture 56 - Developing and Implementing Reward Systems (Continued...)
- Lecture 57 - Developing and Implementing Reward Systems (Continued...)
- Lecture 58 - Understanding the implications of performance and reward management in present organizational dy
- Lecture 59 - Understanding the implications of performance and reward management in present organizational dy
- Lecture 60 - Understanding the implications of performance and reward management in present organizational dy
- Lecture 61 - Understanding the implications of performance and reward management in present organizational dy
- Lecture 62 - Understanding the implications of performance and reward management in present organizational dy
- Lecture 63 - Understanding the implications of performance and reward management in present organizational dy

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:The Ethical Corporation

Subject Co-ordinator - Prof. Chhanda Chakraborti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is a Corporation

Lecture 2 - Ethical Corporation

Lecture 3 - What is Ethics

Lecture 4 - Law and Ethics, and Responsibilities

Lecture 5 - Why should a Corporation be Ethical

Lecture 6 - Normative Ethical Theories

Lecture 7 - Normative Ethical Theories

Lecture 8 - Normative Ethical Theories

Lecture 9 - Normative Ethical Theories

Lecture 10 - Normative Ethical Theories

Lecture 11 - Managing Ethics within the Corporation

Lecture 12 - Managing Ethics within the Organization

Lecture 13 - Managing Ethics within a Corporation

Lecture 14 - How to Manage Inter - Personal Ethical Misconduct at Workplace

Lecture 15 - How to Apply Ethics

Lecture 16 - Understanding Corporate Governance

Lecture 17 - Conflicts and Key Elements in Corporate Governance

Lecture 18 - Specific Areas of Concern in Corporate Governance and Countermeasures - I

Lecture 19 - Specific Areas of Concern in Corporate Governance and Countermeasures - II

Lecture 20 - Concluding Session on Corporate Governance

Lecture 21 - Investing in Human relations

Lecture 22 - Employer-employee

Lecture 23 - Organization model and employer-employee relation

Lecture 24 - Some specific issues in employer-employee relationship

Lecture 25 - Employees All Over the World

Lecture 26 - The Ethical Corporation

Lecture 27 - Corporate Obligations to Natural Environment through the Laws

Lecture 28 - Corporate Obligations to Natural Environment through Appeal to Business Sense and Strategy

Lecture 29 - Corporate Obligations to Natural Environment on Ethical Grounds

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- Lecture 30 - Environmental Obligations
- Lecture 31 - Consumers as Stakeholders and Consumer Protection
- Lecture 32 - Ethics of Consumer Protection
- Lecture 33 - Consumer ethics
- Lecture 34 - Consumer ethics
- Lecture 35 - Consumer Ethics
- Lecture 36 - Competitors as Stakeholders and Fair Competition
- Lecture 37 - What is NOT Fair Competition
- Lecture 38 - Competitors as Stakeholders; Global Competition
- Lecture 39 - Suppliers as Stakeholders
- Lecture 40 - Competitors and Suppliers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC: Intellectual Property Rights and Competition Law

Subject Co-ordinator - Prof. Niharika Sahoo Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concept of Intellectual Property Law Patents
- Lecture 2 - Trademark
- Lecture 3 - Geographical Indications
- Lecture 4 - Copyright
- Lecture 5 - Industrial Designs
- Lecture 6 - Integrated Circuits Layout Designs
- Lecture 7 - Trade Secrets or Undisclosed Information
- Lecture 8 - Information Competition Law
- Lecture 9 - Introduction to Competition Law (Continued...)
- Lecture 10 - Introduction to Competition Law Anti-Competitive Practices
- Lecture 11 - Bid-Rigging
- Lecture 12 - Introduction to Competition Law - Vertical Agreements
- Lecture 13 - Abuse of Dominance, Combinations
- Lecture 14 - Regulation of Combinations
- Lecture 15 - Economic Theory of IP and Competition
- Lecture 16 - Interface Between IP and Competition
- Lecture 17 - The United States Anti-Trust Law
- Lecture 18 - Tying Arrangements and Intellectual Property Under Sherman Act
- Lecture 19 - United States Jurisprudence
- Lecture 20 - Price Fixing and Antitrust Law
- Lecture 21 - Market Allocation and IPR
- Lecture 22 - Vertical Restraints
- Lecture 23 - Vertical Restraints (Contd)
- Lecture 24 - Enforcement of Anti-Trust Law in United States
- Lecture 25 - Introduction to EU Competition Policy and IPR
- Lecture 26 - IP Based Conduct under Article 101
- Lecture 27 - IP Based Conduct under Article 102
- Lecture 28 - IP Based Conduct under Article 102
- Lecture 29 - Technology Transfer Agreements

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- Lecture 30 - TTBER and safe harbor provisions
- Lecture 31 - Standard Essential Patents and FRAND Terms
- Lecture 32 - Introduction to Competition Law in India (Continued...)
- Lecture 33 - Introduction to Competition Law in India (Continued...)
- Lecture 34 - Introduction to Competition Law in India (Continued...)
- Lecture 35 - IP Licensing and Indian Competition Law
- Lecture 36 - IP Licensing and Indian Competition Law (Continued...)
- Lecture 37 - IP Licensing and Indian Competition Law (Continued...)
- Lecture 38 - IP Licensing and Indian Competition Law (Continued...)
- Lecture 39 - Patent and Competition Law
- Lecture 40 - Trademark, Copyright and Competition Law
- Lecture 41 - TRIPS and Competition Law
- Lecture 42 - TRIPS and Competition Law (Continued...)
- Lecture 43 - Comparative analysis of IP and competition law across US, EU and India

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Patent Search for Engineers and Lawyers

Subject Co-ordinator - Prof. Shreya Matilal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to IPR
- Lecture 2 - IP-Economic Rationale
- Lecture 3 - Patentability-Novelty - I
- Lecture 4 - Patentability-Novelty - II
- Lecture 5 - Non-Obviousness
- Lecture 6 - How to read a patent document
- Lecture 7 - How to read a patent document
- Lecture 8 - Introduction to patent search
- Lecture 9 - Introduction to patent search
- Lecture 10 - Fundamentals of patent search
- Lecture 11 - Fundamentals of patent search
- Lecture 12 - Hands on Patent Search
- Lecture 13 - Hands on Patent Search
- Lecture 14 - Hands on Patent Search - Sequence Search
- Lecture 15 - Hands on Patent Search - Emerging areas of Technology
- Lecture 16 - Types of patent Search
- Lecture 17 - Types of patent Search (Continued...)
- Lecture 18 - Types of patent Search (Continued...)
- Lecture 19 - Types of patent Search, Validity Search
- Lecture 20 - Invalidity Search
- Lecture 21 - Types of Patent Search FTO
- Lecture 22 - Types of Patent Search
- Lecture 23 - Introduction to patent landscape
- Lecture 24 - Introduction to patent landscape (Continued...)
- Lecture 25 - Introduction to patent landscape (Continued...)
- Lecture 26 - Hands on Patent Landscape
- Lecture 27 - Hands on Patent Landscape (Continued...)
- Lecture 28 - Hands on Patent Landscape (Continued...)
- Lecture 29 - Hands on Patent Landscape (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Hands on Patent Landscape (Continued...)
- Lecture 31 - Analytical tools for Patent search and analysis
- Lecture 32 - Analytical tools for Patent search and analysis (Continued...)
- Lecture 33 - Analytical tools for Patent search and analysis (Continued...)
- Lecture 34 - Analytical tools for Patent search and analysis (Continued...)
- Lecture 35 - Analytical tools for Patent search and analysis (Continued...)
- Lecture 36 - Analytical tools for Patent search and analysis (Continued...)
- Lecture 37 - Administrative Enforcement
- Lecture 38 - Judicial Enforcement
- Lecture 39 - DOE
- Lecture 40 - Patent Infringement

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Modelling and Analytics for Supply Chain Management

Subject Co-ordinator - Prof. Kunal Kanti Ghosh, Prof. Anupam Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Modelling and Analytics for Supply Chain Management

Lecture 2 - Introduction to Modelling and Analytics In Supply Network

Lecture 3 - Decisions and Performance Measures In Supply Chain

Lecture 4 - Introduction to Analytics in Supply Chain

Lecture 5 - Analytics Framework Based on SCOR Model

Lecture 6 - Design Options for Distribution Network

Lecture 7 - Supplier selection Analytics

Lecture 8 - Supplier selection Analytics (Continued...)

Lecture 9 - Supplier selection Analytics (Continued...)

Lecture 10 - Supplier selection Analytics (Continued...)

Lecture 11 - Supplier selection Analytics (Continued...)

Lecture 12 - Transportation cost - I

Lecture 13 - Transportation cost - II

Lecture 14 - Transportation cost - III

Lecture 15 - Transportation cost - IV

Lecture 16 - Warehouse location models - I

Lecture 17 - Warehouse location models - II

Lecture 18 - Warehouse location models - III

Lecture 19 - Warehouse location models - IV

Lecture 20 - Warehouse layout

Lecture 21 - Space calculation - I

Lecture 22 - Space calculation - II

Lecture 23 - Performance of the entire supply chain

Lecture 24 - Data envelopment analysis

Lecture 25 - Concepts in inventory management - I

Lecture 26 - Concepts in inventory management - II

Lecture 27 - Concepts in inventory management - III

Lecture 28 - Concepts in inventory management - IV

Lecture 29 - Concepts in inventory management - V

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- Lecture 30 - Safety Stock and Reorder Level
- Lecture 31 - Continuous Review System
- Lecture 32 - Continuous Review System (Continued...)
- Lecture 33 - Periodic Review System
- Lecture 34 - Periodic Review System (Continued...)
- Lecture 35 - Transportation system - India and World
- Lecture 36 - Transport Costing
- Lecture 37 - Public transport costing
- Lecture 38 - Fixing Fare for public transportation system
- Lecture 39 - Foreign trade logistics
- Lecture 40 - Analytical Hierarchy Processing (AHP) Method
- Lecture 41 - Technique of Order Preference by Similarity to Ideal Solution (TOPSIS) Method
- Lecture 42 - TOPSIS and VIKOR Method
- Lecture 43 - VIKOR and ISM Method
- Lecture 44 - VIKOR and ISM Method
- Lecture 45 - Forecasting Simple and Weighted Average Mean Square Error
- Lecture 46 - Forecasting Exponential Smoothing Method
- Lecture 47 - Forecasting Seasonality in Forecasting
- Lecture 48 - Forecasting Trend Regression and Holt's Method
- Lecture 49 - Forecasting Trend Holt's and Winters Method
- Lecture 50 - Forecasting Multi Period Forecasting
- Lecture 51 - Information Distortions; Coordination and Collaboration Modelling
- Lecture 52 - Information Distortions; Coordination and Collaboration Modelling
- Lecture 53 - Six Sigma and queuing in Coordination
- Lecture 54 - Queuing in Coordination; Measuring the Degree of Coordination
- Lecture 55 - Risk Analytics in Supply Network Design
- Lecture 56 - Risk Analytics in Supply Network Design (Continued...)
- Lecture 57 - Designing the global supply chain
- Lecture 58 - Designing the global supply chain
- Lecture 59 - Designing the global supply chain
- Lecture 60 - Designing the global supply chain
- Lecture 61 - Designing the global supply chain
- Lecture 62 - Designing the global supply chain

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Marketing Analytics

Subject Co-ordinator - Prof. Swagato Chatterjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to R programming
- Lecture 2 - Introduction to R programming (Continued...)
- Lecture 3 - Introduction to R programming (Continued...)
- Lecture 4 - Introduction to R programming (Continued...)
- Lecture 5 - Introduction to R programming (Continued...)
- Lecture 6 - Introduction to R programming (Continued...)
- Lecture 7 - What Consumers Want
- Lecture 8 - What Consumers Want (Continued...)
- Lecture 9 - What Consumers Want (Continued...)
- Lecture 10 - What Consumers Want (Continued...)
- Lecture 11 - What Consumers Want (Continued...)
- Lecture 12 - What Consumers Want (Continued...)
- Lecture 13 - Segmentation Targeting and Positioning
- Lecture 14 - Segmentation Targeting and Positioning (Continued...)
- Lecture 15 - Segmentation Targeting and Positioning (Continued...)
- Lecture 16 - Segmentation Targeting and Positioning (Continued...)
- Lecture 17 - Segmentation Targeting and Positioning (Continued...)
- Lecture 18 - Demand Forecasting and Pricing
- Lecture 19 - Demand Forecasting and Pricing (Continued...)
- Lecture 20 - Demand Forecasting and Pricing (Continued...)
- Lecture 21 - Demand Forecasting and Pricing (Continued...)
- Lecture 22 - Pricing
- Lecture 23 - Pricing (Continued...)
- Lecture 24 - Pricing (Continued...)
- Lecture 25 - Pricing (Continued...)
- Lecture 26 - Pricing (Continued...)
- Lecture 27 - Pricing (Continued...)
- Lecture 28 - Pricing (Continued...)
- Lecture 29 - Marketing Mix Models and Advertising Models

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Marketing Mix Models and Advertising Models (Continued...)
- Lecture 31 - Marketing Mix Models and Advertising Models (Continued...)
- Lecture 32 - Marketing Mix Models and Advertising Models (Continued...)
- Lecture 33 - Marketing Mix Models and Advertising Models (Continued...)
- Lecture 34 - Recommendation Engine and Retail Analytics
- Lecture 35 - Recommendation Engine and Retail Analytics (Continued...)
- Lecture 36 - Recommendation Engine and Retail Analytics (Continued...)
- Lecture 37 - Recommendation Engine and Retail Analytics (Continued...)
- Lecture 38 - Recommendation Engine and Retail Analytics (Continued...)
- Lecture 39 - Recommendation Engine and Retail Analytics (Continued...)
- Lecture 40 - RFM and Market Basket Analysis
- Lecture 41 - RFM and Market Basket Analysis (Continued...)
- Lecture 42 - RFM and Market Basket Analysis (Continued...)
- Lecture 43 - RFM and Market Basket Analysis (Continued...)
- Lecture 44 - RFM and Market Basket Analysis (Continued...)
- Lecture 45 - Customer Churn and Customer Lifetime Value
- Lecture 46 - Customer Churn and Customer Lifetime Value (Continued...)
- Lecture 47 - Customer Churn and Customer Lifetime Value (Continued...)
- Lecture 48 - Customer Churn and Customer Lifetime Value (Continued...)
- Lecture 49 - Customer Churn and Customer Lifetime Value (Continued...)
- Lecture 50 - Customer Churn and Customer Lifetime Value (Continued...)
- Lecture 51 - Text Mining and Sentiment Analytics
- Lecture 52 - Text Mining and Sentiment Analytics (Continued...)
- Lecture 53 - Text Mining and Sentiment Analytics (Continued...)
- Lecture 54 - Text Mining and Sentiment Analytics (Continued...)
- Lecture 55 - Text Mining and Sentiment Analytics (Continued...)
- Lecture 56 - Text Mining and Sentiment Analytics (Continued...)
- Lecture 57 - Text Mining and Sentiment Analytics (Continued...)
- Lecture 58 - Text Mining and Sentiment Analytics (Continued...)
- Lecture 59 - Text Mining and Sentiment Analytics (Continued...)
- Lecture 60 - Text Mining and Sentiment Analytics (Continued...)
- Lecture 61 - Social Network Analysis and Excel Dashboards
- Lecture 62 - Social Network Analysis and Excel Dashboards (Continued...)
- Lecture 63 - Social Network Analysis and Excel Dashboards (Continued...)
- Lecture 64 - Social Network Analysis and Excel Dashboards (Continued...)
- Lecture 65 - Social Network Analysis and Excel Dashboards (Continued...)
- Lecture 66 - Social Network Analysis and Excel Dashboards (Continued...)

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Management of Commercial Banking

Subject Co-ordinator - Prof. Jitendra Mahakud

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Importance and Forms of Commercial Banks
- Lecture 2 - Functions, Goals and Constraints of Commercial Banks
- Lecture 3 - Regulation of Commercial Banks
- Lecture 4 - Financial Statements of Commercial Banks - I
- Lecture 5 - Financial Statements of Commercial Banks - II
- Lecture 6 - Bank Performance Measures - I
- Lecture 7 - Bank Performance Measures - II
- Lecture 8 - Bank Performance Measures - III
- Lecture 9 - Bank Performance Measures - IV
- Lecture 10 - Bank Performance Measures - V
- Lecture 11 - Valuation of Bank Stocks - I
- Lecture 12 - Valuation of Bank Stocks - II
- Lecture 13 - Valuation of Fixed Assets - I
- Lecture 14 - Valuation of Fixed Assets - II
- Lecture 15 - Valuation of Fixed Assets - III
- Lecture 16 - Commercial Bank Risk - I
- Lecture 17 - Commercial Bank Risk - II
- Lecture 18 - Commercial Bank Risk - III
- Lecture 19 - Commercial Bank Risk - IV
- Lecture 20 - Commercial Bank Risk - V
- Lecture 21 - Overview of Asset Liability Management
- Lecture 22 - Dollar Gap Analysis
- Lecture 23 - Earnings Sensitivity Analysis
- Lecture 24 - Duration Gap Analysis - I
- Lecture 25 - Duration Gap Analysis - II
- Lecture 26 - Use of Derivatives in ALM - I
- Lecture 27 - Use of Derivatives in ALM - II
- Lecture 28 - Use of Derivatives in ALM - III
- Lecture 29 - Use of Derivatives in ALM - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Use of Derivatives in ALM - V
- Lecture 31 - Management of Lending Activities - I
- Lecture 32 - Management of Lending Activities - II
- Lecture 33 - Management of Lending Activities - III
- Lecture 34 - Management of Lending Activities - IV
- Lecture 35 - Management of Lending Activities - V
- Lecture 36 - Management of Lending Activities - VI
- Lecture 37 - Management of Lending Activities - VII
- Lecture 38 - Management of Lending Activities - VIII
- Lecture 39 - Management of Lending Activities - IX
- Lecture 40 - Management of Lending Activities - X
- Lecture 41 - Management Investment Portfolios - I
- Lecture 42 - Management Investment Portfolios - II
- Lecture 43 - Management Investment Portfolios - III
- Lecture 44 - Management Investment Portfolios - IV
- Lecture 45 - Management Investment Portfolios - V
- Lecture 46 - Managing Liquidity of Commercial Banks - I
- Lecture 47 - Managing Liquidity of Commercial Banks - II
- Lecture 48 - Managing Liquidity of Commercial Banks - III
- Lecture 49 - Managing Liquidity of Commercial Banks - IV
- Lecture 50 - Managing Liquidity of Commercial Banks - V
- Lecture 51 - Management of Deposits - I
- Lecture 52 - Management of Deposits - II
- Lecture 53 - Management of Non-Deposit Liabilities
- Lecture 54 - Management of Off-Balance Sheet Activities - I
- Lecture 55 - Management of Off-Balance Sheet Activities - II
- Lecture 56 - Management of Off-Balance Sheet Activities - III
- Lecture 57 - Management of Bank Capital - I
- Lecture 58 - Management of Bank Capital - II
- Lecture 59 - Management of Bank Capital - III
- Lecture 60 - Management of Bank Capital - IV

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Behavioral and Personal Finance

Subject Co-ordinator - Prof. Abhijeet Chandra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Behavioral Economics and Finance
- Lecture 2 - Introduction to Behavioral Economics and Finance (Continued...)
- Lecture 3 - Economics of Decision Making
- Lecture 4 - Economics of Decision Making (Continued...)
- Lecture 5 - Decision Making Under Risk and Uncertainty
- Lecture 6 - Decision Making Under Risk and Uncertainty (Continued...)
- Lecture 7 - Non-expected Utility Preferences
- Lecture 8 - Non-expected Utility Preferences (Continued...)
- Lecture 9 - Prospect Theory and Behavioral Biases
- Lecture 10 - Prospect Theory and Behavioral Finance
- Lecture 11 - Prospect Theory and Behavioral Finance (Continued...)
- Lecture 12 - Beliefs, Biases and Heuristics
- Lecture 13 - Beliefs, Biases and Heuristics (Continued...)
- Lecture 14 - Beliefs, Biases and Heuristics (Continued...)
- Lecture 15 - Biases and Financial Decision-Making
- Lecture 16 - Biases and Financial Decision-Making (Continued...)
- Lecture 17 - Overconfidence and Investor Behavior
- Lecture 18 - Valuation of Financial Assets
- Lecture 19 - Valuation of Financial Assets (Continued...)
- Lecture 20 - Valuation of Financial Assets (Continued...)
- Lecture 21 - Portfolio Return and Risk
- Lecture 22 - Portfolio Return and Risk (Continued...)
- Lecture 23 - Personal Financial Goals
- Lecture 24 - Planning Personal Finances
- Lecture 25 - Personal Financial Statements
- Lecture 26 - Taxes and Financial Planning
- Lecture 27 - Taxes and Financial Planning (Continued...)
- Lecture 28 - Portfolios for Individual Investors
- Lecture 29 - Investment Alternatives for Individual Investors

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Investing in Mutual Funds
- Lecture 31 - Fixed Income Investments
- Lecture 32 - Fixed Income Investments (Continued...)
- Lecture 33 - Purchasing Decisions
- Lecture 34 - Consumer Credit Decisions
- Lecture 35 - Loans and Amortization
- Lecture 36 - Loans and Amortization (Continued...)
- Lecture 37 - Credit Card as Source of Consumer Credit
- Lecture 38 - Alternative Investments
- Lecture 39 - Alternative Investments (Continued...)
- Lecture 40 - Structured Finance
- Lecture 41 - Wealth Management

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Customer Relationship Management

Subject Co-ordinator - Prof. Swagato Chatterjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - CMR  
Lecture 2 - CMR  
Lecture 3 - CMR  
Lecture 4 - CMR  
Lecture 5 - Co-Creation  
Lecture 6 - Co-creation (Continued...)  
Lecture 7 - Co-creation (Continued...)  
Lecture 8 - Building Customer Relationships  
Lecture 9 - Building Customer Relationships (Continued...)  
Lecture 10 - Building Customer Relationships (Continued...)  
Lecture 11 - Building Customer Relationships (Continued...)  
Lecture 12 - Building Customer Relationships (Continued...)  
Lecture 13 - Building Customer Relationships (Continued...)  
Lecture 14 - Economics of CRM  
Lecture 15 - Economics of CRM (Continued...)  
Lecture 16 - Economics of CRM (Continued...)  
Lecture 17 - Economics of CRM (Continued...)  
Lecture 18 - Economics of CRM (Continued...)  
Lecture 19 - Economics of CRM (Continued...)  
Lecture 20 - Economics of CRM (Continued...)  
Lecture 21 - Social CRM  
Lecture 22 - Social CRM (Continued...)  
Lecture 23 - Social CRM (Continued...)  
Lecture 24 - Tchibo Case Study  
Lecture 25 - Tchibo Case Study (Continued...)  
Lecture 26 - Customer Equity in CRM  
Lecture 27 - Customer Equity in CRM (Continued...)  
Lecture 28 - CRM in B2C Markets  
Lecture 29 - CRM in B2C Markets (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - CRM in B2C Markets (Continued...)
- Lecture 31 - CRM in B2C Markets (Continued...)
- Lecture 32 - CRM in B2B Markets
- Lecture 33 - CRM in B2B Markets (Continued...)
- Lecture 34 - CRM in B2B Markets (Continued...)
- Lecture 35 - CRM in B2B Markets (Continued...)
- Lecture 36 - eCRM
- Lecture 37 - eCRM
- Lecture 38 - eCRM
- Lecture 39 - Contact Centres for CRM
- Lecture 40 - Contact Centres for CRM (Continued...)
- Lecture 41 - Global CRM
- Lecture 42 - Global CRM (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Principles of Management

Subject Co-ordinator - Prof. S. Srinivasan, Dr. Susmita Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Definition, Nature, Purpose and Scope of Management

Lecture 2 - Skills, Roles and Functions of Management

Lecture 3 - Principles of Management

Lecture 4 - Scientific Management

Lecture 5 - Evolution of Management Thought

Lecture 6 - Concept, Types, Importance and Process of Planning

Lecture 7 - Characteristics, Nature and Scope and Principles of Planning

Lecture 8 - Traditional objective setting and methods of Planning

Lecture 9 - Strategic Management and Planning

Lecture 10 - Premising and Forecasting of Planning

Lecture 11 - Concept, Types, Importance and Process of Decision Making

Lecture 12 - Different Models of Decision Making

Lecture 13 - Decision Making Styles and Cognitive biases in decision making

Lecture 14 - Barriers of Effective Decision Making

Lecture 15 - Group Decision Making

Lecture 16 - Concept, Importance and Steps of Management by Objectives

Lecture 17 - Concept, Importance and Steps of Management by exception

Lecture 18 - Style of Management (American, Japanese and Indian)

Lecture 19 - Approaches of management including McKinsey's 7s approach

Lecture 20 - Introduction, strategies, techniques, benefits and rules of Self Management

Lecture 21 - Concept, Importance, Process, Nature, and Principle of Organisation

Lecture 22 - Organisational Design and Structure

Lecture 23 - Coordination in Management

Lecture 24 - Differentiation in management

Lecture 25 - Concept, Types, Importance, Steps, Factors and Advantages of Integration

Lecture 26 - Concept, Types, Importance and Process of Span of Management

Lecture 27 - Concept, types, factors, advantages and disadvantages of Centralisation and Decentralisation

Lecture 28 - Delegation

Lecture 29 - Different issues relating to authority and power

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Different aspects of line and staff organisation
- Lecture 31 - Concept, importance, process and methods of Staffing and HRM
- Lecture 32 - Recruitment and Selection
- Lecture 33 - Recruitment and Selection (Continued...)
- Lecture 34 - Performance Appraisal
- Lecture 35 - Performance Appraisal (Continued...)
- Lecture 36 - Concept, Types, Importance, Techniques of Career strategy
- Lecture 37 - Concept, Types, Importance, Techniques of Career strategy (Continued...)
- Lecture 38 - Concept, Types, Importance, Techniques of Career strategy (Continued...)
- Lecture 39 - Coordination-Concept, Issues and Techniques
- Lecture 40 - Coordination-Concept, Issues and Techniques (Continued...)
- Lecture 41 - Concept, importance, elements of organisational change
- Lecture 42 - Concept, importance, elements of organisational change (Continued...)
- Lecture 43 - Forces and factors of organisational change
- Lecture 44 - Resistance to change
- Lecture 45 - Theories of change and resistance to change
- Lecture 46 - Methods of dealing with change
- Lecture 47 - Methods of dealing with change (Continued...)
- Lecture 48 - Behavioural reaction to organisational Change
- Lecture 49 - Approaches to manage organisational Change
- Lecture 50 - Approaches to manage organisational Change
- Lecture 51 - Action Research model to manage organisational change
- Lecture 52 - Organisational development
- Lecture 53 - Leadership, and Its Theories
- Lecture 54 - Team and Team Work in Management
- Lecture 55 - Human factors and Motivation
- Lecture 56 - Communication and Its Barriers
- Lecture 57 - Controlling
- Lecture 58 - Budgeting, concept, importance, process and benefits
- Lecture 59 - Reporting- concepts, types, importance and advantages

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Decision Support System for Managers

Subject Co-ordinator - Prof Sujoy Bhattacharya, Prof. Anupam Ghosh, Prof. Kunal Kanti Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to decision support systems
- Lecture 2 - Components of a decision support systems
- Lecture 3 - Components of a decision support systems (Continued...)
- Lecture 4 - Models in decision support systems
- Lecture 5 - Models in decision support systems (Continued...)
- Lecture 6 - Structured, Semi-Structured and Unstructured problems; Models
- Lecture 7 - Purpose of models; classification of models
- Lecture 8 - Solution Techniques - Optimization
- Lecture 9 - Solution Techniques - Optimization
- Lecture 10 - Solution Techniques - Optimization
- Lecture 11 - Decision Support Systems for Forecasting
- Lecture 12 - Decision Support Systems for Forecasting (Continued...)
- Lecture 13 - Decision Support Systems for Forecasting (Continued...)
- Lecture 14 - Decision Support Systems for Forecasting (Continued...)
- Lecture 15 - Decision Support Systems for Forecasting (Continued...)
- Lecture 16 - Decision Making for Warehouse Location
- Lecture 17 - Decision Making for Warehouse Location (Continued..)
- Lecture 18 - Estimation of space requirement in a warehouse and concept of economic order quantity (EOQ)
- Lecture 19 - Economic order quantity (EOQ) (Continued...)
- Lecture 20 - ABC-FSN-VED Analysis; space calculation in a warehouse - for Staging area
- Lecture 21 - Space calculation in a warehouse
- Lecture 22 - Order Picking; Material handling equipment's
- Lecture 23 - Material Safety and Safety Equipment's
- Lecture 24 - Automated storage and replenishment systems (AS/RS)
- Lecture 25 - Managerial Decision making in the context of warehousing and materials management
- Lecture 26 - Issues in HR; Employee Selection
- Lecture 27 - Employee Selection, Promotion and Deployment Method - Lp Method
- Lecture 28 - Employee Selection, Promotion and Deployment Method - Rating and ranking Method ; Clustering
- Lecture 29 - Employee Selection, Promotion and Deployment Method - BCG

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- Lecture 30 - Strategizing for Business, the SWOT and Porter's Framwork Revisited
- Lecture 31 - Fortune at the Bottom of the Pyramid, GE, Rule of Three
- Lecture 32 - Self Actualisation Needs, Rural Marketing Challenges
- Lecture 33 - Rural Marketing; Balanced ScoreCard
- Lecture 34 - Evaluating Investment Proposals
- Lecture 35 - Costing and Pricing for Public Transport
- Lecture 36 - Costing and Pricing for Hospitals
- Lecture 37 - Decision Support Systems for Marketing
- Lecture 38 - Decision Support Systems for Marketing
- Lecture 39 - Decision Support Systems for Marketing
- Lecture 40 - Pricing
- Lecture 41 - Taxation and the Distribution Network
- Lecture 42 - Transshipment; Flexibility and Six Sigma
- Lecture 43 - Flexibility and Total Cost of the Network
- Lecture 44 - Risk Analysis for the Distribution Network
- Lecture 45 - Echelons in the Network
- Lecture 46 - Concept of Variability and Six Sigma
- Lecture 47 - Concept of Variability and Six Sigma (Continued...)
- Lecture 48 - Roadmap to Six Sigma; Ishikawa Diagram and SIPOC
- Lecture 49 - Service Systems
- Lecture 50 - Decision Support Systems for Inventory
- Lecture 51 - Decision Support Systems for Inventory (Continued...)
- Lecture 52 - Decision Support Systems for Inventory (Continued...)
- Lecture 53 - Decision Support Systems for Inventory (Continued...)
- Lecture 54 - Decision Support Systems for Inventory (Continued...)
- Lecture 55 - Decision Support Systems for Operations Management
- Lecture 56 - Decision Support Systems for Operations Management (Continued...)
- Lecture 57 - Decision Support Systems for Operations Management (Continued...)
- Lecture 58 - Decision Support Systems for Operations Management (Continued...)
- Lecture 59 - Decision Support Systems for Operations Management (Continued...)
- Lecture 60 - DSS for Multi - Item Production - Distribution Planning

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Management Information System

Subject Co-ordinator - Prof. Kunal Kanti Ghosh, Prof. Surojit Mukherjee, Prof. Saini Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - Part 1
- Lecture 2 - Introduction - Part 2
- Lecture 3 - Dimensions of Information System
- Lecture 4 - Information Management in the digital world
- Lecture 5 - Class discussions and conclusion
- Lecture 6 - Data bases and information management
- Lecture 7 - Data warehouse and business intelligence
- Lecture 8 - Introduction to data mining
- Lecture 9 - Data analytics tools and techniques
- Lecture 10 - What is ERP ?
- Lecture 11 - ERP - Evolution and Benefits
- Lecture 12 - Business Benefits of ERP
- Lecture 13 - ERP project management
- Lecture 14 - Change management and conclusion
- Lecture 15 - Customer relationship management
- Lecture 16 - Supply Chain Management - Part 1
- Lecture 17 - Supply Chain Management - Part 2
- Lecture 18 - Supplier relationship management
- Lecture 19 - Product lifecycle maintenance
- Lecture 20 - Information Systems for manufacturing management
- Lecture 21 - Information Systems for manufacturing management (Continued...)
- Lecture 22 - Information Systems for materials management
- Lecture 23 - Information Systems for quality management
- Lecture 24 - Information Systems for marketing
- Lecture 25 - Information Systems for marketing (Continued...)
- Lecture 26 - Information Systems for sales and distribution
- Lecture 27 - Information Systems for finance and accounting
- Lecture 28 - Information Systems for human resource management
- Lecture 29 - Information Systems for human resource management (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Information Systems (IS) strategy
- Lecture 31 - Aligning IT with business objectives
- Lecture 32 - Balanced Score Card
- Lecture 33 - Data Centers, Virtualization and cloud computing
- Lecture 34 - Cloud computing and selection of cloud vendor
- Lecture 35 - Introduction to E-Commerce
- Lecture 36 - B2C Business Models
- Lecture 37 - B2C Business Models (Continued...)
- Lecture 38 - Unique E-Commerce Business Models
- Lecture 39 - Social Commerce and M-Commerce
- Lecture 40 - Cloud Computing - Part I
- Lecture 41 - Cloud Computing - Part II
- Lecture 42 - Internet of Things - Part I
- Lecture 43 - Internet of Things - Part II
- Lecture 44 - Internet of Things - Part III
- Lecture 45 - Big Data and other Emerging Technologies
- Lecture 46 - Knowledge Management Systems (KMS)
- Lecture 47 - Decision Support Systems
- Lecture 48 - Executive Support Systems
- Lecture 49 - Expert Systems
- Lecture 50 - Learning Management Systems (LMS)
- Lecture 51 - Ethical and Social Issues in MIS - I
- Lecture 52 - Ethical and Social Issues in MIS - II
- Lecture 53 - Security Issues in MIS - I
- Lecture 54 - Security Issues in MIS - II
- Lecture 55 - Security Issues in MIS - III
- Lecture 56 - Managing Global Organization - Globalization - Part 1
- Lecture 57 - Global Strategies and Business Organization
- Lecture 58 - Shared Services
- Lecture 59 - Offshoring/Transitioning Global IT Systems
- Lecture 60 - Globalization of Corporates in a Flat World

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Applied Econometrics

Subject Co-ordinator - Prof. Tutan Ahmed

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of Module 1 and Introduction of Causality
- Lecture 2 - Correlation and Causality
- Lecture 3 - Correlation and Causality (Continued...)
- Lecture 4 - Correlation and Causality (Continued...)
- Lecture 5 - Probability Theory
- Lecture 6 - Probability Theory (Continued...)
- Lecture 7 - Probability Theory (Continued...)
- Lecture 8 - Probability Theory (Continued...)
- Lecture 9 - Posterior Probability
- Lecture 10 - Bayesian Theorem
- Lecture 11 - Bayesian Theorem (Continued...): Repeated Trial
- Lecture 12 - Bayesian Theorem (Continued...): Example of Diamond Identification
- Lecture 13 - Probability Distribution
- Lecture 14 - Double Structure of Variable
- Lecture 15 - Probability Distribution (Discrete/Continuous Variable) Random Variable
- Lecture 16 - Probability Mass Function (PMF) Probability Density Function (PDF)
- Lecture 17 - Expectation, Variance, Covariance
- Lecture 18 - Expectation, Variance, Covariance (Continued...)
- Lecture 19 - Covariance Rule
- Lecture 20 - Bernoulli Distribution
- Lecture 21 - Bernoulli Distribution (Continued...)
- Lecture 22 - Normal Approximation of Bernoulli Distribution
- Lecture 23 - Sampling
- Lecture 24 - Sampling (Continued...)
- Lecture 25 - Central Limit Theorem
- Lecture 26 - Law of Large Numbers LLN
- Lecture 27 - Properties of Estimator
- Lecture 28 - Conflict Between Unbiasedness and Min Variance
- Lecture 29 - T-Distribution

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- Lecture 30 - Normal Distribution
- Lecture 31 - Normal Distribution (Continued...)
- Lecture 32 - Hypothesis Testing
- Lecture 33 - Decision Rules
- Lecture 34 - Level of Significance
- Lecture 35 - P Value
- Lecture 36 - Power of a Test
- Lecture 37 - Confidence Interval
- Lecture 38 - Confidence Interval Example
- Lecture 39 - Properties of Power of a Test
- Lecture 40 - Introduction to Module II
- Lecture 41 - Error Term, Coefficient of Determination, Regression Coefficient
- Lecture 42 - Error Term, Coefficient of Determination, Regression Coefficient (Continued...)
- Lecture 43 - Error Term, Coefficient of Determination, Regression Coefficient (Continued...)
- Lecture 44 - Definition : Variable, Parameter and Coefficient
- Lecture 45 - Introduction to Regression: Recapitulating Correlation and Causal Thinking
- Lecture 46 - Adjusted R-Squared
- Lecture 47 - Degrees of Freedom
- Lecture 48 - Multiple Regression
- Lecture 49 - Multiple Regression (Continued...)
- Lecture 50 - Regression Table
- Lecture 51 - Regression Table (Continued...)
- Lecture 52 - Multicollinearity
- Lecture 53 - Multicollinearity (Continued...)
- Lecture 54 - Multicollinearity (Continued...)
- Lecture 55 - Multicollinearity (Continued...)
- Lecture 56 - Multicollinearity (Continued...)
- Lecture 57 - Dummy Variable
- Lecture 58 - Dummy variable (Continued...)
- Lecture 59 - Dummy variable (Continued...)
- Lecture 60 - Dummy variable (Continued...)
- Lecture 61 - Dummy variable (Continued...)
- Lecture 62 - Dummy variable (Continued...)
- Lecture 63 - Dummy variable (Continued...)
- Lecture 64 - Heteroscedasticity
- Lecture 65 - Heteroscedasticity (Continued...)
- Lecture 66 - Heteroscedasticity (Continued...)
- Lecture 67 - Heteroscedasticity (Continued...)
- Lecture 68 - Heteroscedasticity (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Heteroscedasticity (Continued...)
- Lecture 70 - Autocorrelation
- Lecture 71 - Autocorrelation (Continued...)
- Lecture 72 - Autocorrelation (Continued...)
- Lecture 73 - Autocorrelation (Continued...)
- Lecture 74 - Autocorrelation (Continued...)
- Lecture 75 - Autocorrelation (Continued...)
- Lecture 76 - Autocorrelation (Continued...)
- Lecture 77 - Autocorrelation (Continued...)
- Lecture 78 - Autocorrelation (Continued...)
- Lecture 79 - Autocorrelation (Continued...)
- Lecture 80 - Autocorrelation (Continued...)
- Lecture 81 - Autocorrelation (Continued...)
- Lecture 82 - Remedy for Autocorrelation
- Lecture 83 - Model Specification
- Lecture 84 - Model Specification (Continued...)
- Lecture 85 - Model Specification (Continued...)
- Lecture 86 - Model Specification (Continued...)
- Lecture 87 - Model Specification (Continued...)
- Lecture 88 - Model Specification (Continued...)
- Lecture 89 - Model Specification (Continued...)
- Lecture 90 - Model Specification (Continued...)
- Lecture 91 - Continuation with Proxy Variable
- Lecture 92 - Ramsey Reset Test
- Lecture 93 - Introduction to Module III
- Lecture 94 - Non Stochastic Regressor
- Lecture 95 - Stochastic Regressor
- Lecture 96 - Assumptions for Regression Models with Non-Stochastic Regressor
- Lecture 97 - Assumptions for Regression Model with Stochastic Regressor
- Lecture 98 - Instrumental Variable
- Lecture 99 - Instrumental Variable (Continued...)
- Lecture 100 - Asymptotic Property
- Lecture 101 - Problem of Endogeneity
- Lecture 102 - Simultaneous Equation Model
- Lecture 103 - Instrumental Variable for Endogeneity Bias Problem
- Lecture 104 - Good Bad and Weak Instrumental Variable
- Lecture 105 - Overidentification Underidentification Exact Identification - Instrumental Variable
- Lecture 106 - Two Stage Least Square and Instrumental Variable
- Lecture 107 - 2SLS and IV with Stata

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Organizational Behaviour - II

Subject Co-ordinator - Prof. Susmita Mukhopadyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Group and Types, Characteristics
- Lecture 2 - Group Properties and Determinants of Group Behaviour
- Lecture 3 - Stages, Theories and Models of Group Development
- Lecture 4 - Effectiveness of Work Group Behaviour
- Lecture 5 - Group Decision Making and Limitations of Group Behaviour
- Lecture 6 - Concept and Types of Team
- Lecture 7 - How to improve team performance, difference between Team and Group
- Lecture 8 - Effectiveness of Teamwork
- Lecture 9 - Teamwork Process
- Lecture 10 - Teamwork and Leadership
- Lecture 11 - Concept and Types of Cooperation and Competition
- Lecture 12 - Factors leading to Competition and Cooperation
- Lecture 13 - Functions of Cooperation and Competition
- Lecture 14 - Models on Competition and Cooperation
- Lecture 15 - Benefits and drawbacks of competition and cooperation
- Lecture 16 - Communication
- Lecture 17 - Communication (Continued...)
- Lecture 18 - Communication (Continued...)
- Lecture 19 - Communication (Continued...)
- Lecture 20 - Communication (Continued...)
- Lecture 21 - Conflict
- Lecture 22 - Conflict (Continued...)
- Lecture 23 - Conflict (Continued...)
- Lecture 24 - Conflict (Continued...)
- Lecture 25 - Conflict (Continued...)
- Lecture 26 - Power and Political Behaviour
- Lecture 27 - Power and Political Behaviour (Continued...)
- Lecture 28 - Power and Political Behaviour (Continued...)
- Lecture 29 - Power and Political Behaviour (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Power and Political Behaviour (Continued...)
- Lecture 31 - Decision making
- Lecture 32 - Decision making (Continued...)
- Lecture 33 - Decision making (Continued...)
- Lecture 34 - Decision making (Continued...)
- Lecture 35 - Decision making (Continued...)
- Lecture 36 - Leadership Concept Types and Importance
- Lecture 37 - Team Leadership Context, Actions
- Lecture 38 - Theories of Leadership: Trait, Behavioural, Contingency, LMX, Three Dimensional
- Lecture 39 - Leadership Qualities, Techniques and Skills
- Lecture 40 - Leadership and Management
- Lecture 41 - Problem Solving-Concept, Types and Importance
- Lecture 42 - Problem Solving Process, Decision Making and Comparison between
- Lecture 43 - Creativity
- Lecture 44 - Problem Solving and Creativity in Team
- Lecture 45 - Creativity Across Different Paradigms
- Lecture 46 - Team and Organization
- Lecture 47 - Organizational Culture
- Lecture 48 - International Organizational Behaviour
- Lecture 49 - Interpersonal Behaviour Across Cultures
- Lecture 50 - Organizational Characteristics in Global Context
- Lecture 51 - Virtual Team-Concept and importance
- Lecture 52 - Virtual Team Models
- Lecture 53 - Skills and Competencies of Virtual Team Members
- Lecture 54 - Process of Virtual Team Development
- Lecture 55 - Factors of Success, Advantages and Disadvantages of Virtual Teams
- Lecture 56 - Evaluating Teams
- Lecture 57 - Steps of Evaluation
- Lecture 58 - Tools, Techniques and Methods of Evaluation
- Lecture 59 - Rewarding Teams
- Lecture 60 - Rewarding Teams (Continued...)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Automation in Production Systems and Management

Subject Co-ordinator - Prof. Pradip Kumar Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Concepts of Manufacturing Systems, Evolution of Manufacturing Systems
- Lecture 2 - Types of Manufacturing Systems and Role of Automation
- Lecture 3 - Product-Process-Flexibility Matrices, Four-Plane Concept of Manufacturing
- Lecture 4 - Product Design and Manufacturing Systems
- Lecture 5 - Definitions and Design Criteria for Production Systems
- Lecture 6 - Manufacturing System Components - I
- Lecture 7 - Manufacturing System Components - II
- Lecture 8 - Industry 4.0
- Lecture 9 - Automation Principles and Strategies for Process Improvement
- Lecture 10 - Automated Production System Framework
- Lecture 11 - Product Development Process: Approaches and stages
- Lecture 12 - Mathematical Models for Interaction between Design and Manufacturing
- Lecture 13 - Sequential and Concurrent Engineering Approaches for Product Development
- Lecture 14 - Characterization of Concurrent Engineering Framework
- Lecture 15 - Concurrent Engineering Techniques
- Lecture 16 - Introduction to Concept and Application of Numerical Control (NC) Technology
- Lecture 17 - Basic Concepts of an NC System
- Lecture 18 - NC Coordinate System, NC Motion Control System
- Lecture 19 - Features of CNC, Configuration of CNC Machine Control System
- Lecture 20 - Numerical Examples
- Lecture 21 - Distributed Numerical Control (DNC) and its Configuration
- Lecture 22 - NC Part Programming-I (Manual, Computer-assisted)
- Lecture 23 - NC Part Programming-II (CAD/CAM, MDI)
- Lecture 24 - Interpolation and Part Programming
- Lecture 25 - Numerical Examples
- Lecture 26 - Group Technology (GT): Concept and Definition
- Lecture 27 - Methods and Implementation of GT for Automation
- Lecture 28 - Part Family Formation: Tools and Techniques
- Lecture 29 - Numerical Examples on Part Family Formation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Application of GT for Designing Flexible and Programmable Automation
- Lecture 31 - Concept and Definition of Cellular Manufacturing System (CMS)
- Lecture 32 - Cell Formation Approaches - I
- Lecture 33 - Cell Formation Approaches - II
- Lecture 34 - Evaluation of Cell Design, Numerical Examples
- Lecture 35 - Production Planning and Control in CMS, Assessment of Solution by Heuristics
- Lecture 36 - Types and Definitions of Flexibility in Manufacturing Systems
- Lecture 37 - Volume-Variety Relationships in Production Systems, What is FMS?
- Lecture 38 - Basic Features of FMS: Physical Subsystems
- Lecture 39 - Basic Features of FMS: Control Subsystems and Manufacturing Control Activities.
- Lecture 40 - Types of Problems in FMS
- Lecture 41 - Operational Problems in FMS: Tools and Techniques - 1, Problem Formulation
- Lecture 42 - Operational Problems in FMS: Tools and Techniques - 2, Numerical Examples
- Lecture 43 - Tool Allocation Policies in FMS, Numerical Examples
- Lecture 44 - Fixture and Pallet Selection Problems: Numerical Examples
- Lecture 45 - Types of FMS Layout, Relative Advantages
- Lecture 46 - Fundamentals of Robotics and its Applications
- Lecture 47 - Robot Movement and Precision
- Lecture 48 - Robot Motion Analysis, Robotic Joints and Links
- Lecture 49 - Robot Classification System, Industrial Robot Applications
- Lecture 50 - Numerical Examples
- Lecture 51 - Definition of Process Planning: Function of Process Plan
- Lecture 52 - Basic Steps in Process Plan Development
- Lecture 53 - Process Planning Approaches: Manual Experience-based Process Planning
- Lecture 54 - Process Planning Approaches: Computer-aided Process Planning
- Lecture 55 - CIN and CAPP, Process Optimization and CAPP
- Lecture 56 - Process Optimization and CAPP
- Lecture 57 - FMS and CAPP
- Lecture 58 - Process Optimization and CAPP: Numerical Examples
- Lecture 59 - Process Planning and Concurrent Engineering
- Lecture 60 - Automation (and other TPS Areas and Approaches)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Corporate Finance

Subject Co-ordinator - Prof. Abhijeet Chandra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Corporate Finance
- Lecture 2 - Corporate Finance and Corporate Governance
- Lecture 3 - Sources of Finance for a Firm
- Lecture 4 - Return and Risk
- Lecture 5 - Return, Risk and Portfolio Theory
- Lecture 6 - Time Value of Money
- Lecture 7 - Valuation of Future Cash Flows
- Lecture 8 - Valuation of Future Cash Flows (Continued...)
- Lecture 9 - Valuation of Bonds
- Lecture 10 - Valuation of Stocks
- Lecture 11 - Capital Budgeting Decisions
- Lecture 12 - Capital Budgeting Decisions (Continued...)
- Lecture 13 - Capital Budgeting Techniques - I
- Lecture 14 - Capital Budgeting Techniques - II
- Lecture 15 - Capital Budgeting Techniques - III
- Lecture 16 - Introduction to Cost of Capital
- Lecture 17 - Cost of Capital - I
- Lecture 18 - Cost of Capital - II
- Lecture 19 - Cost of Capital and Firm Value - I
- Lecture 20 - Cost of Capital and Firm Value - II
- Lecture 21 - Measures of Leverage
- Lecture 22 - Measures of Leverage (Continued...)
- Lecture 23 - Theories of Capital Structure - I
- Lecture 24 - Theories of Capital Structure - II
- Lecture 25 - Practical Issues in Capital Structure
- Lecture 26 - Working Capital Management - I
- Lecture 27 - Working Capital Management - II
- Lecture 28 - Measuring Liquidity - I
- Lecture 29 - Measuring Liquidity - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Inventory Management - I
- Lecture 31 - Inventory Management - II
- Lecture 32 - Inventory Management - III
- Lecture 33 - Credit Management - I
- Lecture 34 - Credit Management - II
- Lecture 35 - Credit Management - III
- Lecture 36 - Dividend Decisions - I
- Lecture 37 - Dividend Decisions - II
- Lecture 38 - Applications of Dividend Theories - I
- Lecture 39 - Applications of Dividend Theories - II
- Lecture 40 - Some Issues in Corporate Finance

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:International Marketing

Subject Co-ordinator - Prof. Biswarup Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to International Marketing  
Lecture 2 - Introduction to International Marketing  
Lecture 3 - Introduction to International Marketing  
Lecture 4 - Introduction to International Marketing  
Lecture 5 - International Business, Entry Modes and Theories  
Lecture 6 - International Business, Entry Modes and Theories  
Lecture 7 - International Business, Entry Modes and Theories  
Lecture 8 - International Business, Entry Modes and Theories  
Lecture 9 - International Business, Entry Modes and Theories  
Lecture 10 - Hofstede's Cultural Dimensions, Cross-cultural Sales Negotiations  
Lecture 11 - Hofstede's Cultural Dimensions, Cross-cultural Sales Negotiations (Continued...)  
Lecture 12 - Hofstede's Cultural Dimensions, Cross-cultural Sales Negotiations (Continued...)  
Lecture 13 - Hofstede's Cultural Dimensions, Cross-cultural Sales Negotiations (Continued...)  
Lecture 14 - Hofstede's Cultural Dimensions, Cross-cultural Sales Negotiations (Continued...)  
Lecture 15 - Import Export Procedures  
Lecture 16 - Import Export Procedures (Continued...)  
Lecture 17 - Import Export Procedures (Continued...)  
Lecture 18 - Import Export Procedures (Continued...)  
Lecture 19 - Import Export Procedures (Continued...)  
Lecture 20 - Designing a Global Marketing Program  
Lecture 21 - Designing a Global Marketing Program (Continued...)  
Lecture 22 - Designing a Global Marketing Program (Continued...)  
Lecture 23 - Designing a Global Marketing Program (Continued...)  
Lecture 24 - Designing a Global Marketing Program (Continued...)  
Lecture 25 - International Business Case Analysis  
Lecture 26 - International Business Case Analysis  
Lecture 27 - International Business Case Analysis (Continued...)  
Lecture 28 - International Business Case Analysis (Continued...)  
Lecture 29 - International Business Case Analysis (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Learning Session by Practicing Manager
- Lecture 31 - Learning session by Practicing Manager (Continued ...)
- Lecture 32 - Interaction with Practicing Manager - Question and Answer Session
- Lecture 33 - Learning Session by Practicing Manager
- Lecture 34 - Learning Session by Practicing Manager followed by Conclusion session
- Lecture 35 - Interaction with Practicing Manager
- Lecture 36 - Interaction with Practicing Manager (Continued...)
- Lecture 37 - Interaction with Practicing Manager (Continued...)
- Lecture 38 - Interaction with Practicing Manager (Continued...)
- Lecture 39 - Concluding Session

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Retail Management

Subject Co-ordinator - Prof. Swagato Chatterjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Retailing - Part 1
- Lecture 2 - Introduction to Retailing - Part 2
- Lecture 3 - Introduction to Retailing - Part 3
- Lecture 4 - Relationship Management in Retailing
- Lecture 5 - Value-based Retailing
- Lecture 6 - Retailing Services
- Lecture 7 - Loyalty and Reward Programs
- Lecture 8 - Strategic Planning in Retailing
- Lecture 9 - Global Retailing
- Lecture 10 - Retail Business Models by Ownership
- Lecture 11 - Franchising in Retail
- Lecture 12 - Retail Institutions by Store - Based Strategy Mix
- Lecture 13 - Retail Institutions by Store - Based Strategy Mix (Continued...)
- Lecture 14 - Retail Institutions by Store - Based Strategy Mix (Continued...)
- Lecture 15 - Retail Institutions by Store - Based Strategy Mix (Continued...)
- Lecture 16 - Web, Non store-based and Other Forms of Nontraditional Retailing
- Lecture 17 - Web, Non store-based and Other Forms of Nontraditional Retailing (Continued...)
- Lecture 18 - Identifying and Understanding the Customers
- Lecture 19 - Trading Area Analysis
- Lecture 20 - Trading Area Analysis (Continued...)
- Lecture 21 - Trading Area Analysis (Continued...)
- Lecture 22 - Site Selection
- Lecture 23 - Site ownership vs Site Leasing
- Lecture 24 - Retail Supply Chain Management
- Lecture 25 - Retail Supply Chain Management (Continued...)
- Lecture 26 - Retail Operations Management - 1
- Lecture 27 - Retail Operations Management - 2
- Lecture 28 - Retail Operations Management - 3
- Lecture 29 - Image in Retail

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pricing in Retail
- Lecture 31 - Pricing in Retail (Continued...)
- Lecture 32 - Pricing in Retail (Continued...)
- Lecture 33 - Merchandising in Retail
- Lecture 34 - Merchandising in Retail (Continued...)
- Lecture 35 - Category Management and Merchandise Planning
- Lecture 36 - Retail Promotions
- Lecture 37 - Retail Promotions: non-Ad Promotions
- Lecture 38 - OBHR Issues in Retail - 1
- Lecture 39 - HR Issues in Retail
- Lecture 40 - Vendor Negotiations
- Lecture 41 - Special Merchandising Contexts - 1
- Lecture 42 - Special Merchandising Contexts - 2
- Lecture 43 - Store Layout in Retail
- Lecture 44 - Retail Operations: Financial Aspects
- Lecture 45 - Budgeting and Costing
- Lecture 46 - Financial Merchandise Management
- Lecture 47 - Merchandise Forecasting, Dollar Control



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Law for Managers

Subject Co-ordinator - Prof. S. Srinivasan, Prof. Kaushik Mukherjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concept, Definition and Features of Company
- Lecture 2 - Various Types of Companies and Their Memberships
- Lecture 3 - Meetings of a Company and Memorandum of Associations
- Lecture 4 - Corporate Social Responsibility (CSR)
- Lecture 5 - Reporting and Various Activities under CSR
- Lecture 6 - Concept, Definition and Features of Corporate Governance
- Lecture 7 - Effect of Corporate Governance
- Lecture 8 - Major Structural Issues
- Lecture 9 - Duties and Responsibilities of Directors
- Lecture 10 - Corporate Governance a Way Forward
- Lecture 11 - Concept, Scope and Features of PIT
- Lecture 12 - Investigation and Prohibition on Dealing, Counselling
- Lecture 13 - Key Changes in PIT Amendment, 2020
- Lecture 14 - Model Code of Conduct for PIT, Trading Initiatives
- Lecture 15 - Insider trading examples, PIT Recent Cases and Insider Trading Initiatives
- Lecture 16 - Concept, Elements, Importance and Forms of Contracts
- Lecture 17 - Concept of Offer, Valid Offer and Essentials of Valid Offer
- Lecture 18 - Concept of Fraud, Misrepresentation and Consideration
- Lecture 19 - Major Issues related to Contract
- Lecture 20 - Law of Insurance
- Lecture 21 - Background, Concept and Salient Features of Factories Act
- Lecture 22 - Health and Safety
- Lecture 23 - Labour Welfare
- Lecture 24 - Working Hours
- Lecture 25 - Duties of Inspecting Officials
- Lecture 26 - Background, Concept and Importance of Legislation for Wages
- Lecture 27 - Payment of Wages
- Lecture 28 - Minimum Wages
- Lecture 29 - Payment of Bonus Act

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equal Remuneration Act
- Lecture 31 - Social Securities
- Lecture 32 - Social securities in unorganised sector
- Lecture 33 - The Employeesâ Provident Fund Act
- Lecture 34 - Payment of Gratuity Act 1972
- Lecture 35 - Employee State Insurance (ESI)
- Lecture 36 - Concept and Salient Features of Industries
- Lecture 37 - Industrial Relation
- Lecture 38 - Industrial Dispute Act
- Lecture 39 - Various Authorities under Industrial Dispute Act, 1947
- Lecture 40 - Procedure, Power and Duties of Authorities

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Safety and Risk Analytics

Subject Co-ordinator - Prof. Jhareswar Maiti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Safety and Risk Management
- Lecture 2 - Hazard Triangle
- Lecture 3 - Safety Ontology
- Lecture 4 - Qualitative Risk Assessment
- Lecture 5 - Quantitative Risk Assessment
- Lecture 6 - Hazard and Risk Data - I
- Lecture 7 - Hazard and Risk Data - II
- Lecture 8 - Incident Investigation Data
- Lecture 9 - Inspection and Audit Data
- Lecture 10 - Behavioral and Organizational Safety Data
- Lecture 11 - Data Dimensions and Information Quality
- Lecture 12 - Missing Data Handling
- Lecture 13 - Data Transformation - I
- Lecture 14 - Data Transformation - II
- Lecture 15 - Data Reduction - I
- Lecture 16 - Data Reduction - II
- Lecture 17 - Probability Distribution
- Lecture 18 - Sample and Statistics
- Lecture 19 - Safety Data Visualization Tools - I
- Lecture 20 - Safety Data Visualization Tools - II
- Lecture 21 - Safety Data Exploration
- Lecture 22 - Leading and Lagging Indicators for Measuring Safety Performance
- Lecture 23 - Control Charts for Safety Performance Evaluation and Monitoring
- Lecture 24 - Safety Capability Analysis - I
- Lecture 25 - Safety Capability Analysis - II
- Lecture 26 - Safety Reports and Use of Text Analytics
- Lecture 27 - Preprocessing of Text Data - I
- Lecture 28 - Preprocessing of Text Data - II
- Lecture 29 - Document Classification using KNN

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Topic Modeling - Latent Dirichlet Allocation
- Lecture 31 - Bow-Tie Construction
- Lecture 32 - Bow-Tie Quantification - I
- Lecture 33 - Bow-Tie Quantification - II: Accident Scenarios/Paths
- Lecture 34 - Bow-Tie Quantification - III: Accident Path Quantification
- Lecture 35 - Bow-Tie Quantification - IV: Probabilistic Approach using Monte Carlo Simulation
- Lecture 36 - Consequence Modeling and Risk Distribution
- Lecture 37 - Introduction to Predictive Safety and Risk Analytics
- Lecture 38 - Logistic Regression
- Lecture 39 - Application of Logistic Regression
- Lecture 40 - Classification and Regression Tree (CART)
- Lecture 41 - Classification and Regression Tree (CART): Case Study
- Lecture 42 - Support Vector Machine
- Lecture 43 - Support Vector Machine (Continued...)
- Lecture 44 - Application of Support Vector Machine
- Lecture 45 - Association Rule Mining
- Lecture 46 - Application of Association Rule Mining
- Lecture 47 - Statistical Measures of Safety Program Effectiveness - I
- Lecture 48 - Statistical Measures of Safety Program Effectiveness - II
- Lecture 49 - Statistical Measures of Safety Program Effectiveness - III
- Lecture 50 - Intervention Design
- Lecture 51 - Risk Based Decision Making - I
- Lecture 52 - Risk Based Decision Making - II
- Lecture 53 - Risk Based Maintenance - I
- Lecture 54 - Risk Based Maintenance - II
- Lecture 55 - Introduction to Behavioral Safety
- Lecture 56 - Behavioral Safety Data Collection and Preliminary Analysis
- Lecture 57 - Causal Modelling - I
- Lecture 58 - Causal Modelling - II: Application of Path Model
- Lecture 59 - Injury Epidemiology
- Lecture 60 - Occupational Safety, Health and Working Conditions Code, 2020 Analytics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Strategic Management for Competitive Advantage

Subject Co-ordinator - Prof. Sanjib Chowdhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Concept - I
- Lecture 2 - Introduction and Concept - II
- Lecture 3 - Analysis of micro and macro environment - I
- Lecture 4 - Analysis of micro and macro environment - II
- Lecture 5 - Competition and Competitive Advantage - I
- Lecture 6 - Competition and Competitive Advantage - II
- Lecture 7 - Competition and Competitive Advantage - III
- Lecture 8 - Framework for Internal Analysis of Firm - I
- Lecture 9 - Framework for Internal Analysis of Firm - II
- Lecture 10 - Value Chain Analysis
- Lecture 11 - Resource-based view of firm and sustainability
- Lecture 12 - Strategy Formulation - I
- Lecture 13 - Strategy Formulation - II
- Lecture 14 - Strategy Formulation - III
- Lecture 15 - Diversification - I
- Lecture 16 - Diversification - II
- Lecture 17 - Mergers and Acquisitions - I
- Lecture 18 - Mergers and Acquisitions - II
- Lecture 19 - Portfolio Analysis and Display Matrices - I
- Lecture 20 - Portfolio Analysis and Display Matrices - II
- Lecture 21 - Operating and Financial Analysis
- Lecture 22 - Complexities and Challenges of Competing in Global Markets - I
- Lecture 23 - Complexities and Challenges of Competing in Global Markets - II
- Lecture 24 - Entry Mode Strategies and Main Approaches for International Business
- Lecture 25 - Building Competitive Advantage in International Markets
- Lecture 26 - Strategies for competing in developing markets, and defending against global giants
- Lecture 27 - Resource Allocation
- Lecture 28 - 7-S Framework for Organizational Change
- Lecture 29 - Strategy Implementation Issues

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Matching organization structure to strategy
- Lecture 31 - Forms of Organization
- Lecture 32 - Boundaryless Organization
- Lecture 33 - Strategic Leadership - I
- Lecture 34 - Strategic Leadership - II
- Lecture 35 - Universal Inner Structure of Effective Leaders
- Lecture 36 - Strategic Leadership - IV
- Lecture 37 - Business and Operational Excellence
- Lecture 38 - Strategic and Operational Control
- Lecture 39 - Balanced Scorecard Approach
- Lecture 40 - Roles and Responsibilities of Board of Directors
- Lecture 41 - Strategic Management Role and Style of the Board
- Lecture 42 - Composition, structure and other requirements of Board
- Lecture 43 - Improve Board Effectiveness, Board and Directorsâ Performance Evaluation
- Lecture 44 - Corporate Governance Code
- Lecture 45 - Corporate Social Responsibility and Sustainability
- Lecture 46 - Social Auditing
- Lecture 47 - Innovation for Survival and Growth - I
- Lecture 48 - Innovation for Survival and Growth - II
- Lecture 49 - Entrepreneurship and Intrapreneurship
- Lecture 50 - Technology Management - I
- Lecture 51 - Technology Management - II
- Lecture 52 - In-house Development of Technology
- Lecture 53 - Strategic Importance of Knowledge and Organizational Learning
- Lecture 54 - Strategies for Knowledge Management
- Lecture 55 - Developing Strategic Plan of a Major Oil Company - I
- Lecture 56 - Developing Strategic Plan of a Major Oil Company - II
- Lecture 57 - Developing Strategic Plan of a Major Oil Company - III
- Lecture 58 - Summary of Modules 1-6
- Lecture 59 - Summary of Modules 7-11
- Lecture 60 - Summary of Modules 12-18

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Human Factors Engineering

Subject Co-ordinator - Prof. Virendra Kumar Tewari, Prof. Pradip Kumar Ray

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition, purpose, and development of Human Factors and Ergonomics
- Lecture 2 - Types and components of worksystems, their interactions and evaluations
- Lecture 3 - Human components, machine components and environment components of worksystems
- Lecture 4 - Modern worksystems, FMJ vs FJM
- Lecture 5 - Contribution of human factors in systems design, engineering and management
- Lecture 6 - Anthropometry in product/process design, MHD, anthropometric design motto
- Lecture 7 - Types of anthropometric data, principles of applied anthropometry
- Lecture 8 - Examples of anthropometric design, numerical exercises
- Lecture 9 - Working Posture Analysis, Postural Triangle, Design for Seated and Standing Workers - Part 1
- Lecture 10 - Working Posture Analysis, Postural Triangle, Design for Seated and Standing Workers - Part 2
- Lecture 11 - Metabolism during work, Aerobic and anaerobic work, oxygen uptake
- Lecture 12 - Physical work capacity and energy expenditure, Individual differences, RWL, MOW
- Lecture 13 - MOE expenditure, Subjective measures of physical effort, Borg RPE scale, Factors
- Lecture 14 - EE of various operations in agriculture, construction and manufacturing industry - I
- Lecture 15 - EE of various operations in agriculture, construction and manufacturing industry - II
- Lecture 16 - Types of Injury Problems in Manual Handling Tasks, Types of Activities and Body Movements
- Lecture 17 - Biomechanical Modelling and Analysis of Manual Lifting
- Lecture 18 - Definitions and Standards of Lifting: NIOSH Lifting Equation
- Lecture 19 - EC Guidelines, UK Health and Safety Commission Guidelines
- Lecture 20 - Use of Material Handling Aids, Types of Material Handling Devices, Numerical Problems
- Lecture 21 - Ergonomic Problems in Computer Workstations, Design Elements of Computer Workstation
- Lecture 22 - Specifications of Computer Workstation Design Elements
- Lecture 23 - Methods to Reduce Glare/Reflection on Screen
- Lecture 24 - Design of Human-Computer Interaction
- Lecture 25 - Evolution of Technology in Computer Screen, Numerical Problems
- Lecture 26 - Work Postures and Related Complaints, Work Postures for Different Tasks, Task Analysis
- Lecture 27 - Power Law of Practice, Learning Curve, Numerical Pro
- Lecture 28 - Work Posture Assessment, Rapid Entire Body Assessment (REBA), MSDs/RMIs
- Lecture 29 - Hand tool design: Fitting the task, user and hand, Usage of hand tools and types of

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design guidelines for hand tools
- Lecture 31 - Environment Component in Worksystems, Ergonomic Design of Physical Environment
- Lecture 32 - Ergonomic Design Framework for Environment, Importance of Illumination
- Lecture 33 - Measurement of Illuminance, Luminance, and Contrast
- Lecture 34 - Measures of Contrast, Contrast Ratio under Different Work Situations
- Lecture 35 - Direct and Indirect Glare or Reflection, Illumination for Inspection and Quality
- Lecture 36 - Problem of Heat Stress at Workplaces, Thermoregulation Process, Acclimation and
- Lecture 37 - Thermal Balance Equation and Heat Stress
- Lecture 38 - Quality of Thermal Environment, Evaluation of Thermal Environment
- Lecture 39 - Whole Body Vibration and Sources of Vibration Discomfort
- Lecture 40 - Design guidelines for hand tools
- Lecture 41 - Auditory Environment and Human Performance, Measurement of Sound and Noise Exposure
- Lecture 42 - Noise Exposure and Hearing Loss, Noise Analysis and Noise Reduction using Engineering
- Lecture 43 - Effects of Noise on Performance, Broadbent and Poulton Theories, Interference of Noise
- Lecture 44 - Octave bands and examples
- Lecture 45 - Ergonomic design of auditory environment in different workplaces
- Lecture 46 - Concepts of Design for Manufacturing (DFM), Design for Assembly (DFA), and Design
- Lecture 47 - Product Design Assessment and Important Measures, Manual Assembly Design Efficiency
- Lecture 48 - Assembly Time Determination with PMTS Methods, Human Factors Principles in DFA
- Lecture 49 - Maintenance in Manufacturing/Production System - Important Ergonomic Design Issues - Part I
- Lecture 50 - Maintenance in Manufacturing/Production System - Important Ergonomic Design Issues - Part II
- Lecture 51 - Definition of Shift Work, Problems with Shift Work, Effect on Circadian Rhythms
- Lecture 52 - Problems of shift workers, Shift Work and Human Performance
- Lecture 53 - Recommended Shift Work Schedules
- Lecture 54 - Major Ergonomic Issues and Problems in Shift Work Design - Part 1
- Lecture 55 - Major Ergonomic Issues and Problems in Shift Work Design - Part 2
- Lecture 56 - Concepts of Ergonomic Performance and its Indicators
- Lecture 57 - EPI Assessment Tool Development
- Lecture 58 - Factors and their level of assessment
- Lecture 59 - Application of EPI Model in Different Worksystems
- Lecture 60 - Epilogue



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Organizational Design Change and Transformation

Subject Co-ordinator - Prof. S. Srinivasan, Prof. Susmita Mukhopadhyay, Prof. Sangeeta Sahney

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Organizational Design  
Lecture 2 - Introduction to Organizational Design  
Lecture 3 - Introduction to Organizational Design  
Lecture 4 - Introduction to Organizational Design  
Lecture 5 - Introduction to Organizational Design  
Lecture 6 - Organizational Environment  
Lecture 7 - Organizational Environment  
Lecture 8 - Organizational Environment  
Lecture 9 - Organizational Environment  
Lecture 10 - Organizational Environment  
Lecture 11 - Organizational Structure  
Lecture 12 - Organizational Structure  
Lecture 13 - Organizational Structure  
Lecture 14 - Organizational Structure  
Lecture 15 - Organizational Structure  
Lecture 16 - Organizational Design and Strategy in a changing Global environment  
Lecture 17 - Organizational Design and Strategy in a changing Global environment  
Lecture 18 - Organizational Design and Strategy in a changing Global environment  
Lecture 19 - Organizational Design and Strategy in a changing Global environment  
Lecture 20 - Organizational Design and Strategy in a changing Global environment  
Lecture 21 - Organizational Change  
Lecture 22 - Organizational Change  
Lecture 23 - Organizational Change  
Lecture 24 - Organizational Change  
Lecture 25 - Organizational Change  
Lecture 26 - Managing Conflict, Power, and Politics  
Lecture 27 - Managing Conflict, Power, and Politics  
Lecture 28 - Managing Conflict, Power, and Politics  
Lecture 29 - Managing Conflict, Power, and Politics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Managing Conflict, Power, and Politics
- Lecture 31 - Organizational culture
- Lecture 32 - Organizational culture and socialization
- Lecture 33 - Organizational culture and climate
- Lecture 34 - Managing organizational culture
- Lecture 35 - International aspects of organizational culture
- Lecture 36 - Organizational design and technology
- Lecture 37 - Technologies and organizational structure
- Lecture 38 - Technological theories and organizational design
- Lecture 39 - Organizational design and technology: Challenges
- Lecture 40 - Organizational competencies
- Lecture 41 - Decision making
- Lecture 42 - Learning
- Lecture 43 - Knowledge management
- Lecture 44 - IT and IS
- Lecture 45 - IT in Management and Organization
- Lecture 46 - Organizational Birth and Growth
- Lecture 47 - Organizational Decline and Death
- Lecture 48 - Organizational Inertia and Resilience
- Lecture 49 - Organizational Transformation
- Lecture 50 - Organizational Development and Intervention
- Lecture 51 - Innovation: Concept, Types
- Lecture 52 - Innovation Framework Model
- Lecture 53 - Intrapreneurship
- Lecture 54 - Creativity
- Lecture 55 - Creativity and Related Issues
- Lecture 56 - Creativity and Design Thinking
- Lecture 57 - Turnaround Situation: Strategic, Operational and Cultural
- Lecture 58 - IT and ICT Intervention
- Lecture 59 - Human Resource Intervention
- Lecture 60 - Organizational Culture, Transformation and Ethical Values
- Lecture 61 - Future Trends for Organizational Transformation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Mergers, Acquisitions and Corporate Restructuring

Subject Co-ordinator - Prof. Chandra Sekhar Mishra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Mergers and Acquisitions - I
- Lecture 2 - Introduction to Mergers and Acquisitions - II
- Lecture 3 - Theories of Mergers and Acquisitions
- Lecture 4 - Legal Environment of M and A in India
- Lecture 5 - Case Studies - DO M and A PAY ?
- Lecture 6 - Takeover Tactics and Anti-takeover Defenses - 1
- Lecture 7 - Takeover Tactics and Anti-takeover Defenses - 1
- Lecture 8 - Takeover Tactics and Anti-takeover Defenses - 2
- Lecture 9 - Takeover Tactics and Anti-takeover Defenses - 3
- Lecture 10 - Acquisition Search and Due Diligence - 1
- Lecture 11 - Acquisition Search and Due Diligence - 2
- Lecture 12 - Valuation in M and A: Cash Flow Based Approach - 1
- Lecture 13 - Valuation in M and A: Cash Flow Based Approach - 3 (Cost of Capital)
- Lecture 14 - Valuation in M and A: Cash Flow Based Approach - 4 (Dividend Discount Model)
- Lecture 15 - Valuation in M and A: Cash Flow Based Approach - 4 (Dividend Discount Model)
- Lecture 16 - Valuation in M and A: Cash Flow Based Approach - 5 (Free Cash Flow Models)
- Lecture 17 - Valuation in M and A: Cash Flow Based Approach - 6 (Free Cash Flow Models) (Continued...)
- Lecture 18 - Valuation in M and A: Valuation of Synergies - 1
- Lecture 19 - Valuation in M and A: Valuation of Synergies - 2
- Lecture 20 - Valuation in M and A: Asset Based Valuation
- Lecture 21 - Valuation in M and A: Relative Valuation - 1
- Lecture 22 - Valuation in M and A: Relative Valuation - 2
- Lecture 23 - Alternative Exit and Restructuring Strategies - 1
- Lecture 24 - Alternative Exit and Restructuring Strategies - 2
- Lecture 25 - Alternative Exit and Restructuring Strategies - 3
- Lecture 26 - M and A Deal Structuring - 1
- Lecture 27 - M and A Deal Structuring - 2
- Lecture 28 - M and A Deal Structuring - 3
- Lecture 29 - M and A Deal Structuring - 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - M and A Deal Structuring - 5
- Lecture 31 - Legal Aspects of M and A - 1
- Lecture 32 - Legal Aspects of M and A - 2
- Lecture 33 - Legal Aspects of M and A - 3
- Lecture 34 - Accounting Aspects of M and A - I
- Lecture 35 - Accounting Aspects of M and A - II
- Lecture 36 - Alternative Exit and Restructuring Strategies - 1
- Lecture 37 - Alternative Exit and Restructuring Strategies - 2
- Lecture 38 - Alternative Exit and Restructuring Strategies - 3
- Lecture 39 - Leveraged Buyouts
- Lecture 40 - Alternative Exit and Restructuring Strategies - Insolvency and Bankruptcy

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Invest Management

Subject Co-ordinator - Prof. Abhijeet Chandra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Investment Management as a Process
- Lecture 2 - Role of Financial Markets and Institutions
- Lecture 3 - Types of Investments
- Lecture 4 - Ecology of Financial Markets
- Lecture 5 - Investment Philosophies
- Lecture 6 - Present and Future Values of Investments
- Lecture 7 - Bonds as an Investment
- Lecture 8 - Pricing and Valuation of Bonds
- Lecture 9 - Pricing and Valuation of Bonds (Continued...)
- Lecture 10 - Prices, Yields, and Duration of Bonds
- Lecture 11 - Equity as an Asset Class
- Lecture 12 - Equity Valuation Models
- Lecture 13 - Equity Valuation Models (Continued...)
- Lecture 14 - Equity Valuation Ratios
- Lecture 15 - Equity Investment Strategies
- Lecture 16 - Portfolio Theory - Primer
- Lecture 17 - Capital Asset Pricing Model
- Lecture 18 - The CAPM and Index Models
- Lecture 19 - The CAPM and Index Models (Continued...)
- Lecture 20 - Consumption-Based Asset Pricing
- Lecture 21 - Two-fund Theorem
- Lecture 22 - Mutual Fund Basics
- Lecture 23 - Mutual Fund Basics (Continued...)
- Lecture 24 - Risk Indicator of a Mutual Fund
- Lecture 25 - Risk Indicator of a Mutual Fund (Continued...)
- Lecture 26 - Market Efficiency
- Lecture 27 - Market Efficiency (Continued...)
- Lecture 28 - Fundamental Analysis of Securities
- Lecture 29 - Value Investing using PV Models

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Asset Allocation and Portfolio Strategies
- Lecture 31 - Exchange Traded Funds (ETFs)
- Lecture 32 - Forming Portfolio with ETFs
- Lecture 33 - Forming Portfolio with ETFs (Continued...)
- Lecture 34 - Cryptocurrencies
- Lecture 35 - Cryptocurrencies (Continued...)
- Lecture 36 - Behavioral Anomalies in Investments
- Lecture 37 - Behavioral Anomalies in Investments (Continued...)
- Lecture 38 - Portfolio Evaluation
- Lecture 39 - Portfolio Evaluation (Continued...)
- Lecture 40 - Wrapping up

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Project Management: Planning, Execution, Evaluation and Control

Subject Co-ordinator - Prof. Sanjib Chowdhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Concepts and Introduction
- Lecture 2 - Drivers of Project Management
- Lecture 3 - Linkages between Organization Strategy and Projects
- Lecture 4 - Project Governance and Design of Project Portfolio System
- Lecture 5 - Non-Financial and Multi-Criteria Project Selection Models
- Lecture 6 - Organization Structure
- Lecture 7 - Organization Culture
- Lecture 8 - Project Scope of Work and Deliverables
- Lecture 9 - Responsibility Matrices and Project Communication Plan
- Lecture 10 - Estimating Guidelines and Methods, Top-down Estimation
- Lecture 11 - Level of Details, Type of Costs and Refining Estimates
- Lecture 12 - Concept of Project Network and Development Rules
- Lecture 13 - Construction of Network and Computation Process
- Lecture 14 - Extended Network Techniques to Represent Reality
- Lecture 15 - Probability of Completion of Project on Time
- Lecture 16 - Managing Risk and Risk Identification
- Lecture 17 - Risk Assessment
- Lecture 18 - Risk Response Development and Contingency Planning
- Lecture 19 - Risk Response Control and Change Control Management
- Lecture 20 - Risk Assessment of Capital projects
- Lecture 21 - Classification of Scheduling Problems: Time-constrained Project
- Lecture 22 - Resource-constrained Project
- Lecture 23 - Time-phased Budget, Critical Chain Project Management
- Lecture 24 - Rationale and Options for Project Crashing
- Lecture 25 - Crashing - Reducing Project Duration
- Lecture 26 - Reducing Project Duration - Solving Numerical
- Lecture 27 - Project Monitoring and Control Process
- Lecture 28 - Development of Performance Indexes for Monitoring
- Lecture 29 - Forecasting Project Completion Time and Cost

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strategic Dimensions and Decision Logic of Outsourcing
- Lecture 31 - Best Practices in Outsourcing Project Work
- Lecture 32 - Partnering and Traditional Approaches for Managing Relations
- Lecture 33 - The Art of Negotiating
- Lecture 34 - Customer's Satisfaction and Managing Customer Relations
- Lecture 35 - Types of Contract and their Salient Features
- Lecture 36 - Preparation and Evaluation of RFP: Best Practices
- Lecture 37 - Project Closure Activities and Post-Implementation Evaluation
- Lecture 38 - Retrospectives
- Lecture 39 - Oversight Activities and Levels
- Lecture 40 - Phase Gate System, Project Management Maturity Model



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Commodity Derivatives and Risk Management (2023)

Subject Co-ordinator - Prof. Prabina Rajib

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Commodity Market
- Lecture 2 - Commodity Spot Market and Different Types of Auction
- Lecture 3 - Commodity Spot Market and Different Types of Auction
- Lecture 4 - Introduction to forward contract
- Lecture 5 - Introduction to Futures Contract
- Lecture 6 - Futures Contract Specification
- Lecture 7 - Futures Contract Specification (Continued...)
- Lecture 8 - Futures Contract Specification (Continued...)
- Lecture 9 - Futures Contract (Different Types of Margins)
- Lecture 10 - Futures Contract (Mark-to-Market/MTM Margin)
- Lecture 11 - Hedgers Vs. Speculators
- Lecture 12 - Measures of Speculation
- Lecture 13 - Spot Price, Futures Price and Basis Risk
- Lecture 14 - Spot Price, Futures Price and Basis Risk (Continued...)
- Lecture 15 - Pricing of Futures
- Lecture 16 - Pricing of Futures (Continued...)
- Lecture 17 - Convenience Yield, Minimum Variance Hedge Ratio
- Lecture 18 - Hedge Effectiveness, Cross Hedge, Stack and Roll Vs. Strip Hedge
- Lecture 19 - Calendar Spread, Valuation of Futures vs. Forwards, Commodity Swaps
- Lecture 20 - Commodity Swaps
- Lecture 21 - Commodity Index
- Lecture 22 - Commodity Index (Continued...)
- Lecture 23 - Commodity options
- Lecture 24 - Introduction to Commodity Options (Continued...), Hedgers vs. Speculators
- Lecture 25 - Pricing of Commodity Options
- Lecture 26 - Commodity Options (Continued...), Put-Call Parity and Put-Call Ratio
- Lecture 27 - Put-Call Parity, Implied Volatility, Swaptions
- Lecture 28 - Commodity Swaption (Continued...) and Asian Options on Commodities
- Lecture 29 - Commodity Derivatives Market : Value Proposition

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Commodity Derivatives Market : Value Proposition
- Lecture 31 - Agricultural Commodity Price Risk Management
- Lecture 32 - Agricultural Commodity Price Risk Management (Continued...)
- Lecture 33 - Agri-commodities Price Risk, Seasonality, Crush Spread Futures
- Lecture 34 - Agri-commodity Seasonality, Crush Spread Futures, Salmon Futures
- Lecture 35 - Crush Spread Futures, Salmon Futures, Agri-commodity risk Management Practices
- Lecture 36 - Gold and other Precious Metal Derivatives
- Lecture 37 - Gold as Asset, LBMA Spot Price Fix
- Lecture 38 - Gold as Asset, ETF, Gold-Silver Ratio
- Lecture 39 - Gold Price Risk Management, Dehedge, Zero Cost Derivatives
- Lecture 40 - Gold Quanto Futures, Delta Hedge Trap
- Lecture 41 - Crude oil and Crude oil Derivatives Price Risk Management
- Lecture 42 - Crude oil and Crude oil Derivatives Price Risk Management (Continued...)
- Lecture 43 - Crack Spread Futures, Spread Options and Crude Oil Price Risk
- Lecture 44 - Crude Oil Price Risk Management: 3-Way Collar, Spread Options and Swaps
- Lecture 45 - Swaps, Calendar Spreads: Crude Oil and Natural Gas Risk Management
- Lecture 46 - Weather Derivatives
- Lecture 47 - Weather Derivatives (Continued...)
- Lecture 48 - Weather Derivatives (Snowfall, Rainfall and Hurricane)
- Lecture 49 - Weather Derivatives (Rainfall and Hurricane)
- Lecture 50 - Spot and Derivatives Contracts on Electricity
- Lecture 51 - Electricity Trading in Day Ahead Market (DAM)
- Lecture 52 - Spot and Derivatives in Electricity (System Price and Area Clearing Price)
- Lecture 53 - Spot and Derivatives in Electricity (Green DAM, Duck Curve, Dark/Spark Spread)
- Lecture 54 - Carbon Credits and Carbon Credit Derivatives Market
- Lecture 55 - Carbon Credits (CDM, JI, RGGI, REC, ESCerts)
- Lecture 56 - Carbon Credits (REC, ESCerts, CORSIA) and Carbon Derivatives
- Lecture 57 - Freight Rates Derivatives
- Lecture 58 - Freight Rates Derivatives (Continued...)
- Lecture 59 - Water Derivatives
- Lecture 60 - Real Estate Derivatives and Derivatives Losses

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Infrastructure Finance

Subject Co-ordinator - Dr. A. Thillai Rajan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Overview on Infrastructure Financing Sources
- Lecture 3 - Basics of Financial Management - Part-1
- Lecture 4 - Basics of Financial Management - Part-2
- Lecture 5 - Basics of Financial Management - Part-3
- Lecture 6 - Basics of Financial Management - Part-4
- Lecture 7 - Analysis of company Performance - Part-1
- Lecture 8 - Analysis of company Performance - Part-2
- Lecture 9 - Analysis of Project Viability Time value of money
- Lecture 10 - Analysis of Project Viability Cost of Capital
- Lecture 11 - Analysis of Project Viability Capital Budgeting Techniques - I
- Lecture 12 - Analysis of Project Viability Capital Budgeting Guidelines - II
- Lecture 13 - Analysis of Project Viability Capital Budgeting Guidelines - III
- Lecture 14 - Analysis of Project Viability Capital Budgeting Guidelines - IV
- Lecture 15 - Overview and introduction to project finance
- Lecture 16 - Project Financing Attributes and Motivations - I
- Lecture 17 - Project Financing Attributes and Motivations - II
- Lecture 18 - Project Finance Markets - I
- Lecture 19 - Project Finance Markets - II
- Lecture 20 - Project Finance Markets - III
- Lecture 21 - Project Finance Markets Mezzanine / Sub-ordinated Debt
- Lecture 22 - Project Finance Markets - Type of Debt and Leasing
- Lecture 23 - Project Finance Markets - Financial Intermediation
- Lecture 24 - Project Finance Markets - Loan Refinancing
- Lecture 25 - Project Finance Markets - Project Bonds - I
- Lecture 26 - Project Finance Markets - Project Bonds - II
- Lecture 27 - Public Private Partnerships
- Lecture 28 - Risk Management - I
- Lecture 29 - Risk Management - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Risk Management - III
- Lecture 31 - Risk Management - Market Risks
- Lecture 32 - Risk Management - Country / Political risks - I
- Lecture 33 - Risk Management - Country / Political risks - II
- Lecture 34 - Risk Management - Country / Political risks - III
- Lecture 35 - Risk Management - Country / Political risks - IV
- Lecture 36 - Context of infrastructure development - I
- Lecture 37 - Context of infrastructure development - II
- Lecture 38 - Context of infrastructure development - III
- Lecture 39 - Context of infrastructure development - IV
- Lecture 40 - Context of infrastructure development - V

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Manufacturing Systems Management

Subject Co-ordinator - Prof. G. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Manufacturing Systems Management
- Lecture 2 - Different types of Manufacturing Systems
- Lecture 3 - Introduction to Cellular Manufacturing
- Lecture 4 - Cellular Manufacturing Applications, Production Flow Analysis
- Lecture 5 - Production Flow Analysis
- Lecture 6 - Cellular Manufacturing - Unidirectional flow, Capacity Planning, Layout
- Lecture 7 - Exercise on Production Flow Analysis
- Lecture 8 - Rank Order Clustering, Similarity Coefficient based algorithm
- Lecture 9 - Similarity Coefficient based clustering algorithm
- Lecture 10 - Hierarchical and Non hierarchical clustering algorithms
- Lecture 11 - Optimization based algorithms
- Lecture 12 - Optimization based algorithms, Assignment based algorithm
- Lecture 13 - Assignment model, Algorithm considering sequence of visit of machines
- Lecture 14 - Algorithm considering sequence of visit of machines
- Lecture 15 - Algorithm considering cell load data, alternate process plans
- Lecture 16 - Reducing Intercell moves
- Lecture 17 - Part subcontracting, Incremental cell formation
- Lecture 18 - Product based cells
- Lecture 19 - Branching algorithm for product based cells, Operator and task assignment
- Lecture 20 - Operator and task assignment
- Lecture 21 - Operator and task assignment continued
- Lecture 22 - Static and dynamic Operator allocation, Multiple products and incremental cells
- Lecture 23 - Cell scheduling and sequencing
- Lecture 24 - Cell scheduling and sequencing continued
- Lecture 25 - Single piece transportation
- Lecture 26 - Cell Layout, Introduction to Just-in-time manufacturing
- Lecture 27 - Cell control and JIT
- Lecture 28 - Basic elements of JIT, Kanban systems
- Lecture 29 - Role of basic elements, Critical success factors

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Models in JIT
- Lecture 31 - Models in JIT continued
- Lecture 32 - CONWIP, Introduction to synchronous manufacturing
- Lecture 33 - Theory of constraints, Product mix problem
- Lecture 34 - Statistical Fluctuations, Random events, principles of SM
- Lecture 35 - Scheduling in SM
- Lecture 36 - Drum Buffer Rope system
- Lecture 37 - Flexible Manufacturing System, Part selection problem
- Lecture 38 - FMS Loading problem
- Lecture 39 - FMS Loading, multiple batches and changeover times
- Lecture 40 - FMS Loading and scheduling, Summary of the course contents

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Operations and Supply Chain Management

Subject Co-ordinator - Prof. G. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - (Challenges, Methodologies)
- Lecture 2 - Forecasting - Time series models - Simple Exponential smoothing
- Lecture 3 - Forecasting - Linear Models, Regression, Holt's, seasonality
- Lecture 4 - Forecasting - Winter's model, causal models, Goodness of forecast, Aggregate Planning, Tabular
- Lecture 5 - Aggregate Planning, Tabular method, Linear Programming
- Lecture 6 - Aggregate Planning, Transportation model
- Lecture 7 - Aggregate Planning, Dynamic Programming, backordering
- Lecture 8 - Aggregate Planning, Quadratic model, Demand and capacity planning
- Lecture 9 - Inventory Models - Costs, EOQ model
- Lecture 10 - Inventory - EOQ model graphs, with backordering
- Lecture 11 - Inventory - Models for all quantity and marginal quantity Discount
- Lecture 12 - Multiple Quantity Discount, Multiple item inventory - Constraint on numbers of orders
- Lecture 13 - Multiple item inventory - Constraint on money value, space, equal number of orders
- Lecture 14 - Multiple item inventory - combining orders, production consumption model
- Lecture 15 - Inventory - Production consumption model with backordering, Economic lot scheduling problem
- Lecture 16 - Economic lot scheduling problem, Supply Chain inventory
- Lecture 17 - Lot sizing
- Lecture 18 - Lot sizing - heuristics
- Lecture 19 - Disaggregation
- Lecture 20 - Disaggregation - time varying demand, Safety stock - ROL for discrete demand distribution
- Lecture 21 - Safety stock - ROL for normal distribution of lead time demand
- Lecture 22 - Integrated model, ROL for normal distribution of LTD and given mean
- Lecture 23 - Safety stock reduction - delayed Product differentiation, substitution. MOM
- Lecture 24 - Sequencing and scheduling - Assumptions, objectives and shop settings
- Lecture 25 - Single machine sequencing. Two machine flow shop - Johnson's algorithm
- Lecture 26 - Flow shop scheduling - Three machines, Johnson's algorithm and Branch and bound algorithm
- Lecture 27 - Flow shop scheduling - heuristics - Palmer, Campbell Dudek Smith algorithm
- Lecture 28 - Job shop scheduling - Gantt chart, Different dispatching rules
- Lecture 29 - Job shop scheduling - Shifting bottleneck heuristic

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Job shop scheduling - Shifting bottleneck heuristic. Line Balancing
- Lecture 31 - Line Balancing
- Lecture 32 - Location problems - p median problem, Fixed charge problem
- Lecture 33 - Location allocation problems in supply chain. Layout
- Lecture 34 - Quantitative models for layout, Summary
- Lecture 35 - Introduction to Supply Chain Management
- Lecture 36 - Location Problems
- Lecture 37 - Transportation and Distribution Models
- Lecture 38 - Transportation and Distribution Models(continued)
- Lecture 39 - Bin Packing and Travelling Salesman Problems
- Lecture 40 - Vehicle Routeing Problems
- Lecture 41 - Value of Information



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Business Analysis for Engineers

Subject Co-ordinator - Dr. S. Vaidhyasubramaniam

Co-ordinating Institute - SASTRA University

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Business Analysis for Engineers  
Lecture 2 - Introduction to Accounting  
Lecture 3 - Accounting Principles - 1  
Lecture 4 - Balance Sheet Fundamentals  
Lecture 5 - Balance Sheet Fundamentals  
Lecture 6 - Accounting Principles - 2  
Lecture 7 - Introduction to Income Statement & Double Entry  
Lecture 8 - Double Entry Examples - 1  
Lecture 9 - Double Entry Examples - 2  
Lecture 10 - Preparation of Financial Statement  
Lecture 11 - Cash Flow Statement - 1  
Lecture 12 - Cash Flow Statement - 2  
Lecture 13 - Special Accounts Illustrations  
Lecture 14 - Final Illustrative Example  
Lecture 15 - Summary of Financial Accounting  
Lecture 16 - Introduction to Management Accounting & Behaviour of Cost  
Lecture 17 - Cost-Volume Relationship  
Lecture 18 - Cost-Objects & Variance  
Lecture 19 - Labour & Over Heads Variance Analysis  
Lecture 20 - Cash Conversion Cycle  
Lecture 21 - Inventory Management  
Lecture 22 - What is Strategy?  
Lecture 23 - Porter's Diamond Model  
Lecture 24 - Industry Analysis  
Lecture 25 - Industry Analysis & Sources of Strategy  
Lecture 26 - The Need for Value  
Lecture 27 - Value Chain Analysis  
Lecture 28 - Corporate Portfolio Analysis  
Lecture 29 - External & Internal Environ Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Models for Strategy, Ansoff matrix
- Lecture 31 - Porter's Generic Strategy
- Lecture 32 - Prahlad's Core Competency
- Lecture 33 - Case study to understand strategy
- Lecture 34 - Case study to understand strategy
- Lecture 35 - Blue ocean and conclusion
- Lecture 36 - Introduction to Economics
- Lecture 37 - Introduction to GDP
- Lecture 38 - Supply vs Demand
- Lecture 39 - Price & Income Elasticity and Utility
- Lecture 40 - Macroeconomic Variables
- Lecture 41 - Fiscal & Monetary Policy
- Lecture 42 - Union Budget & Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Introduction to Operations Research

Subject Co-ordinator - Prof. G. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Linear Programming Introduction and formulations - Product Mix problem and Notations
- Lecture 2 - Linear Programming Introduction and formulations - Manpower and Production planning formulations
- Lecture 3 - Linear Programming Introduction and formulations - Media selection problem and Bicycle problem
- Lecture 4 - Linear Programming Introduction and formulations - Caterer problem
- Lecture 5 - Linear Programming Introduction and formulations - Maximum flow and bin packing problems
- Lecture 6 - Graphical and Algebraic methods - Graphical method (maximization)
- Lecture 7 - Graphical and Algebraic methods - Graphical method (minimization)
- Lecture 8 - Graphical and Algebraic methods - Algebraic method (maximization)
- Lecture 9 - Graphical and Algebraic methods - Algebraic method (minimization)
- Lecture 10 - Graphical and Algebraic methods - Comparing graphical and algebraic methods
- Lecture 11 - Simplex Algorithm - Algebraic form of simplex algorithm
- Lecture 12 - Simplex Algorithm - Tabular form of simplex (maximization)
- Lecture 13 - Simplex Algorithm - Tabular form (minimization)
- Lecture 14 - Simplex Algorithm - Unboundedness
- Lecture 15 - Simplex Algorithm - Infeasibility
- Lecture 16 - Dual - Motivation to the dual
- Lecture 17 - Dual - Writing the dual for a general LP
- Lecture 18 - Dual - Writing the dual for a general LP (Continued...)
- Lecture 19 - Dual - Duality theorems
- Lecture 20 - Dual - Complimentary slackness theorem
- Lecture 21 - Primal dual relationships - Dual solution using complimentary slackness
- Lecture 22 - Primal dual relationships - Dual solution from simplex table; economic interpretation of dual
- Lecture 23 - Primal dual relationships - Economic Interpretation of the dual; Dual Simplex algorithm
- Lecture 24 - Primal dual relationships - Solving LPs with mixed type of constraints
- Lecture 25 - Primal dual relationships - Matrix method for LP problems
- Lecture 26 - Introducing the transportation problem
- Lecture 27 - North West corner Rule and minimum cost method
- Lecture 28 - Penalty cost method
- Lecture 29 - Stepping stone method and Modified Distribution method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - MODI method; Dual of the transportation problem and the optimality of the MODI method
- Lecture 31 - Introducing the Assignment problem
- Lecture 32 - Solving the Assignment problem
- Lecture 33 - Hungarian algorithm; Alternate optimum
- Lecture 34 - Unequal number of rows and columns; Dual of the assignment problem
- Lecture 35 - Optimality of the Hungarian algorithm
- Lecture 36 - Setting up the problem and solving simple LP problems
- Lecture 37 - Unboundedness and infeasibility
- Lecture 38 - Solving other formulations
- Lecture 39 - Solving a transportation problem
- Lecture 40 - Solving an assignment problem

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Introduction to Data Analytics

Subject Co-ordinator - Dr. Nandan Sudarsanam, Dr. Balaraman Ravindran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Overview
- Lecture 2 - Course Overview (Continued...)
- Lecture 3 - Descriptive Statistics - Graphical Approaches
- Lecture 4 - Descriptive Statistics - Measures of Central Tendency
- Lecture 5 - Descriptive Statistics - Measures of Dispersion
- Lecture 6 - Random Variables and Probability Distributions
- Lecture 7 - Probability Distributions (Continued...)
- Lecture 8 - Probability Distributions (Continued...)
- Lecture 9 - Inferential Statistics - Motivation
- Lecture 10 - Inferential Statistics - Single sample tests
- Lecture 11 - Two Sample tests
- Lecture 12 - Type 1 and Type 2 Errors
- Lecture 13 - Confidence Intervals
- Lecture 14 - ANOVA and Test of Independence
- Lecture 15 - Short Introduction to Regression
- Lecture 16 - Introduction to Machine Learning
- Lecture 17 - Supervised Learning
- Lecture 18 - Unsupervised Learning
- Lecture 19 - Ordinary Least Squares Regression
- Lecture 20 - Simple and Multiple Regression in Excel and Matlab
- Lecture 21 - Regularization/ Coefficients Shrinkage
- Lecture 22 - Data Modelling and Algorithmic Modelling Approaches
- Lecture 23 - Logistic Regression
- Lecture 24 - Training a Logistic Regression Classifier
- Lecture 25 - Classification and Regression Trees
- Lecture 26 - Classification and Regression Trees (Continued...)
- Lecture 27 - Bias Variance Dichotomy
- Lecture 28 - Model Assessment and Selection
- Lecture 29 - Support Vector Machines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Support Vector Machines (Continued...)
- Lecture 31 - Support Vector Machines for Non Linearly Separable Data
- Lecture 32 - Support Vector Machines and Kernel Transformations
- Lecture 33 - Ensemble Methods and Random Forests
- Lecture 34 - Artificial Neural Networks
- Lecture 35 - Artificial Neural Networks (Continued...)
- Lecture 36 - Deep Learning
- Lecture 37 - Associative Rule Mining
- Lecture 38 - Association Rule Mining (Continued...)
- Lecture 39 - Big Data - A small introduction
- Lecture 40 - Big Data - A small introduction (Continued...)
- Lecture 41 - Clustering Analysis
- Lecture 42 - Clustering Analysis (Continued...)
- Lecture 43 - Introduction to Experimentation and Active Learning
- Lecture 44 - Introduction to Experimentation and Active Learning (Continued...)
- Lecture 45 - An Introduction to Online Learning - Reinforcement Learning
- Lecture 46 - An Introduction to Online Learning - Reinforcement Learning (Continued...)
- Lecture 47 - Summary + Insights into the Final Exam
- Lecture 48 - Tutorial on weka
- Lecture 49 - Tutorial on Decision Trees
- Lecture 50 - Big Data - A Small Introduction (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Introduction to Data analytics

Subject Co-ordinator - Dr. Nandan Sudarsanam, Dr. Balaraman Ravindran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Overview
- Lecture 2 - Course Overview (Continued...)
- Lecture 3 - Descriptive Statistics - Graphical Approaches
- Lecture 4 - Descriptive Statistics - Measures of Central Tendency
- Lecture 5 - Descriptive Statistics - Measures of Dispersion
- Lecture 6 - Random Variables and Probability Distributions
- Lecture 7 - Probability Distributions (Continued...)
- Lecture 8 - Probability Distributions (Continued...)
- Lecture 9 - Inferential Statistics - Motivation
- Lecture 10 - Inferential Statistics - Single sample tests
- Lecture 11 - Two Sample tests
- Lecture 12 - Type 1 and Type 2 Errors
- Lecture 13 - Confidence Intervals
- Lecture 14 - ANOVA and Test of Independence
- Lecture 15 - Short Introduction to Regression
- Lecture 16 - Introduction to Machine Learning
- Lecture 17 - Supervised Learning
- Lecture 18 - Unsupervised Learning
- Lecture 19 - Ordinary Least Squares Regression
- Lecture 20 - Simple and Multiple Regression in Excel and Matlab
- Lecture 21 - Regularization/ Coefficients Shrinkage
- Lecture 22 - Data Modelling and Algorithmic Modelling Approaches
- Lecture 23 - Logistic Regression
- Lecture 24 - Training a Logistic Regression Classifier
- Lecture 25 - Classification and Regression Trees
- Lecture 26 - Classification and Regression Trees (Continued...)
- Lecture 27 - Bias Variance Dichotomy
- Lecture 28 - Model Assessment and Selection
- Lecture 29 - Support Vector Machines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Support Vector Machines (Continued...)
- Lecture 31 - Support Vector Machines for Non Linearly Separable Data
- Lecture 32 - Support Vector Machines and Kernel Transformations
- Lecture 33 - Ensemble Methods and Random Forests
- Lecture 34 - Artificial Neural Networks
- Lecture 35 - Artificial Neural Networks (Continued...)
- Lecture 36 - Deep Learning
- Lecture 37 - Associative Rule Mining
- Lecture 38 - Association Rule Mining (Continued...)
- Lecture 39 - Big Data, A small introduction
- Lecture 40 - Big Data, A small introduction (Continued...)
- Lecture 41 - Clustering Analysis
- Lecture 42 - Clustering Analysis (Continued...)
- Lecture 43 - Introduction to Experimentation and Active Learning
- Lecture 44 - Introduction to Experimentation and Active Learning (Continued...)
- Lecture 45 - An Introduction to Online Learning - Reinforcement Learning
- Lecture 46 - An Introduction to Online Learning - Reinforcement Learning (Continued...)
- Lecture 47 - Summary - Insights into the Final Exam
- Lecture 48 - Tutorial on weka
- Lecture 49 - Tutorial on Decision Trees
- Lecture 50 - Big Data - A Small Introduction (Continued...)



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Patent Law for Engineers and Scientists

Subject Co-ordinator - Prof. Feroze Ali

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Patent Law as Concepts
- Lecture 2 - Understanding the Patents Act and the Rules
- Lecture 3 - Preliminary Sections
- Lecture 4 - Preliminary Rules
- Lecture 5 - Patents (Amendment) Rules, 2016
- Lecture 6 - Easy way to read the Patents Act and Rules
- Lecture 7 - What can be Patented?
- Lecture 8 - Inventions not Patentable
- Lecture 9 - Novelty
- Lecture 10 - Anticipation
- Lecture 11 - Inventive Step
- Lecture 12 - Capable of Industrial Application
- Lecture 13 - Person Skilled in the Art
- Lecture 14 - Complete and Provisional Specifications
- Lecture 15 - Contents of Specifications
- Lecture 16 - Structure of a Patent Specification
- Lecture 17 - Reading a Patent Specification
- Lecture 18 - Introduction to Patent Drafting
- Lecture 19 - Introduction to Patent Drafting
- Lecture 20 - Who Can Apply for a Patent?
- Lecture 21 - Form of Application
- Lecture 22 - Patent Application
- Lecture 23 - Powers of Controller
- Lecture 24 - Patents of Addition
- Lecture 25 - Priority Dates
- Lecture 26 - Professor's Interaction 01
- Lecture 27 - Publication of Application
- Lecture 28 - Request for Examination
- Lecture 29 - Examination of Application

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Expedited Examination of Application
- Lecture 31 - Search for Anticipation
- Lecture 32 - Procedure in case of Anticipation
- Lecture 33 - Consideration of Report of Examiner
- Lecture 34 - Refuse, Require Amendment, and Division of Applications
- Lecture 35 - Dating of Application and Anticipation
- Lecture 36 - Potential Infringement
- Lecture 37 - Orders Regarding Substitution of Applicants
- Lecture 38 - Putting Applications in Order for Grant
- Lecture 39 - Amendments during Prosecution
- Lecture 40 - Introduction to Opposition to Grant of Patents
- Lecture 41 - Pre-Grant Opposition
- Lecture 42 - Post-Grant Opposition
- Lecture 43 - Obtained Invention
- Lecture 44 - Mention of Inventor
- Lecture 45 - Opposition in General
- Lecture 46 - Secrecy Provisions
- Lecture 47 - Grant of Patents
- Lecture 48 - Rights conferred by Grant
- Lecture 49 - Rights of Co-Owners of Patents and Power of Controller to give directions
- Lecture 50 - Patent obtained by Fraud of True and First Inventor
- Lecture 51 - Term of Patent
- Lecture 52 - Restoration of Lapsed Patents
- Lecture 53 - Surrender of Patents
- Lecture 54 - Revocation of Patents
- Lecture 55 - Register of Patents
- Lecture 56 - Patent Office and its Establishment
- Lecture 57 - Patent Agents
- Lecture 58 - Use and Acquisition by Government
- Lecture 59 - Penalties
- Lecture 60 - Introduction to Compulsory Licensing
- Lecture 61 - Working of Patents
- Lecture 62 - Compulsory Licenses
- Lecture 63 - Revocation of Patents 1
- Lecture 64 - Powers of Controller
- Lecture 65 - Licensing of Related Patents
- Lecture 66 - Compulsory License on Notification by Central Government
- Lecture 67 - Compulsory License for Export of Pharma Products
- Lecture 68 - Termination of Compulsory License, Related Rules

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- Lecture 69 - Intellectual Property Appellate Board
- Lecture 70 - Infringement Suits and Defences
- Lecture 71 - Reliefs in Suit for Infringement
- Lecture 72 - Declaration as to Non-Infringement
- Lecture 73 - Groundless threat of Infringement Proceedings
- Lecture 74 - Certificate of Validity
- Lecture 75 - Scientific Advisors
- Lecture 76 - International Arrangements
- Lecture 77 - Miscellaneous
- Lecture 78 - Fees

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Design Thinking - A Primer

Subject Co-ordinator - Dr. Ashwin Mahalingam, Prof. Bala Ramadurai

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Design Thinking - A Primer Start - Part 1  
Lecture 2 - Design Thinking - A Primer Start - Part 2  
Lecture 3 - Design Thinking - A Primer Start - Part 3  
Lecture 4 - Intro to Design Thinking  
Lecture 5 - Case Study - Arcturus IV by John E. Arnold  
Lecture 6 - Course Preview and History of Design Thinking  
Lecture 7 - Discussion - Intro to Demo Problem  
Lecture 8 - Empathize - Lecture 1  
Lecture 9 - Empathize - Workshop 1  
Lecture 10 - Empathize - Workshop 2  
Lecture 11 - Empathize - Skit  
Lecture 12 - Interviews  
Lecture 13 - Analyze - Lecture-1 5 Whys  
Lecture 14 - Analyze - 5ys - IIT Stadium levels  
Lecture 15 - Analyze - Lecture 2 Conflict of Interest  
Lecture 16 - Analyze - Workshop - Part 1  
Lecture 17 - Analyze - Workshop - Part 2  
Lecture 18 - Solve - Tea cup story  
Lecture 19 - Solve - Lecture 1  
Lecture 20 - Solve - Workshop 1  
Lecture 21 - Elephant and blind men  
Lecture 22 - Test - Lecture 1  
Lecture 23 - Test - Workshop 1  
Lecture 24 - Test - Customer reactions to prototype  
Lecture 25 - The END - Part 1  
Lecture 26 - The END - Part 2  
Lecture 27 - Finale and Appeal for proposals

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Decision-Making Under Uncertainty

Subject Co-ordinator - Prof. N. Gautam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Tutorial - How to Install Octave and using Octave
- Lecture 2 - Background and relevance
- Lecture 3 - Examples of managing uncertainty and making decisions
- Lecture 4 - Risk, uncertainty and variability
- Lecture 5 - Probability
- Lecture 6 - Discrete random variables
- Lecture 7 - Continuous random variables
- Lecture 8 - Expected Value
- Lecture 9 - Multiple Random Variables
- Lecture 10 - Criteria, Objectives and Settings for Decisions
- Lecture 11 - Introduction to one-time decisions
- Lecture 12 - Solving the secretary problem
- Lecture 13 - Which option to gamble just once?
- Lecture 14 - Utility Function
- Lecture 15 - Nested one-time decisions
- Lecture 16 - Decision Trees
- Lecture 17 - Decisions in Game Shows
- Lecture 18 - Decisions in Game Shows
- Lecture 19 - Project Network and Analysis
- Lecture 20 - Newsvendor Problem
- Lecture 21 - Newsvendor Problem
- Lecture 22 - Buffers to Cushion for Fluctuations
- Lecture 23 - Safety Stock for Inventories
- Lecture 24 - Safety Stock
- Lecture 25 - Route Planning
- Lecture 26 - Exploration and Exploitation
- Lecture 27 - Introduction to sequential decision making
- Lecture 28 - Costs, Ratings, Options and Choices for both Restaurants
- Lecture 29 - Two Stage Stochastic Optimization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Concluding Remarks and Simpson's Paradox
- Lecture 31 - Markov Chains for Decisions
- Lecture 32 - DTMC Modeling and Analysis
- Lecture 33 - Markov Decision Process Set Up
- Lecture 34 - Analyzing the four policies

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Decision making using Financial Accounting

Subject Co-ordinator - Prof. G Arun Kumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Two Financial Statements
- Lecture 4 - Two Financial Statements (Continued...)
- Lecture 5 - Two Financial Statements (Continued...)
- Lecture 6 - Three Financial Statements
- Lecture 7 - Three Financial Statements (Continued...)
- Lecture 8 - Three Financial Statements (Continued...)
- Lecture 9 - Transaction and Financial Statements
- Lecture 10 - Transaction and Financial Statements (Continued...)
- Lecture 11 - Transaction and Financial Statements (Continued...)
- Lecture 12 - Lone Pine Cafe (Case)
- Lecture 13 - Lone Pine Cafe (Case)
- Lecture 14 - Journal - 1
- Lecture 15 - Journal - 2
- Lecture 16 - Journal - 3
- Lecture 17 - Ledger Posting Part - 1
- Lecture 18 - Ledger Posting Part - 2
- Lecture 19 - Final Accounts
- Lecture 20 - Cash Flow Statements - 1
- Lecture 21 - Cash Flow Statements - 2
- Lecture 22 - Cash Flow Statements - 3
- Lecture 23 - Cash Flow Statements - 4
- Lecture 24 - Cash Flow Statements - 5
- Lecture 25 - Reading the Financial Statements of a Annual Report - 1
- Lecture 26 - Reading the Financial Statements of a Annual Report - 2
- Lecture 27 - Reading the Financial Statements of a Annual Report - 3
- Lecture 28 - Financial Statement Analysis - 1
- Lecture 29 - Financial Statement Analysis - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Financial Statement Analysis - 3
- Lecture 31 - Financial Statement Analysis - 4
- Lecture 32 - Recap
- Lecture 33 - Ratios Analysis
- Lecture 34 - Ratios Analysis



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Entrepreneurship

Subject Co-ordinator - Prof. C Bhaktavatsala Rao

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Entrepreneurial Journey - Part 1  
Lecture 2 - Entrepreneurial Journey - Part 2  
Lecture 3 - Entrepreneurial Journey - Part 3  
Lecture 4 - Entrepreneurial Discovery - Part 1  
Lecture 5 - Entrepreneurial Discovery - Part 2  
Lecture 6 - Entrepreneurial Discovery - Part 3  
Lecture 7 - Entrepreneurial Discovery - Part 4  
Lecture 8 - Ideation and Prototyping - Part 1  
Lecture 9 - Ideation and Prototyping - Part 2  
Lecture 10 - Ideation and Prototyping - Part 3  
Lecture 11 - Ideation and Prototyping - Part 4  
Lecture 12 - Ideation and Prototyping - Part 5  
Lecture 13 - Ideation and Prototyping - Part 6  
Lecture 14 - Testing and Validation - Part 1  
Lecture 15 - Testing and Validation - Part 2  
Lecture 16 - Commercialisation and Disruption as Success Drivers - Part 1  
Lecture 17 - Commercialisation and Disruption as Success Drivers - Part 2  
Lecture 18 - Commercialisation and Disruption as Success Drivers - Part 3  
Lecture 19 - Commercialisation and Disruption as Success Drivers - Part 4  
Lecture 20 - Commercialisation and Disruption as Success Drivers - Part 5  
Lecture 21 - Technological Innovation and Entrepreneurship - Part 1  
Lecture 22 - Technological Innovation and Entrepreneurship - Part 2  
Lecture 23 - Technological Innovation and Entrepreneurship - Part 3  
Lecture 24 - Technological Innovation and Entrepreneurship - Part 4  
Lecture 25 - Technological Innovation and Entrepreneurship - Part 5  
Lecture 26 - Technology, Business, and Operations Strategies - Part 1  
Lecture 27 - Technology, Business, and Operations Strategies - Part 2  
Lecture 28 - Technology, Business, and Operations Strategies - Part 3  
Lecture 29 - Technology, Business, and Operations Strategies - Part 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Technology, Business, and Operations Strategies - Part 5
- Lecture 31 - Raising Finances and Developing Financial Strategy - Part 1
- Lecture 32 - Raising Finances and Developing Financial Strategy - Part 2
- Lecture 33 - Raising Finances and Developing Financial Strategy - Part 3
- Lecture 34 - Raising Finances and Developing Financial Strategy - Part 4
- Lecture 35 - Raising Finances and Developing Financial Strategy - Part 5
- Lecture 36 - Education and Entrepreneurship - Part 1
- Lecture 37 - Education and Entrepreneurship - Part 2
- Lecture 38 - Education and Entrepreneurship - Part 3
- Lecture 39 - Beyond Founders and Founder-Families - Part 1
- Lecture 40 - Beyond Founders and Founder-Families - Part 2
- Lecture 41 - Beyond Founders and Founder-Families - Part 3
- Lecture 42 - Beyond Founders and Founder-Families - Part 4
- Lecture 43 - India as A Start-up Nation - Part 1
- Lecture 44 - India as A Start-up Nation - Part 2
- Lecture 45 - India as A Start-up Nation - Part 3
- Lecture 46 - National Entrepreneurial Culture - Part 1
- Lecture 47 - National Entrepreneurial Culture - Part 2
- Lecture 48 - Entrepreneurial Thermodynamics - Part 1
- Lecture 49 - Entrepreneurial Thermodynamics - Part 2
- Lecture 50 - Human Resources Strategy
- Lecture 51 - Entrepreneurship and Employment - Part 1
- Lecture 52 - Entrepreneurship and Employment - Part 2
- Lecture 53 - Entrepreneurship and Employment - Part 3
- Lecture 54 - Entrepreneurship and Employment - Part 4
- Lecture 55 - Corporate Governance
- Lecture 56 - Marketing Strategy
- Lecture 57 - Start-up Case Studies - Part 1
- Lecture 58 - Start-up Case Studies - Part 2
- Lecture 59 - Start-up Case Studies - Part 3
- Lecture 60 - Start-up Case Studies - Part 4
- Lecture 61 - In Closing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Organizational Behaviour

Subject Co-ordinator - Prof. M. P. Ganesh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Organizational Behaviour - Part 1  
Lecture 2 - Introduction to Organizational Behaviour - Part 2  
Lecture 3 - Introduction to Organizational Behaviour - Part 3  
Lecture 4 - Introduction to Organizational Behaviour - Part 4  
Lecture 5 - Introduction to Organizational Behaviour - Part 5  
Lecture 6 - Perception - Part 1  
Lecture 7 - Perception - Part 2  
Lecture 8 - Perception - Part 3  
Lecture 9 - Perception - Part 4  
Lecture 10 - Personality - Part 1  
Lecture 11 - Personality - Part 2  
Lecture 12 - Personality - Part 3  
Lecture 13 - Personality - Part 4  
Lecture 14 - Personality - Part 5  
Lecture 15 - Personality - Part 6  
Lecture 16 - Personality - Part 7  
Lecture 17 - Learning - Part 1  
Lecture 18 - Learning - Part 2  
Lecture 19 - Attitudes - Part 1  
Lecture 20 - Attitudes - Part 2  
Lecture 21 - Attitudes - Part 3  
Lecture 22 - Attitudes - Part 4  
Lecture 23 - Emotions - Part 1  
Lecture 24 - Emotions - Part 2  
Lecture 25 - Emotions - Part 3  
Lecture 26 - Motivation - Part 1  
Lecture 27 - Motivation - Part 2  
Lecture 28 - Motivation - Part 3  
Lecture 29 - Motivation - Part 4

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- Lecture 30 - Motivation - Part 5
- Lecture 31 - Motivation - Part 6
- Lecture 32 - Interpersonal Relationships - Part 1
- Lecture 33 - Interpersonal Relationships - Part 2
- Lecture 34 - Interpersonal Relationships - Part 3
- Lecture 35 - Interpersonal Relationships - Part 4
- Lecture 36 - Communication - Part 1
- Lecture 37 - Communication - Part 2
- Lecture 38 - Communication - Part 3
- Lecture 39 - Decision Making - Part 1
- Lecture 40 - Decision Making - Part 2
- Lecture 41 - Decision Making - Part 3
- Lecture 42 - Decision Making - Part 4
- Lecture 43 - Power and Leadership - Part 1
- Lecture 44 - Power and Leadership - Part 2
- Lecture 45 - Power and Leadership - Part 3
- Lecture 46 - Power and Leadership - Part 4
- Lecture 47 - Power and Leadership - Part 5
- Lecture 48 - Group Dynamics - Part 1
- Lecture 49 - Group Dynamics - Part 2
- Lecture 50 - Group Dynamics - Part 3
- Lecture 51 - Organizational Culture - Part 1
- Lecture 52 - Organizational Culture - Part 2
- Lecture 53 - Organizational Change
- Lecture 54 - Organizational Structure - Part 1
- Lecture 55 - Organizational Structure - Part 2
- Lecture 56 - Organizational Structure - Part 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:The Future of Manufacturing Business: Role of Additive Manufacturing

Subject Co-ordinator - Prof. R. K. Amit, Prof. U. Chandrasekhar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Manufacturing ?
- Lecture 2 - Manufacturing and Industrial Revolution
- Lecture 3 - Manufacturing Processes and Era of Mass Production
- Lecture 4 - Mass Production to Mass Customization
- Lecture 5 - Laws of Manufacturing - I
- Lecture 6 - Laws of Manufacturing - II
- Lecture 7 - Business Models
- Lecture 8 - Manufacturing Radar - I
- Lecture 9 - Manufacturing Radar - II
- Lecture 10 - Agile Manufacturing - I
- Lecture 11 - Agile Manufacturing - II
- Lecture 12 - Technology and Manufacturing
- Lecture 13 - AM Implementation and SC Configuration - I
- Lecture 14 - AM Implementation and SC Configuration - II
- Lecture 15 - Manufacturing and IIoT - I
- Lecture 16 - Manufacturing and IIoT - II
- Lecture 17 - Digital Supply Network - I
- Lecture 18 - Digital Supply Network - II
- Lecture 19 - Machine Intelligence
- Lecture 20 - Blockchains and Use Cases
- Lecture 21 - Additive Manufacturing Technologies and Categorization
- Lecture 22 - Process Chain for AM of Plastics and Metals
- Lecture 23 - Design for Additive manufacturing (DFAM) for Metal printing
- Lecture 24 - Supply chain for Additive Manufacturing
- Lecture 25 - Design for Laser Powder Bed fusion (LPBF)
- Lecture 26 - Additive Manufacturing Application for Prototype, Tooling and Part Repair
- Lecture 27 - AM Materials and Metallurgy in LPBF
- Lecture 28 - Additive Parameter Development
- Lecture 29 - Quality in Additive Manufacturing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Extrusion AM for Industrial Application
- Lecture 31 - Design for LPBF - Case Studies
- Lecture 32 - Metal Powder Manufacturing and Characterisation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Financial Accounting (IIT Mandi)

Subject Co-ordinator - Prof. Puran Singh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Financial Accounting  
Lecture 2 - Company form of business  
Lecture 3 - Accounting as an information system  
Lecture 4 - Key accounting terms - I  
Lecture 5 - Key accounting terms - II  
Lecture 6 - Tutorial - Key accounting terms  
Lecture 7 - Accounting Equation  
Lecture 8 - Walkthrough of Balance Sheet - I  
Lecture 9 - Walkthrough of Balance Sheet - II  
Lecture 10 - Walkthrough of Balance Sheet - III  
Lecture 11 - Walkthrough of Income Statement - I  
Lecture 12 - Generally Accepted Accounting Principles - I  
Lecture 13 - Generally Accepted Accounting Principles - II  
Lecture 14 - Recap and way forward  
Lecture 15 - Types of Accounts  
Lecture 16 - Tutorial - Types of Accounts - Part I  
Lecture 17 - Tutorial - Types of Accounts - Part II  
Lecture 18 - Debit and Credit  
Lecture 19 - Tutorial - Debit and Credit  
Lecture 20 - Rules of debit and credit  
Lecture 21 - Entering transactions in Journal - Part I  
Lecture 22 - Entering transactions in Journal - Part II  
Lecture 23 - Entering transactions in Journal - Part III  
Lecture 24 - Tutorial - Entering transactions in Journal I - Part I  
Lecture 25 - Tutorial - Entering transactions in Journal I - Part II  
Lecture 26 - Tutorial - Entering transactions in Journal I - Part III  
Lecture 27 - Key Trends in Journalizing  
Lecture 28 - Journalizing complex transactions  
Lecture 29 - Practice Problem - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Recap and way forward
- Lecture 31 - Introduction to Ledger
- Lecture 32 - Process of Ledger Posting - Part 1
- Lecture 33 - Process of Ledger Posting - Part 2
- Lecture 34 - Process of Ledger Posting - Part 3
- Lecture 35 - Balancing the Accounts
- Lecture 36 - Debit and Credit Balances
- Lecture 37 - Tutorial - Identifying balances - Part 1
- Lecture 38 - Tutorial - Identifying balances - Part 2
- Lecture 39 - Tutorial - Identifying balances - Part 3
- Lecture 40 - Tutorial - Identifying balances - Part 4
- Lecture 41 - Practice Problem - I
- Lecture 42 - Practice Problem - II
- Lecture 43 - Practice Problem - III
- Lecture 44 - Recap and way forward
- Lecture 45 - Introduction to Trial Balance
- Lecture 46 - Preparation of Trial Balance
- Lecture 47 - Practice Problem - 1
- Lecture 48 - Practice Problem - 2
- Lecture 49 - Errors in Trial Balance
- Lecture 50 - Recap and way forward
- Lecture 51 - Introduction to Final Accounts
- Lecture 52 - Tutorial - Identifying direct and indirect expenses
- Lecture 53 - Tutorial - Mapping operating and non operating items to direct and indirect items
- Lecture 54 - Preparation of Final Accounts
- Lecture 55 - Tutorial - Preparation of Final Accounts
- Lecture 56 - Tutorial - Preparation of Trading Account
- Lecture 57 - Tutorial - Preparation of P&L Account
- Lecture 58 - Tutorial - Preparation of Balance Sheet
- Lecture 59 - Practice Problem
- Lecture 60 - Adjustments in Final Accounts
- Lecture 61 - Transactions to be adjusted in Final Accounts - Part 1
- Lecture 62 - Transactions to be adjusted in Final Accounts - Part 2
- Lecture 63 - Tutorial - Adjustments in Final Accounts
- Lecture 64 - Tutorial - Calculating Cost of Goods Sold
- Lecture 65 - Tutorial - Outstanding Expenses
- Lecture 66 - Tutorial - Prepaid Expenses
- Lecture 67 - Validating the learning - Balance Sheet
- Lecture 68 - Validating the learning - Income Statement

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- Lecture 69 - Recap and way forward
- Lecture 70 - Introduction to Financial Statement Analysis
- Lecture 71 - Liquidity Ratios
- Lecture 72 - Tutorial - Liquidity Ratios
- Lecture 73 - Solvency Ratios
- Lecture 74 - Tutorial - Solvency Ratios
- Lecture 75 - Profitability Ratios
- Lecture 76 - Tutorial - Profitability Ratios - Part 1
- Lecture 77 - Tutorial - Profitability Ratios - Part 2
- Lecture 78 - Efficiency Ratios
- Lecture 79 - Tutorial - Efficiency Ratios
- Lecture 80 - Validating the learning - Walkthrough of RIL's Annual Report
- Lecture 81 - Online Resources for Financial Analysis
- Lecture 82 - Practice Problem - Liquidity Position
- Lecture 83 - Practice Problem - Solvency Position
- Lecture 84 - Practice Problem - Profitability Position
- Lecture 85 - Practice Problem - Profitability Position
- Lecture 86 - Practice Problem - Interpretation of Ratios
- Lecture 87 - Practice Problem - Arithmetic problems
- Lecture 88 - Recap and way forward
- Lecture 89 - Types of Cash Flows
- Lecture 90 - Tutorial - Types of Cash Flows
- Lecture 91 - Walkthrough of Cash Flow Statement of RIL
- Lecture 92 - Profit and Loss Appropriation Account
- Lecture 93 - Cash Flows from Operating Activities - Part 1
- Lecture 94 - Cash Flows from Operating Activities - Part 2
- Lecture 95 - Tutorial - Changes in working capital
- Lecture 96 - Tutorial - Cash Flows from Operating Activities - Part 1
- Lecture 97 - Cash Flows from Investing Activities
- Lecture 98 - Tutorial - Cash Flows from Investing Activities
- Lecture 99 - Cash Flows from Financing Activities
- Lecture 100 - Tutorial - Cash Flows from Financing Activities
- Lecture 101 - Preparing Cash Flow Statement
- Lecture 102 - Identifying hidden information - Part 1
- Lecture 103 - Identifying hidden information - Part 2
- Lecture 104 - Identifying hidden information - Part 3
- Lecture 105 - Practice Problem - Part 1
- Lecture 106 - Practice Problem - Part 2
- Lecture 107 - Need of Break Even Analysis

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- Lecture 108 - Understanding the nature of costs
- Lecture 109 - Contribution Margin
- Lecture 110 - Tutorial - Contribution
- Lecture 111 - Break Even Point
- Lecture 112 - Tutorial - Break Even Point
- Lecture 113 - Tutorial - Break Even Point
- Lecture 114 - Visualizing the Break Even Point
- Lecture 115 - Tutorial - Break Even Analysis
- Lecture 116 - Case - Break Even Analysis
- Lecture 117 - Introduction to Inventory Management
- Lecture 118 - Economic Order Quantity
- Lecture 119 - ABC Analysis
- Lecture 120 - Methods of stock valuation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Technology Forecasting for Strategic Decision Making - An Introduction

Subject Co-ordinator - Prof. Dmitry Kucharavy, Prof. Bala Ramadurai

Co-ordinating Institute - EM Strasbourg Business School

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Tech Forecasting for Strategic Decision Making

Lecture 2 - Famous forecasts which missed the mark Lecture 4 - Why do we need technology forecasts? - Questions in Lecture 2, part 1

Lecture 3 - Why do we need technology forecasts? - Innovation vs Invention Efficiency vs Effectiveness"

Lecture 4 - Why do we need technology forecasts? - Questions in Lecture 2, part 1

Lecture 5 - Why do we need technology forecasts? - Limiting Resources

Lecture 6 - Why do we need technology forecasts? - Why is it difficult to forecast?

Lecture 7 - Why do we need technology forecasts? - General stages of forecasting?

Lecture 8 - Why do we need technology forecasts? - Questions in Lecture 2, part 2

Lecture 9 - Failure and Success Startup Stories

Lecture 10 - Strategic, Tactical and Operational Decision Making

Lecture 11 - Quiz about Strategic, Tactical and Operational decision making

Lecture 12 - Answer to the quiz on Strategic, Tactical and operational decision making

Lecture 13 - Introduction to Vacuum forming case study and FORMAT handbook

Lecture 14 - Quiz on systems and set

Lecture 15 - Quiz on functions

Lecture 16 - Technology Lifecycle - Example case study - Transportation

Lecture 17 - Technology Lifecycle - Seasons, Clockspeed - Part 1

Lecture 18 - Technology Lifecycle - Seasons, Clockspeed - Part 2

Lecture 19 - Technology Lifecycle - Seasons, Clockspeed - Part 3

Lecture 20 - Technology Lifecycle - Seasons, Clockspeed - Part 4

Lecture 21 - Technology Lifecycle - Seasons, Clockspeed - Part 5

Lecture 22 - Aryabhata's experience in modeling and Live Solar Eclipse

Lecture 23 - Alternatives to forecasting in scope of technology management

Lecture 24 - Alternatives to forecasting in scope of technology management - Q&A

Lecture 25 - Element-Name-Value Model

Lecture 26 - System Operator

Lecture 27 - How to collect problems for mapping

Lecture 28 - How to formalize our knowledge about problems?

Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30
- Lecture 31
- Lecture 32 - Technological roadmaps
- Lecture 33 - Maps of contradiction for forecasting
- Lecture 34 - Quantitative forecasting
- Lecture 35 - Demo of S-curve fitting software
- Lecture 36 - Forecasting and Forecast

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Leadership for India Inc: Practical Concepts and Constructs

Subject Co-ordinator - Prof. C Bhaktavatsala Rao

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Leadership: Business Context
- Lecture 2 - Leadership and Management
- Lecture 3 - Management Thought - 1
- Lecture 4 - Management Thought - 2
- Lecture 5 - Management Thought - 3
- Lecture 6 - Trait Theory
- Lecture 7 - Behavioural Theory
- Lecture 8 - Situational Theory
- Lecture 9 - Path-Goal Theory
- Lecture 10 - Leader-Member Exchange Theory
- Lecture 11 - Technology Leadership
- Lecture 12 - Climate Leadership
- Lecture 13 - Resource Leadership
- Lecture 14 - Global Leadership
- Lecture 15 - Crisis Leadership
- Lecture 16 - Leadership Attributes
- Lecture 17 - Apex Leadership Attributes
- Lecture 18 - Leadership Essentials
- Lecture 19 - Learning to Lead
- Lecture 20 - Indian Leader Competencies
- Lecture 21 - Self-actualization
- Lecture 22 - Leadership Balance
- Lecture 23 - Paradox Management
- Lecture 24 - Agile and Precise
- Lecture 25 - Adaptive Processes
- Lecture 26 - Stature versus Title
- Lecture 27 - Vision, Strategy, Structure and Execution
- Lecture 28 - Organization Structures
- Lecture 29 - Effective Execution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Building Perpetual Corporations
- Lecture 31 - Enablement as Development
- Lecture 32 - Instilling Development Passion
- Lecture 33 - CEO Succession
- Lecture 34 - Success Factors for Succession
- Lecture 35 - Stage and Stature
- Lecture 36 - R&D Leadership
- Lecture 37 - Operations Leadership
- Lecture 38 - Marketing Leadership
- Lecture 39 - Finance Leadership
- Lecture 40 - Human Resources Leadership
- Lecture 41 - Pioneering Leadership Model
- Lecture 42 - Performance Leadership Model
- Lecture 43 - Corporate Longevity Model
- Lecture 44 - Intellectual Leadership Model
- Lecture 45 - Leadership Accountability Model
- Lecture 46 - Charismatic Leadership Model
- Lecture 47 - People Leadership Model
- Lecture 48 - Follower Leadership Model
- Lecture 49 - Dependence-Independence Model
- Lecture 50 - Connected Leadership Model
- Lecture 51 - Leadership Sensibilities
- Lecture 52 - Leadership Mistakes
- Lecture 53 - Lonely at the Top
- Lecture 54 - Leadership Emotions
- Lecture 55 - Organizational Totalitarianism
- Lecture 56 - Dr A P J Abdul Kalam President without Precedent
- Lecture 57 - Dr C K Prahalad Timeless in Strategy, Tireless in Creativity
- Lecture 58 - Steve Jobs Technology Visionary Par Excellence
- Lecture 59 - Dr KallamAnjiReddy Game Changing Pharma Entrepreneur
- Lecture 60 - J R D Tata Conglomerate Leadership Beyond Compare
- Lecture 61 - Mahatma Gandhi Leadership Beyond Compare
- Lecture 62 - In Closing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Strategy and Technology: A Practical Primer

Subject Co-ordinator - Prof. C Bhaktavatsala Rao

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - External analysis
- Lecture 2 - Industry evolution
- Lecture 3 - Five forces model
- Lecture 4 - Generic competitive strategies
- Lecture 5 - Position analyses
- Lecture 6 - Competitive Dynamics
- Lecture 7 - Business Portfolio Analysis
- Lecture 8 - Global Strategy
- Lecture 9 - Creative Strategy
- Lecture 10 - Balanced Scorecard
- Lecture 11 - Execution overview
- Lecture 12 - Structure as enabler
- Lecture 13 - Execution
- Lecture 14 - Execution case study
- Lecture 15 - Strategic management
- Lecture 16 - Competitive strategy overview
- Lecture 17 - Economic forces
- Lecture 18 - Liquidity as the sixth force
- Lecture 19 - The six forces model
- Lecture 20 - Strategic groups
- Lecture 21 - Buyer power
- Lecture 22 - Supplier power
- Lecture 23 - Competitive moves
- Lecture 24 - Market signaling
- Lecture 25 - Competitor clusters and analysis
- Lecture 26 - Generic strategies
- Lecture 27 - Structural analysis and competitive strategy
- Lecture 28 - Quality, Cost and value
- Lecture 29 - Differentiation and De-commoditization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Niche as a core competence
- Lecture 31 - Generic industry environments
- Lecture 32 - Integration, Expansion, and Diversification
- Lecture 33 - Comparators and responders
- Lecture 34 - Strategic balance
- Lecture 35 - Technology and collaboration
- Lecture 36 - Technology strategy
- Lecture 37 - Competition in technology prism
- Lecture 38 - Technological competence
- Lecture 39 - Generic technology strategies
- Lecture 40 - Innovation and generic strategies
- Lecture 41 - Technology and Differentiation
- Lecture 42 - Technology and Followership
- Lecture 43 - Technology in five forces prism
- Lecture 44 - Technology and Patenting
- Lecture 45 - Technology and Change
- Lecture 46 - Customised product design
- Lecture 47 - Technology and functionality
- Lecture 48 - Technological behaviour
- Lecture 49 - Technology and public policy
- Lecture 50 - Technology and transformation
- Lecture 51 - Strategic shifts
- Lecture 52 - Business models
- Lecture 53 - Retro - Futurism
- Lecture 54 - Innovation strategy and process
- Lecture 55 - High technology business companies
- Lecture 56 - Renewables and electric vehicles
- Lecture 57 - Dyson and 3M
- Lecture 58 - GE and DuPont
- Lecture 59 - NVIDIA and Bose
- Lecture 60 - Fitbit and apple
- Lecture 61 - In closing



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Development: From Start to Scale

Subject Co-ordinator - Prof. C Bhaktavatsala Rao

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Understanding Business Development
- Lecture 2 - Marketing and Business Development
- Lecture 3 - Markets and Marketing
- Lecture 4 - Strategy Formulation
- Lecture 5 - Business Development Cases
- Lecture 6 - Successful Business
- Lecture 7 - Industry and Market
- Lecture 8 - Vision, Mission and Strategy
- Lecture 9 - Goals
- Lecture 10 - Case Study of Business Development Excellence
- Lecture 11 - Industry and Business
- Lecture 12 - Porter's Five Forces Theory
- Lecture 13 - Industrial Transformations
- Lecture 14 - Competitive Strategies
- Lecture 15 - Company Analysis
- Lecture 16 - Industry, Market and Business
- Lecture 17 - Industry and Market Analysis
- Lecture 18 - Market Structures
- Lecture 19 - Demand Forecasting
- Lecture 20 - Competitor Analysis
- Lecture 21 - Customer Characteristics
- Lecture 22 - Customer Typologies
- Lecture 23 - Market Research and Design Thinking
- Lecture 24 - Customer Bonding
- Lecture 25 - Customer Relationship Management
- Lecture 26 - Market and Market Descriptors
- Lecture 27 - Market and Product Segmentation
- Lecture 28 - Product-Market Segmentation
- Lecture 29 - Segmentation Deep Dive

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Market Attractiveness and competitive positioning
- Lecture 31 - Branding
- Lecture 32 - Brand Organization
- Lecture 33 - Advertising and Communication
- Lecture 34 - Servitization
- Lecture 35 - Pricing
- Lecture 36 - A New IT Start-up
- Lecture 37 - An FMCG Start-up
- Lecture 38 - A logistics start-up
- Lecture 39 - A Nutraceuticals Start-up
- Lecture 40 - A Telecom Fightback
- Lecture 41 - Collaborations
- Lecture 42 - Strategic Alliances
- Lecture 43 - Joint Ventures
- Lecture 44 - Subsidiaries
- Lecture 45 - Mergers and Acquisitions
- Lecture 46 - Value Chain Competencies
- Lecture 47 - Functional Competencies
- Lecture 48 - Negotiating Skills
- Lecture 49 - Cultural Skills
- Lecture 50 - Leadership Attributes
- Lecture 51 - Growth Strategies
- Lecture 52 - Growth Examples
- Lecture 53 - Fragmented Industries and Emerging Industries
- Lecture 54 - Mature Industries and Declining Industries
- Lecture 55 - Global Industries and New Businesses
- Lecture 56 - A Pharma Transformation
- Lecture 57 - Pharma Strategic Alliances
- Lecture 58 - Business Turbulence
- Lecture 59 - Creating Value
- Lecture 60 - From Starting to scale in Closing

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Applied Econometrics (2023)

Subject Co-ordinator - Prof. Sabuj Kumar Mandal

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Instrumental Variable Estimation - Part I  
Lecture 2 - Instrumental Variable Estimation - Part II  
Lecture 3 - Instrumental Variable Estimation - Part III  
Lecture 4 - Instrumental Variable Estimation - Part IV  
Lecture 5 - Instrumental Variable Estimation - Part V  
Lecture 6 - Instrumental Variable Estimation - Part VI  
Lecture 7 - Instrumental Variable Estimation - Part VII  
Lecture 8 - Instrumental Variable Estimation - Part VIII  
Lecture 9 - Instrumental Variable Estimation - Part IX  
Lecture 10 - Instrumental Variable Estimation - Part X  
Lecture 11 - Instrumental Variable Estimation - Part XI  
Lecture 12 - Simultaneous Equation Model - Part I  
Lecture 13 - Simultaneous Equation Model - Part II  
Lecture 14 - Simultaneous Equation Model - Part III  
Lecture 15 - Simultaneous Equation Model - Part IV  
Lecture 16 - Simultaneous Equation Model - Part V  
Lecture 17 - Simultaneous Equation Model - Part VI  
Lecture 18 - Simultaneous Equation Model - Part VII  
Lecture 19 - Simultaneous Equation Model - Part VIII  
Lecture 20 - Pooled Data and Panel Data Model Estimation - Part I  
Lecture 21 - Pooled Data and Panel Data Model Estimation - Part II  
Lecture 22 - Pooled Data and Panel Data Model Estimation - Part III  
Lecture 23 - Pooled Data and Panel Data Model Estimation - Part IV  
Lecture 24 - Pooled Data and Panel Data Model Estimation - Part V  
Lecture 25 - Pooled Data and Panel Data Model Estimation - Part VI  
Lecture 26 - Panel Data Model Estimation - Part VII  
Lecture 27 - Panel Data Model Estimation - Part IX  
Lecture 28 - Qualitative Response Model - Part I  
Lecture 29 - Qualitative Response Model - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Qualitative Response Model - Part III
- Lecture 31 - Qualitative Response Model - Part IV
- Lecture 32 - Qualitative Response Model - Part V
- Lecture 33 - Qualitative Response Model - Part VI
- Lecture 34 - Multinomial Regression Model - Part I
- Lecture 35 - Multinomial Regression Model - Part II
- Lecture 36 - Multinomial Regression Model - Part III
- Lecture 37 - Multinomial Regression Model - Part IV
- Lecture 38 - Dynamic Panel data Model - Part I
- Lecture 39 - Dynamic Panel data Model - Part II
- Lecture 40 - Dynamic Panel data Model - Part III
- Lecture 41 - Dynamic Panel data Model - Part IV
- Lecture 42 - Dynamic Panel data Model - Part V
- Lecture 43 - Dynamic Panel data Model - Part VI
- Lecture 44 - Dynamic Panel data Model - Part VII
- Lecture 45 - Dynamic Panel data Model - Part VIII
- Lecture 46 - Dynamic Panel data Model - Part IX
- Lecture 47 - Dynamic Panel data Model - Part X
- Lecture 48 - Dynamic Panel data Model - Part XI
- Lecture 49 - Dynamic Panel data Model - Part XII
- Lecture 50 - Dynamic Panel data Model - Part XIII
- Lecture 51 - Dynamic Panel data Model - Part XIV
- Lecture 52 - Dynamic Panel data Model - Part XV
- Lecture 53 - Dynamic Panel data Model - Part XVI
- Lecture 54 - Dynamic Panel data Model - Part XVII
- Lecture 55 - Dynamic Panel data Model - Part XVIII
- Lecture 56 - Dynamic Panel data Model - Part XIX
- Lecture 57 - Dynamic Panel data Model - Part XX
- Lecture 58 - Course outline for Applied Econometrics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Working in Contemporary Teams

Subject Co-ordinator - Prof.Chitra Dey, Prof.M. P Ganesh

Co-ordinating Institute - IITH, VIT Chennai

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to contemporary teams

Lecture 2 - Introduction to virtual teams

Lecture 3 - Virtual teams

Lecture 4 - Factors affecting virtual teams

Lecture 5 - Managing virtualness

Lecture 6 - Cross-cultural teams

Lecture 7 - Factors affecting cross-cultural teams

Lecture 8 - Introduction to start-up teams

Lecture 9 - Factors affecting start-up teams

Lecture 10 - Introduction to IPO model in teams

Lecture 11 - Introduction to Human-AI teams

Lecture 12 - Inputs and Processes in Human-AI teams

Lecture 13 - States and Outcomes in Human-AI teams

Lecture 14 - Multiple Team Membership and Multi-team Systems

Lecture 15 - Introduction to Agile teams

Lecture 16 - Team Dynamics in Agile teams

Lecture 17 - Remote work teams

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Foundations of Accounting and Finance

Subject Co-ordinator - Prof. Arun Kumar Gopaldaswamy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Financial Accounting and Cost Accounting
- Lecture 2 - Introduction to Corporate Finance
- Lecture 3 - Contents of Income Statement and Balance Sheet - Part I
- Lecture 4 - Contents of Income Statement and Balance Sheet - Part II
- Lecture 5 - Interaction between Income Statement and Balance Sheet
- Lecture 6 - Preparation of Income Statement and Balance Sheet: Example - Part I
- Lecture 7 - Preparation of Income Statement and Balance Sheet: Example - Part II
- Lecture 8 - Preparation of Income Statement and Balance Sheet: Example - Part III
- Lecture 9 - Preparation of Balance Sheet: Lone Pine Cafe A - Part I
- Lecture 10 - Preparation of Balance Sheet: Lone Pine Cafe A - Part II
- Lecture 11 - Preparation of Income Statement: Lone Pine Cafe B
- Lecture 12 - Cash Flow Statement: Concept and Example (Direct Method) - Lone Pine Cafe
- Lecture 13 - Classification of Balance Sheet Items: Maynard Company A
- Lecture 14 - Preparation of Income Statement: Maynard Company B
- Lecture 15 - Preparation of Cash Flow Statement: Lone Pine Cafe (Indirect Method)
- Lecture 16 - Preparation of Cash Flow Statement: Lori Crump (Indirect Method)
- Lecture 17 - Preparation of cash flow statement: An example (Direct Method)
- Lecture 18 - Preparation of cash flow statement: An example (Indirect Method)
- Lecture 19 - Ratio Analysis - Part I - Analysis of financial statements
- Lecture 20 - Ratio Analysis - Part II - Profitability Ratios
- Lecture 21 - Ratio Analysis - Part III - Dividend and Liquidity Ratios
- Lecture 22 - Ratio Analysis - Part IV - Efficiency Ratios
- Lecture 23 - Cost, Costing and Cost Accounting
- Lecture 24 - Classification of Costs
- Lecture 25 - Preparation of Cost Sheet - Part I
- Lecture 26 - Preparation of Cost Sheet - Part II
- Lecture 27 - Allocation and Apportionment of Cost
- Lecture 28 - Primary and Secondary Distribution of Overhead
- Lecture 29 - Activity Based Costing - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Activity Based Costing - Part II
- Lecture 31 - Break-Even Analysis
- Lecture 32 - Decision Making using Cost Accounting Informations - Examples - Part I
- Lecture 33 - Decision Making using Cost Accounting Informations - Examples - Part II
- Lecture 34 - Decision Making using Cost Accounting Informations - Examples - Part III
- Lecture 35 - Decision Making using Cost Accounting Informations - Examples - Part IV
- Lecture 36 - Decision Making using Cost Accounting Informations - Examples - Part V
- Lecture 37 - Introduction to Budgeting: Preparation of Budgets - Part I
- Lecture 38 - Introduction to Budgeting: Preparation of Budgets - Part II
- Lecture 39 - Introduction to Budgeting: Preparation of Budgets - Part III
- Lecture 40 - Flexible Budget and Variance Analysis
- Lecture 41 - Foundations of Corporate Finance - Part I
- Lecture 42 - Foundations of Corporate Finance - Part II
- Lecture 43 - Time Value of Money: Present Value and Future Value in Single and Multiperiod case
- Lecture 44 - Simplification of Cash Flows: Annuity, Growing Annuity, Perpetuity and Growing Perpetuity
- Lecture 45 - Bond Valuation - Part I
- Lecture 46 - Bond Valuation - Part II
- Lecture 47 - Stock Valuation
- Lecture 48 - Numericals on Bond and Stock Valuation
- Lecture 49 - Technique of Evaluating Capital Investment Decisions
- Lecture 50 - Numericals on Technique of Evaluating Capital Investment Decisions
- Lecture 51 - Risk and Return - Part I
- Lecture 52 - Risk and Return - Part II
- Lecture 53 - Risk and Return: Individual Securities
- Lecture 54 - Risk and Return: Portfolio
- Lecture 55 - Cost of Capital and Valuation - Part I
- Lecture 56 - Cost of Capital and Valuation - Part II
- Lecture 57 - Valuation and Capital Structure
- Lecture 58 - Dividend and Other Payouts

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Strategic Sourcing

Subject Co-ordinator - Prof. Arshinder Kaur

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Evolution of Sourcing and changing paradigms
- Lecture 2 - Changing Expectations leading to Supply Management and Strategic Sourcing
- Lecture 3 - Supply Chains and Supply Networks
- Lecture 4 - Return on Assets
- Lecture 5 - Strategic sourcing and Organisation's Strategy Importance of supply management
- Lecture 6 - Procure to Pay cycle
- Lecture 7 - Recognition of need
- Lecture 8 - Purchasing and supply process - 1
- Lecture 9 - Purchasing and supply process - 2
- Lecture 10 - Need identification and types - 1
- Lecture 11 - Need identification and types - 2
- Lecture 12 - Indirect contributions of Supply
- Lecture 13 - Aligning supply objectives with organisation's strategy
- Lecture 14 - Procurement in Organizations - 1
- Lecture 15 - Procurement in Organizations - 2
- Lecture 16 - Developing supply strategy - 1
- Lecture 17 - Developing Sourcing/Supply strategy - 1
- Lecture 18 - Developing Sourcing/Supply strategy - 2
- Lecture 19 - Technology in Sourcing
- Lecture 20 - Reverse Auctions
- Lecture 21 - Success stories about technologies in Sourcing
- Lecture 22 - Strategic cost management - 1
- Lecture 23 - Strategic cost management - 2
- Lecture 24 - Strategic cost management - Cost analysis
- Lecture 25 - Sustainability in Supply management - 1
- Lecture 26 - Sustainability in Supply management - 2
- Lecture 27 - Science Based Targets
- Lecture 28 - Negotiation supply management
- Lecture 29 - Planning for negotiation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Negotiation strategy
- Lecture 31 - Negotiation strategy (Continued...)
- Lecture 32 - Supply Contracts
- Lecture 33 - Types of supply contracts - 1
- Lecture 34 - Types of supply contracts - 2
- Lecture 35 - Supplier selection and evaluation - 1
- Lecture 36 - Supplier selection and evaluation - 2
- Lecture 37 - Supplier selection and evaluation - 3
- Lecture 38 - Outsourcing decisions - 1
- Lecture 39 - Outsourcing decisions - 2
- Lecture 40 - TOPSIS
- Lecture 41 - Goal Programming
- Lecture 42 - Interpretive structural model - 1
- Lecture 43 - Interpretive structural model - 2
- Lecture 44 - Supply risk management
- Lecture 45 - Risk management framework
- Lecture 46 - Supply risk examples
- Lecture 47 - Assessment of risk
- Lecture 48 - Risk metrics

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Financial Statement Analysis and Reporting

Subject Co-ordinator - Prof. Anil K. Sharma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Accounting Process

Lecture 3 - Accounting Concepts

Lecture 4 - Trial Balance and its Relevance

Lecture 5 - Relevant Accounting Statements

Lecture 6 - Journal (Part-I) - The first and original book of accounting

Lecture 7 - Journal (Part-II) - The first and original book of accounting

Lecture 8 - Ledger-The second book of accounts

Lecture 9 - Financial Statements

Lecture 10 - Financial Statements - Income Statement

Lecture 11 - Financial Statements - Balance Sheet

Lecture 12 - Financial Statements with Adjustments (Part-1)

Lecture 13 - Financial Statements with Adjustments (Part-2)

Lecture 14 - Financial Statements with Adjustments (Part-3)

Lecture 15 - Financial Statements with Adjustments (Part-4)

Lecture 16 - Financial Statements with Adjustments (Part-5)

Lecture 17 - Financial Statements with Adjustments (Part-6)

Lecture 18 - Financial Statements with Adjustments (Part-7)

Lecture 19 - Financial Statements with Adjustments (Part-8)

Lecture 20 - Financial Statements with Adjustments (Part-9)

Lecture 21 - Financial Statements with Adjustments (Part-10)

Lecture 22 - Financial Statements with Adjustments (Part-11)

Lecture 23 - Financial Statements with Adjustments (Part-12)

Lecture 24 - Financial Statements with Adjustments (Part-13)

Lecture 25 - Corporate Financial Statements (Part-1)

Lecture 26 - Corporate Financial Statements (Part-2)

Lecture 27 - Corporate Financial Statements (Part-3)

Lecture 28 - Corporate Financial Statements (Part-4)

Lecture 29 - Corporate Financial Statements (Part-5)

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- Lecture 30 - Corporate Financial Statements (Part-6)
- Lecture 31 - Corporate Financial Statements (Part-7)
- Lecture 32 - Corporate Financial Statements (Part-8)
- Lecture 33 - Corporate Financial Statements (Part-9)
- Lecture 34 - Financial Statement Analysis
- Lecture 35 - Ratio Analysis (Part-1)
- Lecture 36 - Ratio Analysis (Part-2)
- Lecture 37 - Ratio Analysis (Part-3)
- Lecture 38 - Different Sets of Ratios (Part-1)
- Lecture 39 - Different Sets of Ratios (Part-2)
- Lecture 40 - Ratio Analysis - A case of Grasim Industries (Part-1)
- Lecture 41 - Ratio Analysis - A case of Grasim Industries (Part-2)
- Lecture 42 - Liquidity Ratios - Grasim Industries (Part-1)
- Lecture 43 - Liquidity Ratios - Grasim Industries (Part-2)
- Lecture 44 - Liquidity Ratios - Grasim Industries (Part-3)
- Lecture 45 - Profitability Ratios- Grasim Industries (Part-1)
- Lecture 46 - Profitability Ratios- Grasim Industries (Part-2)
- Lecture 47 - Profitability Ratios- Grasim Industries (Part-3)
- Lecture 48 - DuPont Ratios (Part-1)
- Lecture 49 - DuPont Ratios (Part-2)
- Lecture 50 - Valuation or Capital Market Ratios (Part-1)
- Lecture 51 - Valuation or Capital Market Ratios (Part-2)
- Lecture 52 - Cash Flow Statement - Introduction (Part-1)
- Lecture 53 - Cash Flow Statement (Part-2)
- Lecture 54 - Preparation of Cash Flow Statement- Basic Cash Flow Statement
- Lecture 55 - Cash Flow Statement - Further Analysis (Part-1)
- Lecture 56 - Cash Flow Statement - Further Analysis (Part-2)
- Lecture 57 - Final Cash Flow Statement (Part-1)
- Lecture 58 - Final Cash Flow Statement (Part-2)
- Lecture 59 - Financial Reporting (Part-1)
- Lecture 60 - Financial Reporting (Part-2)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Supply Chain Analytics

Subject Co-ordinator - Prof. Rajat Agrawal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Supply Chain Management

Lecture 2 - Evolution of Supply Chain Management

Lecture 3 - Analytics in Supply Chain Management

Lecture 4 - Supply Chain Planning

Lecture 5 - Different views of Supply Chain

Lecture 6 - Supply Chain Strategy

Lecture 7 - Supply Chain Drivers

Lecture 8 - Developing Supply Chain Strategy

Lecture 9 - Strategic Fit in Supply Chain

Lecture 10 - Demand Forecasting in Supply Chain

Lecture 11 - Bullwhip Effect and Time Series Analysis

Lecture 12 - Exponential Smoothing Method of Forecasting

Lecture 13 - Measures of Forecasting Errors

Lecture 14 - Tracking Signal and Seasonality Models

Lecture 15 - Forecasting using multiple characteristics in Demand Data and Inventory Management in Supply Chain

Lecture 16 - Inventory Management in Supply Chain

Lecture 17 - Multi echelon Inventory Management

Lecture 18 - Multi echelon Inventory Management (Continued...)

Lecture 19 - Multi echelon Inventory Management for four stations

Lecture 20 - Multi echelon Inventory Management for four stations (Numerical Example)

Lecture 21 - Multi echelon Inventory Management for four stations (Numerical Example) (Continued...)

Lecture 22 - Network Design in Supply Chain

Lecture 23 - Network Design of Global Supply Chain

Lecture 24 - Alternative channels of Distribution

Lecture 25 - Location Decisions in Supply Chain

Lecture 26 - Network Optimization Models

Lecture 27 - Using Excel Solver for Network Optimization

Lecture 28 - Uncertainty in Network Design

Lecture 29 - Network Design in Uncertain Environment and Flexibility

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Flexibility in Supply Chain
- Lecture 31 - Optimal Level of Product Availability in Supply chain
- Lecture 32 - Time Value of money in Supply Chain
- Lecture 33 - Different types of Analytics in Supply Chain
- Lecture 34 - Predictive Modelling in Forecasting in Supply Chain
- Lecture 35 - Representation on Uncertainty in Supply Chain
- Lecture 36 - Using Decision Tree for handling Uncertainty
- Lecture 37 - Example of using Decision Tree incorporating Uncertainty in Single Factor
- Lecture 38 - Example of using Decision Tree incorporating Uncertainty in two Key Factors
- Lecture 39 - Modelling Flexibility in Supply Chain
- Lecture 40 - Trends, Challenges and Future of Supply Chain

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Marketing Research and Analysis

Subject Co-ordinator - Dr. Jogendra Kumar Nayak

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Marketing Research
- Lecture 2 - Defining Research Problem
- Lecture 3 - Developing Research Approach and Developing Research Design
- Lecture 4 - Research Design
- Lecture 5 - Qualitative Research
- Lecture 6 - Qualitative Research
- Lecture 7 - Projective Technique, Case Study
- Lecture 8 - Case Study, Descriptive Research Design and Research Errors
- Lecture 9 - Primary and Secondary Data, Research Error
- Lecture 10 - Measurement and Scaling
- Lecture 11 - Scale Development Process
- Lecture 12 - Questionnaire and Form Design
- Lecture 13 - Causal Research and Types
- Lecture 14 - Experimental Design and Sampling
- Lecture 15 - Sampling Design and Procedure
- Lecture 16 - Sampling and Sample Size Determination
- Lecture 17 - Hypothesis Development
- Lecture 18 - Data Preparation
- Lecture 19 - Hypothesis Testing
- Lecture 20 - T, Z and F Test
- Lecture 21 - Hypothesis Testing
- Lecture 22 - Cross Tabulation and Chi Square Test
- Lecture 23 - Correlation and Regression
- Lecture 24 - Regression
- Lecture 25 - Factor Analysis
- Lecture 26 - Factor Analysis
- Lecture 27 - SEM and CFA - 1
- Lecture 28 - SEM and CFA - 2
- Lecture 29 - SEM and CFA - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cluster Analysis - I
- Lecture 31 - Cluster Analysis - II
- Lecture 32 - Discriminant Analysis
- Lecture 33 - Discriminant Analysis - 1
- Lecture 34 - Researching Rural Market
- Lecture 35 - International Marketing Research
- Lecture 36 - Ethics in Marketing Research
- Lecture 37 - Ethics in Marketing Research - 1
- Lecture 38 - Report Preparation and Presentation
- Lecture 39 - Multi Dimensional Scaling
- Lecture 40 - Conjoint Analysis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Project Management for Managers

Subject Co-ordinator - S. K. Gupta, Prof. Mukesh Kumar Barua

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction of Project Management  
Lecture 2 - Project Success  
Lecture 3 - Types of Structure Organizations  
Lecture 4 - Project Management Office  
Lecture 5 - Stakeholders Management  
Lecture 6 - Types of Projects and Project Life Cycle  
Lecture 7 - Project Life Cycle Phases and Project Appraisal  
Lecture 8 - Methods of Project Selection - I  
Lecture 9 - Methods of Project Selection - II  
Lecture 10 - Methods of Project Selection - MCDM-I  
Lecture 11 - Methods of Project Selection - MCDM-II  
Lecture 12 - Methods of Project Selection - MCDM-III  
Lecture 13 - Market and Demand Analysis - I  
Lecture 14 - Market and Demand Analysis - II  
Lecture 15 - Financial Analysis  
Lecture 16 - Capital Budgeting Techniques - I  
Lecture 17 - Capital Budgeting Techniques - II  
Lecture 18 - Financing of Projects  
Lecture 19 - Risk Management - I  
Lecture 20 - Risk Management - II  
Lecture 21 - Risk Management (Control and Documentation)  
Lecture 22 - Stand Alone Risk Analysis - I  
Lecture 23 - Stand Alone Risk Analysis - II  
Lecture 24 - Hillier Model  
Lecture 25 - Simulation Analysis  
Lecture 26 - Decision Tree Analysis - I  
Lecture 27 - Decision Tree Analysis - II  
Lecture 28 - Abandonment Analysis  
Lecture 29 - Technical Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Product Mix and Plant Capacity Analysis
- Lecture 31 - Project Team Building, Conflict and Negotiation
- Lecture 32 - HRM Issues and time Management
- Lecture 33 - Project Time Management - Introduction
- Lecture 34 - Project Time Management - Project Scheduling
- Lecture 35 - Project time Management - Numbering of Nodes
- Lecture 36 - Project Time Management - PERT Networks
- Lecture 37 - Project Time Management - CPM
- Lecture 38 - Project Time Management - Laddering in PERT/CPM
- Lecture 39 - Probability Models in Networks - I
- Lecture 40 - Probability Models in Networks - II
- Lecture 41 - Probability Models in Networks - III
- Lecture 42 - Probability Models in Networks - IV
- Lecture 43 - Simulation of Networks - I
- Lecture 44 - Simulation of Networks - II
- Lecture 45 - Slacks and Floats - I
- Lecture 46 - Slacks and Floats - II
- Lecture 47 - Time and Cost Relationship
- Lecture 48 - Crashing of Networks - I
- Lecture 49 - Crashing of Networks - II
- Lecture 50 - Crashing of Networks - III (Free Float Method)
- Lecture 51 - Crashing of Networks - IV
- Lecture 52 - Introduction to Project Cost Management
- Lecture 53 - Cost Control (Tools and Techniques)
- Lecture 54 - Cost Estimation
- Lecture 55 - Introduction to Quality Management
- Lecture 56 - Cost of Quality
- Lecture 57 - Quality Management (Source of variability and Six Sigma)
- Lecture 58 - Quality Management (Six Sigma Tools)
- Lecture 59 - Procurement Management- I
- Lecture 60 - Procurement Management- II and Project Termination

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Analytics and Data Mining Modeling using R

Subject Co-ordinator - Dr. Gaurav Dixit

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Data Mining Process  
Lecture 3 - Introduction To R  
Lecture 4 - Basic Statistics  
Lecture 5 - Basic Statistics - Part 2  
Lecture 6 - Partitioning Process  
Lecture 7 - Visualization Techniques  
Lecture 8 - Visualization Techniques - Part 2  
Lecture 9 - Visualization Techniques - Part 3  
Lecture 10 - Visualization Techniques - Part 4  
Lecture 11 - Visualization Techniques - Part 5  
Lecture 12 - Visualization Techniques - Part 6  
Lecture 13 - Dimension Reduction Techniques  
Lecture 14 - Dimension Reduction Techniques - Part 2  
Lecture 15 - Dimension Reduction Techniques - Part 3  
Lecture 16 - Performance Metrics  
Lecture 17 - Performance Metrics - Part 2  
Lecture 18 - Performance Metrics - Part 3  
Lecture 19 - Performance Metrics - Part 4  
Lecture 20 - Performance Metrics - Part 5  
Lecture 21 - Prediction Performance  
Lecture 22 - Multiple Linear Regression  
Lecture 23 - Multiple Linear Regression - Part 2  
Lecture 24 - Multiple Linear Regression - Part 3  
Lecture 25 - Multiple Linear Regression - Part 4  
Lecture 26 - Multiple Linear Regression - Part 5  
Lecture 27 - Multiple Linear Regression - Part 6  
Lecture 28 - Machine Learning Technique K-Nn  
Lecture 29 - Machine Learning Technique K-Nn - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Machine Learning Technique K-Nn - Part 3
- Lecture 31 - Naive Bayes
- Lecture 32 - Naive Bayes - Part 2
- Lecture 33 - Naive Bayes - Part 3
- Lecture 34 - Naive Bayes - Part 4
- Lecture 35 - Naive Bayes - Part 5
- Lecture 36 - Classification And Regression Trees
- Lecture 37 - Classification And Regression Trees - Part 2
- Lecture 38 - Classification And Regression Trees - Part 3
- Lecture 39 - Classification And Regression Trees - Part 4
- Lecture 40 - Classification And Regression Trees - Part 5
- Lecture 41 - Classification And Regression Trees - Part 6
- Lecture 42 - Pruning Process
- Lecture 43 - Pruning Process - Part 2
- Lecture 44 - Pruning Process - Part 3
- Lecture 45 - Regression Trees
- Lecture 46 - Logistic Regression
- Lecture 47 - Logistic Regression - Part 2
- Lecture 48 - Logistic Regression - Part 3
- Lecture 49 - Logistic Regression - Part 4
- Lecture 50 - Logistic Regression - Part 5
- Lecture 51 - Logistic Regression - Part 6
- Lecture 52 - Logistic Regression - Part 7
- Lecture 53 - Artificial Neural Networks
- Lecture 54 - Artificial Neural Network - Part 2
- Lecture 55 - Artificial Neural Network - Part 3
- Lecture 56 - Artificial Neural Network - Part 4
- Lecture 57 - Artificial Neural Network - Part 5
- Lecture 58 - Artificial Neural Network - Part 6
- Lecture 59 - Discriminant Analysis
- Lecture 60 - Discriminant Analysis - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Working Capital Management

Subject Co-ordinator - Prof. Anil K. Sharma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - I
- Lecture 2 - Introduction - II
- Lecture 3 - Nature of the Working Capital Management
- Lecture 4 - Approaches of Working Capital Management - I
- Lecture 5 - Approaches of Working Capital Management - II
- Lecture 6 - Trade off between Profitability and Risk - I
- Lecture 7 - Trade off between Profitability and Risk - II
- Lecture 8 - Working Capital Management in Indian Business - I
- Lecture 9 - Working Capital Management in Indian Business - II
- Lecture 10 - Operating Cycle
- Lecture 11 - Weighted Operating Cycle
- Lecture 12 - Working Capital Requirement Assessment - I
- Lecture 13 - Working Capital Requirement Assessment - II
- Lecture 14 - Assessing Working Capital Requirements - Problem 2 and 5
- Lecture 15 - Working Capital Requirement- The Conclusion
- Lecture 16 - Working Capital Leverage
- Lecture 17 - Risk and Cost of Holding Inventory
- Lecture 18 - Inventory Costs
- Lecture 19 - Inventory Behaviour
- Lecture 20 - Inventory Management - Methods and Strategies
- Lecture 21 - EOQ Technique of Inventory Management
- Lecture 22 - Stockouts cause Walkouts
- Lecture 23 - Rationing of Working Capital - I
- Lecture 24 - Rationing of Working Capital - II
- Lecture 25 - Different Modes of Bank Finance
- Lecture 26 - Incremental Inventory - I
- Lecture 27 - Incremental Inventory - II
- Lecture 28 - Management of Accounts Receivables - I
- Lecture 29 - Management of Accounts Receivables - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Management of Accounts Receivables - III
- Lecture 31 - Motives of Credit Sale - I
- Lecture 32 - Motives of Credit Sale - II
- Lecture 33 - Limitations of Credit Time Period
- Lecture 34 - Written Credit Policy - I
- Lecture 35 - Written Credit Policy - II
- Lecture 36 - Goals and Functions of Accounts Receivables Management
- Lecture 37 - Valuation of Receivables at Cost or Sales Value
- Lecture 38 - Credit Policy Changes - I
- Lecture 39 - Credit Policy Changes - II
- Lecture 40 - Credit Policy Changes - III
- Lecture 41 - Optimum Credit Policy
- Lecture 42 - Credit Risk Analysis - I
- Lecture 43 - Credit Risk Analysis - II
- Lecture 44 - Credit Risk Analysis - III
- Lecture 45 - Credit Policy Variables
- Lecture 46 - Cash Management
- Lecture 47 - Cash Flow Presentation
- Lecture 48 - Models of Cash Management- Certainty Model by Baumol
- Lecture 49 - Certainty Model by Baumol Continued
- Lecture 50 - Uncertainty Model by Miller and Orr
- Lecture 51 - Miller and Orr (Continued...) and Cash Management Techniques
- Lecture 52 - Measures of Liquidity
- Lecture 53 - Window Dressing and Management of Current Liabilities
- Lecture 54 - Management of Accounts Payable
- Lecture 55 - Cost of Stretching Accounts Payable - I
- Lecture 56 - Cost of Stretching Accounts Payable - II
- Lecture 57 - Other Accruals and Overtrading
- Lecture 58 - Bank Finance - Introduction
- Lecture 59 - Recommendations of Tondon and Chore Committees
- Lecture 60 - Deciding a Suitable Mix

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Innovation, Business Models and Entrepreneurship

Subject Co-ordinator - Prof. Vinay Sharma, Prof. Rajat Agrawal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Analyzing the Current Business Scenario

Lecture 2 - Innovation and Creativity - An Introduction

Lecture 3 - Innovation in Current Environment

Lecture 4 - Types of Innovation

Lecture 5 - School of Innovation

Lecture 6 - Challenges of Innovation

Lecture 7 - Steps of Innovation Management

Lecture 8 - Idea Management System

Lecture 9 - Divergent v/s Convergent Thinking

Lecture 10 - Design Thinking and Entrepreneurship

Lecture 11 - Experimentation in Innovation Management

Lecture 12 - Idea Championship

Lecture 13 - Participation for Innovation

Lecture 14 - Co-creation for Innovation

Lecture 15 - Prototyping to Incubation

Lecture 16 - What is Business Model ?

Lecture 17 - Who is an Entrepreneur ?

Lecture 18 - Social Entrepreneurship ?

Lecture 19 - Blue Ocean Strategy - I

Lecture 20 - Blue Ocean Strategy - II

Lecture 21 - Marketing of Innovation

Lecture 22 - Technology Innovation Process

Lecture 23 - Technological Innovation Management Planning

Lecture 24 - Technological Innovation Management Strategies

Lecture 25 - Technology Forecasting

Lecture 26 - Sustainability Innovation and Entrepreneurship

Lecture 27 - Innovation Sustainable Conditions

Lecture 28 - Innovation

Lecture 29 - SME's strategic involvement in sustainable development

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Insight and Entrepreneurship
- Lecture 31 - Management of Innovation, creation of IPR - I
- Lecture 32 - Management of Innovation, creation of IPR - II
- Lecture 33 - Types of IPR
- Lecture 34 - Patents and Copyrights
- Lecture 35 - Patents in India
- Lecture 36 - Business Models and value proposition
- Lecture 37 - Business Model Failure
- Lecture 38 - Incubators
- Lecture 39 - Managing Investors for Innovation
- Lecture 40 - Future markets and Innovation needs for India

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Analytics and Data Mining Modeling Using R - Part II

Subject Co-ordinator - Dr. Gaurav Dixit

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Association Rules - Part I  
Lecture 2 - Association Rules - Part II  
Lecture 3 - Association Rules - Part III  
Lecture 4 - Association Rules - Part IV  
Lecture 5 - Cluster Analysis - Part I  
Lecture 6 - Cluster Analysis - Part II  
Lecture 7 - Cluster Analysis - Part III  
Lecture 8 - Cluster Analysis - Part IV  
Lecture 9 - Cluster Analysis - Part V  
Lecture 10 - Cluster Analysis - Part VI  
Lecture 11 - Cluster Analysis - Part VII  
Lecture 12 - Understanding Time Series - Part I  
Lecture 13 - Understanding Time Series - Part II  
Lecture 14 - Understanding Time Series - Part III  
Lecture 15 - Understanding Time Series - Part IV  
Lecture 16 - Regression Based Forecasting Methods - Part I  
Lecture 17 - Regression Based Forecasting Methods - Part II  
Lecture 18 - Regression Based Forecasting Methods - Part III  
Lecture 19 - Time Series Forecasting - Smoothing Methods - Part I  
Lecture 20 - Time Series Forecasting - Smoothing Methods - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Global Marketing Management

Subject Co-ordinator - Prof. Z. Rahman

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Globalization - Part 1  
Lecture 2 - Globalization - Part 2  
Lecture 3 - Global Economic Environment - Part 1  
Lecture 4 - Global Economic Environment - Part 2  
Lecture 5 - Global Economic Environment - Part 3  
Lecture 6 - Financial Environment - Part 1  
Lecture 7 - Financial Environment - Part 2  
Lecture 8 - Cultural Issues and Buying Behavior - Part 1  
Lecture 9 - Cultural Issues and Buying Behavior - Part 2  
Lecture 10 - Political/ Legal Environment - Part 1  
Lecture 11 - Political/ Legal Environment - Part 2  
Lecture 12 - Global Marketing Research - Part 1  
Lecture 13 - Global Marketing Research - Part 2  
Lecture 14 - Global Segmentation and Positioning - Part 1  
Lecture 15 - Global Segmentation and Positioning - Part 2  
Lecture 16 - Global Marketing Strategies - Part 1  
Lecture 17 - Global Marketing Strategies - Part 2  
Lecture 18 - Global Market Entry Modes - Part 1  
Lecture 19 - Global Market Entry Modes - Part 2  
Lecture 20 - Global Product Development - Part 1  
Lecture 21 - Global Product Development - Part 2  
Lecture 22 - Marketing Products and Services - Part 1  
Lecture 23 - Marketing Products and Services - Part 2  
Lecture 24 - Global Pricing - Part 1  
Lecture 25 - Global Pricing - Part 2  
Lecture 26 - Communicating with the World Consumer - Part 1  
Lecture 27 - Communicating with the World Consumer - Part 2  
Lecture 28 - Sales Management - Part 1  
Lecture 29 - Sales Management - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Global Logistics and Distribution - Part 1
- Lecture 31 - Global Logistics and Distribution - Part 2
- Lecture 32 - Export/Import Management - Part 1
- Lecture 33 - Export/Import Management - Part 2
- Lecture 34 - Export/Import Management - Part 3
- Lecture 35 - Planning, Organization and Control of Global Marketing Operations - Part 1
- Lecture 36 - Planning, Organization and Control of Global Marketing Operations - Part 2
- Lecture 37 - Marketing in Emerging Markets - Part 1
- Lecture 38 - Marketing in Emerging Markets - Part 2
- Lecture 39 - Global Marketing and the Internet - Part 1
- Lecture 40 - Global Marketing and the Internet - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Marketing Research and Analysis-II

Subject Co-ordinator - Dr. Jogendra Kumar Nayak

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Marketing Research - I
- Lecture 2 - Introduction to Marketing Research - II
- Lecture 3 - Marketing Research Process - I
- Lecture 4 - Marketing Research Process - II
- Lecture 5 - Marketing Research Process - III
- Lecture 6 - Marketing Research Process - IV
- Lecture 7 - Hypothesis and Research Question - I (with real life example)
- Lecture 8 - Hypothesis and Research Question - II (with real life example)
- Lecture 9 - Hypothesis Development - I (with a real life case)
- Lecture 10 - Hypothesis Development - II (with a real life case)
- Lecture 11 - Research Design - I
- Lecture 12 - Research Design - II
- Lecture 13 - Research Design - III
- Lecture 14 - Research Design - IV
- Lecture 15 - Research Design - V
- Lecture 16 - Research Design - VI
- Lecture 17 - Data Purification and handling - I
- Lecture 18 - Data Purification and handling - II
- Lecture 19 - Data Purification and handling - III
- Lecture 20 - Data Purification and handling - IV
- Lecture 21 - Power of a Test and Sample Size Calculation (Problem Solving)
- Lecture 22 - Sample Size Calculation and Hypothesis Testing (Problem Solving)
- Lecture 23 - Hypothesis Testing - I (Problem Solving)
- Lecture 24 - Hypothesis Testing - II (Problem Solving)
- Lecture 25 - Non-Parametric Test - I
- Lecture 26 - Non-Parametric Test - II
- Lecture 27 - Non-Parametric Test - III
- Lecture 28 - Non-Parametric Test - IV
- Lecture 29 - Non-Parametric Test - V

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Non-Parametric Test - VI
- Lecture 31 - Non-Parametric Test - VII
- Lecture 32 - Non-Parametric Test - VIII
- Lecture 33 - Introduction to ANOVA and ANCOVA
- Lecture 34 - Conducting one-way ANOVA
- Lecture 35 - Solving n-way ANOVA - I
- Lecture 36 - Solving n-way ANOVA - II
- Lecture 37 - N-way ANOVA and MANOVA in SPSS
- Lecture 38 - MANOVA and ANCOVA in SPSS
- Lecture 39 - ANCOVA in SPSS
- Lecture 40 - ANCOVA and MANCOVA in SPSS
- Lecture 41 - Covariance and Correlation
- Lecture 42 - Correlation in SPSS
- Lecture 43 - Partial and Multiple Correlation
- Lecture 44 - Simple Regression Analysis in SPSS
- Lecture 45 - Multiple Regression Analysis in SPSS - I
- Lecture 46 - Multiple Regression Analysis in SPSS - II
- Lecture 47 - Stepwise Regression and Hierarchical Regression
- Lecture 48 - Hierarchical Regression and Dummy Variable Regression
- Lecture 49 - Logistic Regression Analysis
- Lecture 50 - Discriminant Analysis in SPSS
- Lecture 51 - Factor Analysis in SPSS - I
- Lecture 52 - Factor Analysis in SPSS - II
- Lecture 53 - Exploratory Factor Analysis in SPSS
- Lecture 54 - Confirmatory Factor Analysis in SPSS - I
- Lecture 55 - Confirmatory Factor Analysis in SPSS - II
- Lecture 56 - Confirmatory Factor Analysis in SPSS - III
- Lecture 57 - Structural Equation Modelling in SPSS
- Lecture 58 - Mediation and Moderation Analysis in SPSS
- Lecture 59 - Cluster Analysis in Practice - I
- Lecture 60 - Cluster Analysis in Practice - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Statistics

Subject Co-ordinator - Prof. Mukesh Kumar Barua

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Statistics and Data

Lecture 2 - Types of Statistics, types of Data and sources of Data, Population vs Sample

Lecture 3 - Scales of Measurement

Lecture 4 - Data representation techniques - Part 1

Lecture 5 - Data representation techniques - Part 2 and measures of central tendency - Part 1

Lecture 6 - Measures of Central Tendency - Part 2

Lecture 7 - Examples of introduction to data and data representation techniques

Lecture 8 - Measures of Variation

Lecture 9 - Applications of Measures of Central Tendency and Measures of Variation

Lecture 10 - Chapter concepts- Measures of central tendency and measures of variation, Outliers, and shape of

Lecture 11 - Numerical Descriptive Measures

Lecture 12 - Covariance and Coefficient of Correlation, Introduction to Probability

Lecture 13 - Probability - Part 1

Lecture 14 - Probability - Part 2

Lecture 15 - Probability - Part 3

Lecture 16 - Probability Distributions - Part 1

Lecture 17 - Probability Distributions - Part 2

Lecture 18 - Probability Distributions - Part 3

Lecture 19 - Examples for Standardized Normal Distribution

Lecture 20 - Evaluating Normality, Exponential Probability Distribution

Lecture 21 - Chapter Concepts - Probability Distributions

Lecture 22 - Sampling and Sampling Techniques

Lecture 23 - Sampling Distribution - I

Lecture 24 - Sampling Distribution - II

Lecture 25 - Sampling Distribution - III

Lecture 26 - Method of Estimation

Lecture 27 - Interval Estimation

Lecture 28 - Confidence Interval - I

Lecture 29 - Confidence Interval - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Types of Hypothesis Testing
- Lecture 31 - Hypothesis Testing Process - I
- Lecture 32 - Hypothesis Testing Process - II
- Lecture 33 - Hypothesis Testing Examples
- Lecture 34 - Hypothesis Testing of Proportions - I
- Lecture 35 - Hypothesis Testing of Proportions - II
- Lecture 36 - Hypothesis Testing-One sample Test
- Lecture 37 - Hypothesis Testing using Minitab
- Lecture 38 - Hypothesis Testing of Proportions using Minitab
- Lecture 39 - Hypothesis Testing Two Sample Test - I
- Lecture 40 - Hypothesis Testing Two Sample Test - II
- Lecture 41 - Hypothesis Testing Two sample Test - III
- Lecture 42 - Paired Sample Test
- Lecture 43 - Hypothesis Testing of Proportion
- Lecture 44 - Example of Hypothesis Testing
- Lecture 45 - Design of Experiment
- Lecture 46 - Analysis of variance - I
- Lecture 47 - Analysis of variance - II
- Lecture 48 - Analysis of variance - III
- Lecture 49 - Tukey Kramer test
- Lecture 50 - Randomized Blocked Design
- Lecture 51 - A Factorial Design - I
- Lecture 52 - A Factorial Design - II
- Lecture 53 - Chi-square test goodness of fit - I
- Lecture 54 - Chi-square test goodness of fit - II
- Lecture 55 - Chi-square test of independence
- Lecture 56 - Simple linear regression - I
- Lecture 57 - Simple linear regression - II
- Lecture 58 - Assumption of Regression
- Lecture 59 - Multiple Regression
- Lecture 60 - Example of multiple Regression

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:MCDM Techniques Using R

Subject Co-ordinator - Dr. Gaurav Dixit

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to MCDM Techniques - Part I  
Lecture 2 - Introduction to MCDM Techniques - Part II  
Lecture 3 - Introduction to MCDM Techniques - Part III  
Lecture 4 - Analytic Hierarchy Process (AHP) - Part I  
Lecture 5 - Analytic Hierarchy Process (AHP) - Part II  
Lecture 6 - Analytic Hierarchy Process (AHP) - Part III  
Lecture 7 - Analytic Hierarchy Process (AHP) - Part IV  
Lecture 8 - ELECTRE - Part I  
Lecture 9 - ELECTRE - Part II  
Lecture 10 - ELECTRE - Part III  
Lecture 11 - ELECTRE - Part IV  
Lecture 12 - ELECTRE - Part V  
Lecture 13 - Introduction of TOPSIS - Part I  
Lecture 14 - TOPSIS - Part II  
Lecture 15 - VIKOR - Part I  
Lecture 16 - VIKOR - Part II  
Lecture 17 - Introduction of Fuzzy Sets  
Lecture 18 - Fuzzy AHP - Part I  
Lecture 19 - Fuzzy AHP - Part II  
Lecture 20 - Sensitivity Analysis

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Manufacturing Strategy

Subject Co-ordinator - Prof. Rajat Agarwal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Output of Manufacturing
- Lecture 2 - Operations Systems
- Lecture 3 - Operations Strategy
- Lecture 4 - Functional Strategy Within Context of a Firm
- Lecture 5 - Functional Dominance within Corporate Strategy
- Lecture 6 - World Class Manufacturing Organization
- Lecture 7 - Ps of Manufacturing Strategy
- Lecture 8 - Contribution of Skinner and Hayes and Wheelwright
- Lecture 9 - Alternative Paradigm of Manufacturing Strategy
- Lecture 10 - Some Generic Manufacturing Strategies - I
- Lecture 11 - Developing Manufacturing Strategy
- Lecture 12 - Understanding Markets
- Lecture 13 - Concept of Order Winner and Qualifiers
- Lecture 14 - Basic Characteristics and Specific Dimensions of Order Winners and Qualifiers
- Lecture 15 - Some Specific Order Winners and Qualifiers - I
- Lecture 16 - Some Specific Order Winners and Qualifiers - II
- Lecture 17 - Some Specific Order Winners and Qualifiers - III
- Lecture 18 - Some Specific Order Winners and Qualifiers (non operation related criteria)
- Lecture 19 - Developing an Operations Strategy
- Lecture 20 - Developing an Operations Strategy
- Lecture 21 - Developing an Operations Strategy
- Lecture 22 - Enlightened View of Manufacturing
- Lecture 23 - Manufacturing Strategy Taxonomy
- Lecture 24 - Quality Management and Manufacturing Excellence
- Lecture 25 - Total Quality Management and Manufacturing Excellence
- Lecture 26 - Deming's Approach to Quality
- Lecture 27 - Business Excellence Awards
- Lecture 28 - Process Choice
- Lecture 29 - Process Choice

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Product Profiling
- Lecture 31 - Critical Success Factor for World Class Manufacturing
- Lecture 32 - Value Added Engineering
- Lecture 33 - Total Employee Involvement
- Lecture 34 - HR Theories for Operation Strategy
- Lecture 35 - Flexible Manufacturing System
- Lecture 36 - Concept of Focus
- Lecture 37 - Toyota Production System - I
- Lecture 38 - Toyota Production System - II
- Lecture 39 - World Class Manufacturing and India
- Lecture 40 - Achieving World Class Status

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Training of Trainers

Subject Co-ordinator - Prof. Santosh Rangnekar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to training - 1
- Lecture 2 - Introduction to training - 2
- Lecture 3 - Introduction to training - 3
- Lecture 4 - Introduction to training - 4
- Lecture 5 - Training Needs Assessment
- Lecture 6 - Methods of Training Needs Assessment - 1
- Lecture 7 - Methods of Training Needs Assessment - 2
- Lecture 8 - Methods of Training Needs Assessment - 3
- Lecture 9 - Trainings Design and Types of Training - 1
- Lecture 10 - Trainings Design and Types of Training - 2
- Lecture 11 - Trainings Design and Types of Training - 3
- Lecture 12 - Trainings Design and Types of Training - 4
- Lecture 13 - Design thinking in training
- Lecture 14 - Role of Technology - 1
- Lecture 15 - Role of Technology - 2
- Lecture 16 - Digital Pedagogy in training
- Lecture 17 - Introduction to Training Methods - 1
- Lecture 18 - Introduction to Training Methods - 2
- Lecture 19 - Choosing a Training Method
- Lecture 20 - Examples of Training
- Lecture 21 - Understanding training groups and its dynamics
- Lecture 22 - Training Methods - Case Study - 1
- Lecture 23 - Training Methods - Case Study - 2
- Lecture 24 - Training Methods - Case Study - 3
- Lecture 25 - Training Methods - Case Study - 4
- Lecture 26 - Training Methods - Business Game - 1
- Lecture 27 - Training Methods - Business Game - 2
- Lecture 28 - Training Methods - Business Game - 3
- Lecture 29 - Training Methods - Role Play - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Training Methods - Role Play - 2
- Lecture 31 - Training Methods - Role Play - 3
- Lecture 32 - Training Methods - Behavior Modelling - 1
- Lecture 33 - Training Methods - Behavior Modelling - 2
- Lecture 34 - Training Methods - Behavior Modelling - 3
- Lecture 35 - Cost benefit Analysis
- Lecture 36 - Training Methods - Decision Making - 1
- Lecture 37 - Training Methods - Decision Making - 2
- Lecture 38 - Training Methods - Decision Making - 3
- Lecture 39 - Training Methods - Exercise
- Lecture 40 - Introduction to group training methods
- Lecture 41 - Training Methods - Brainstorming
- Lecture 42 - Training Methods - Group discussion
- Lecture 43 - Training methods - Panel Discussion
- Lecture 44 - A Research Approach in Training - 1
- Lecture 45 - A Research Approach in Training - 2
- Lecture 46 - Training evaluation - 1
- Lecture 47 - Training evaluation - 2
- Lecture 48 - Training response

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Management Accounting

Subject Co-ordinator - Prof. Anil K. Sharma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Introduction - I
- Lecture 2 - An Introduction - II
- Lecture 3 - Branches of Accounting and Cost Sheet
- Lecture 4 - Statement of Cost- An introduction
- Lecture 5 - Fundamentals of Management Accounting - I
- Lecture 6 - Fundamentals of Management Accounting - II
- Lecture 7 - Cost Sheet - Role and Relevance in Management Decision Making - I
- Lecture 8 - Cost Sheet - Role and Relevance in Management Decision Making - II
- Lecture 9 - Preparation and Analysis of Cost Sheet - I
- Lecture 10 - Preparation and Analysis of Cost Sheet - II
- Lecture 11 - Preparation and Analysis of Cost Sheet - III
- Lecture 12 - Budget and Budgetary Control - I
- Lecture 13 - Budget and Budgetary Control - II
- Lecture 14 - Preparation of Budgets
- Lecture 15 - Preparation of Master Budget
- Lecture 16 - Cash Budget - I
- Lecture 17 - Cash Budget - II
- Lecture 18 - Cash Budget - III
- Lecture 19 - Cash Budget - IV
- Lecture 20 - Financial Budget
- Lecture 21 - Master Budget - A Mini Case - I
- Lecture 22 - Master Budget - A Mini Case - II
- Lecture 23 - Master Budget - A Mini Case - III
- Lecture 24 - Flexible Budget and Variance Analysis - I
- Lecture 25 - Flexible Budget and Variance Analysis - II
- Lecture 26 - Flexible Budget and Variance Analysis - III
- Lecture 27 - Flexible Budget - A Mini Case - I
- Lecture 28 - Flexible Budget - A Mini Case - II
- Lecture 29 - Standard Costing and Variance Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pre-Requisites to Standard Costing
- Lecture 31 - Variance Analysis
- Lecture 32 - Material Variances - I
- Lecture 33 - Material Variances - II
- Lecture 34 - Material Variances - III
- Lecture 35 - Material Variances - IV
- Lecture 36 - Material Variances - V
- Lecture 37 - Labor Variances - I
- Lecture 38 - Labor Variances - II
- Lecture 39 - Labor Variances - III
- Lecture 40 - Labor Variances - IV
- Lecture 41 - Labor Variances - V
- Lecture 42 - Overhead Variances
- Lecture 43 - Marginal Costing - I
- Lecture 44 - Marginal Costing - II
- Lecture 45 - Marginal Costing - III
- Lecture 46 - Tools of Marginal Costing
- Lecture 47 - CVP Analysis
- Lecture 48 - Applications of Marginal Costing - I
- Lecture 49 - Applications of Marginal Costing - II
- Lecture 50 - Applications of Marginal Costing - III
- Lecture 51 - Activity Based Costing- An Introduction
- Lecture 52 - Cost Management System and Activity Based Costing - I
- Lecture 53 - Cost Management System and Activity Based Costing - II
- Lecture 54 - Designing of ABC System
- Lecture 55 - Applications of ABC - I
- Lecture 56 - Applications of ABC - II
- Lecture 57 - Management Control System and Responsibility Accounting - I
- Lecture 58 - Management Control System and Responsibility Accounting - II
- Lecture 59 - Implementation of Management Control Systems - I
- Lecture 60 - Implementation of Management Control Systems - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Financial Derivatives and Risk Management

Subject Co-ordinator - Prof. J. P. Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of Derivatives
- Lecture 2 - Forwards
- Lecture 3 - Forwards
- Lecture 4 - Forwards Pricing
- Lecture 5 - Futures
- Lecture 6 - Futures
- Lecture 7 - Forwards and Futures Prices, Exposure
- Lecture 8 - Exposure and Risk
- Lecture 9 - Basics of Futures Hedging
- Lecture 10 - Futures Hedging
- Lecture 11 - Futures Hedging
- Lecture 12 - Futures Hedging
- Lecture 13 - Mean Variance Portfolio Theory
- Lecture 14 - Capital Asset Pricing Model
- Lecture 15 - Systematic and Unsystematic Risk
- Lecture 16 - Index Futures
- Lecture 17 - Hedging with Index Futures
- Lecture 18 - Index Futures
- Lecture 19 - Spot Interest Rates and YTM
- Lecture 20 - YTM, Other Yield Measures
- Lecture 21 - Interest Rate Risk
- Lecture 22 - Duration and Price Sensitivities, Immunization
- Lecture 23 - Interest Rate Futures
- Lecture 24 - T-Bill Futures
- Lecture 25 - T-Bill Futures
- Lecture 26 - T-Bill Futures
- Lecture 27 - Tailing the Hedge; Clean and Dirty Price
- Lecture 28 - US T-Bond Futures
- Lecture 29 - US T-Bond Futures

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Options
- Lecture 31 - Options
- Lecture 32 - Options
- Lecture 33 - American Options
- Lecture 34 - Basic Option Trading Strategies
- Lecture 35 - Option Strategies (Continued...)
- Lecture 36 - Option Spread Strategies
- Lecture 37 - Stochastic Processes
- Lecture 38 - Stochastic Processes
- Lecture 39 - Stochastic Processes
- Lecture 40 - Stochastic Processes
- Lecture 41 - Stochastic Calculus
- Lecture 42 - Stock Price Distributions; Fokker Planck Equation and Solution
- Lecture 43 - Lognormal Distribution
- Lecture 44 - Option Pricing
- Lecture 45 - Option Pricing
- Lecture 46 - Girsanov Theorem; Black Scholes Model
- Lecture 47 - Black Scholes Model (Continued...)
- Lecture 48 - Features of BS Model
- Lecture 49 - Solution of BS PDE; Option Greeks
- Lecture 50 - Option Greeks
- Lecture 51 - Option Greeks
- Lecture 52 - Option Greeks
- Lecture 53 - Option Greeks
- Lecture 54 - Option Greeks
- Lecture 55 - Forward Rate Agreements; Swaps
- Lecture 56 - Swaps
- Lecture 57 - Swaps
- Lecture 58 - Currency Swaps; Value at Risk
- Lecture 59 - Value at Risk
- Lecture 60 - Value at Risk

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business Analytics and Text Mining Modeling Using Python

Subject Co-ordinator - Dr. Gaurav Dixit

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Part I  
Lecture 2 - Introduction - Part II  
Lecture 3 - Introduction - Part III  
Lecture 4 - Python for Analytics - Part I  
Lecture 5 - Python for Analytics - Part II  
Lecture 6 - Python for Analytics - Part III  
Lecture 7 - Python for Analytics - Part IV  
Lecture 8 - Python for Analytics - Part V  
Lecture 9 - Built in Capabilities of Python - Part I  
Lecture 10 - Built in Capabilities of Python - Part II  
Lecture 11 - Built in Capabilities of Python - Part III  
Lecture 12 - Built in Capabilities of Python - Part IV  
Lecture 13 - Built in Capabilities of Python - Part V  
Lecture 14 - Built in Capabilities of Python - Part VI  
Lecture 15 - Built in Capabilities of Python - Part VII  
Lecture 16 - Built in Capabilities of Python - Part VIII  
Lecture 17 - Built in Capabilities of Python - Part IX  
Lecture 18 - Built in Capabilities of Python - Part X  
Lecture 19 - Numerical Python - Part I  
Lecture 20 - Numerical Python - Part II  
Lecture 21 - Numerical Python - Part III  
Lecture 22 - Numerical Python - Part IV  
Lecture 23 - Numerical Python - Part V  
Lecture 24 - Numerical Python - Part VI  
Lecture 25 - Numerical Python - Part VII  
Lecture 26 - Database Using Python Pandas - Part I  
Lecture 27 - Database Using Python Pandas - Part II  
Lecture 28 - Database Using Python Pandas - Part III  
Lecture 29 - Pandas Data Frame Processing Functions

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- Lecture 30 - Python Working with Data - Part I
- Lecture 31 - Python Working with Data - Part II
- Lecture 32 - Python Working with Data - Part III
- Lecture 33 - String and Text Processing - Part I
- Lecture 34 - String and Text Processing - Part II
- Lecture 35 - Data Visualization Using Python
- Lecture 36 - Text Collection and Transformation - Part I
- Lecture 37 - Text Collection and Transformation - Part II
- Lecture 38 - Text Mining and Modeling - Part I
- Lecture 39 - Text Mining and Modeling - Part II
- Lecture 40 - Text Mining and Modeling - Part III

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Toyota Production System

Subject Co-ordinator - Prof. Rajat Agarwal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Manufacturing Excellence
- Lecture 2 - Global Environment
- Lecture 3 - Production System
- Lecture 4 - Operation Strategy
- Lecture 5 - The Heart of the TPS
- Lecture 6 - Principles of Toyota Way
- Lecture 7 - Culture Behind Toyota Way
- Lecture 8 - Toyota Way in Action
- Lecture 9 - Long Term Philosophy
- Lecture 10 - Create Continuous Flow
- Lecture 11 - Pull System
- Lecture 12 - Leveling Workload
- Lecture 13 - Get Quality Right the First Time
- Lecture 14 - Standardization of Task
- Lecture 15 - Use of Visual Control
- Lecture 16 - Use of Reliable Technology
- Lecture 17 - Role of Leaders in Manufacturing Philosophy
- Lecture 18 - Developing Exceptional Teams
- Lecture 19 - Challenge and Respect Extended Networks
- Lecture 20 - See Yourself to Understand the Situation
- Lecture 21 - Developing Decisions with Consensus
- Lecture 22 - Become a Learning Organization
- Lecture 23 - Become a Learning Organization
- Lecture 24 - Using Toyota Way for Other Organizations (Service and Technical)
- Lecture 25 - Lean Manufacturing
- Lecture 26 - Lean Vs Agile Manufacturing
- Lecture 27 - Sustainable Manufacturing - I
- Lecture 28 - Sustainable Manufacturing - II
- Lecture 29 - Flexible Manufacturing System

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- Lecture 30 - Benchmarking
- Lecture 31 - Cultural Issues in Lean
- Lecture 32 - Overview of Lean Implementation
- Lecture 33 - The Significance of Lead Time
- Lecture 34 - Techniques to Reduce Lead Time
- Lecture 35 - Value Stream Mapping
- Lecture 36 - Kanban Approach
- Lecture 37 - Kanban Calculation - I
- Lecture 38 - Kanban Calculation - II
- Lecture 39 - Theory of Constraints
- Lecture 40 - Different Business Excellence Models

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Production and Operation Management (Prof. Rajat Agarwal)

Subject Co-ordinator - Prof. Rajat Agarwal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Production
- Lecture 2 - Global Environment
- Lecture 3 - Operations and Productivity
- Lecture 4 - Types and Characteristics of Manufacturing Systems
- Lecture 5 - Types and Characteristics of Services Systems
- Lecture 6 - Product Design
- Lecture 7 - Introduction To Forecasting
- Lecture 8 - Time Series Forecasting
- Lecture 9 - Time Series Forecasting - Exponential Smoothing - I (Brief)
- Lecture 10 - Time Series Forecasting - Exponential Smoothing - II (Classification)
- Lecture 11 - Time Series Forecasting - Working Example Of Exponential Smoothing - I
- Lecture 12 - Time Series Forecasting - Working Example Of Exponential Smoothing - II
- Lecture 13 - Time Series Forecasting - Working Example Of Exponential Smoothing - III
- Lecture 14 - Forecasting Errors
- Lecture 15 - Causal Or Explanatory Methods
- Lecture 16 - Inventory Planning and control
- Lecture 17 - Basic Inventory Model
- Lecture 18 - Different Variations in Basic EOQ Model
- Lecture 19 - Safety Stock and Fixed Time Inventory Model
- Lecture 20 - Examples of Safety Stock Calculation
- Lecture 21 - Single Period Inventory Model - I (Theory)
- Lecture 22 - Single Period Inventory Model - II (Numerical)
- Lecture 23 - Inventory Control and Management
- Lecture 24 - Material Requirements Planning (MRP)
- Lecture 25 - Improvements in the MRP system
- Lecture 26 - Lot Sizing in MRP Systems
- Lecture 27 - Material Requirements Planning (MRP)
- Lecture 28 - Material Requirements Planning (MRP)
- Lecture 29 - Aggregate Sales and Operations Planning - I (Intermediate and Aggregate Planning)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Aggregate Sales and Operations Planning - II (Demand and Supply Options)
- Lecture 31 - Aggregate planning Techniques - I (Introduction)
- Lecture 32 - Aggregate planning Techniques - II (Examples)
- Lecture 33 - Aggregate planning Techniques - III (Problems)
- Lecture 34 - Production Planning Problems using LP
- Lecture 35 - Nature of Quality and Evolution of Quality Management - I (Product Quality Dimensions)
- Lecture 36 - Nature of Quality and Evolution of Quality Management - II (Service Quality Dimensions)
- Lecture 37 - Modern Quality Management and Total Quality Management
- Lecture 38 - Total Quality Management
- Lecture 39 - Statistical Concepts in Quality Control - I (Overview of Control Charts)
- Lecture 40 - Statistical Concepts in Quality Control - II (p-chart and Examples)
- Lecture 41 - Statistical Concepts in Quality Control - III (c-chart and Examples)
- Lecture 42 - Statistical Concepts in Quality Control - IV (Run Test and Examples)
- Lecture 43 - 7 QC Tools
- Lecture 44 - Acceptance Sampling
- Lecture 45 - Process Capability
- Lecture 46 - Six Sigma
- Lecture 47 - Some Current Issues In Quality Management
- Lecture 48 - Facility Layout - I (Introduction)
- Lecture 49 - Facility Layout - II (Group Technology and other layouts)
- Lecture 50 - Facility Layout - III (Layout design and Precedence diagram)
- Lecture 51 - Introduction to Project Management
- Lecture 52 - PERT and CPM
- Lecture 53 - PERT and Crashing
- Lecture 54 - Maintenance Management
- Lecture 55 - Maintenance Performance Measures and OEE calculations
- Lecture 56 - Manufacturing Operations Scheduling - I (Scheduling and Gantt Charts)
- Lecture 57 - Manufacturing Operations Scheduling - II (Order Sequencing)
- Lecture 58 - JIT and Lean Operations
- Lecture 59 - Work Method Analysis, Work Measurement and Learning Curve
- Lecture 60 - Some Latest and Future Issues

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Services Marketing: Integrating People, Technology, Strategy

Subject Co-ordinator - Prof. Z. Rahman

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - New Perspectives on Marketing in the Service Economy - Part 1  
Lecture 2 - New Perspectives on Marketing in the Service Economy - Part 2  
Lecture 3 - New Perspectives on Marketing in the Service Economy - Part 3  
Lecture 4 - Consumer Behavior in the Service Context - Part 1  
Lecture 5 - Consumer Behavior in the Service Context - Part 2  
Lecture 6 - Consumer Behavior in the Service Context - Part 3  
Lecture 7 - Positioning Services in Competitive Markets - Part 1  
Lecture 8 - Positioning Services in Competitive Markets - Part 2  
Lecture 9 - Developing Service Products - Part 1  
Lecture 10 - Developing Service Products - Part 2  
Lecture 11 - Developing Service Products - Part 3  
Lecture 12 - Distributing Services through Physical and Electronic Channels - Part 1  
Lecture 13 - Distributing Services through Physical and Electronic Channels - Part 2  
Lecture 14 - Setting Prices and Implementing Revenue Management - Part 1  
Lecture 15 - Setting Prices and Implementing Revenue Management - Part 2  
Lecture 16 - Setting Prices and Implementing Revenue Management - Part 3  
Lecture 17 - Promoting Services and Educating Customers - Part 1  
Lecture 18 - Promoting Services and Educating Customers - Part 2  
Lecture 19 - Promoting Services and Educating Customers - Part 3  
Lecture 20 - Designing and Managing Service Processes - Part 1  
Lecture 21 - Designing and Managing Service Processes - Part 2  
Lecture 22 - Balancing Demand and Productive Capacity - Part 1  
Lecture 23 - Balancing Demand and Productive Capacity - Part 2  
Lecture 24 - Balancing Demand and Productive Capacity - Part 3  
Lecture 25 - Crafting Service Environment - Part 1  
Lecture 26 - Crafting Service Environment - Part 2  
Lecture 27 - Managing People for Service Advantage - Part 1  
Lecture 28 - Managing People for Service Advantage - Part 2  
Lecture 29 - Managing People for Service Advantage - Part 3

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- Lecture 30 - Managing Relationships and Building Loyalty - Part 1
- Lecture 31 - Managing Relationships and Building Loyalty - Part 2
- Lecture 32 - Managing Relationships and Building Loyalty - Part 3
- Lecture 33 - Complaint Handling and Service Recovery - Part 1
- Lecture 34 - Complaint Handling and Service Recovery - Part 2
- Lecture 35 - Complaint Handling and Service Recovery - Part 3
- Lecture 36 - Improving Service Quality and Productivity - Part 1
- Lecture 37 - Improving Service Quality and Productivity - Part 2
- Lecture 38 - Improving Service Quality and Productivity - Part 3
- Lecture 39 - Striving for Service Leadership and Creating the Seamless Service Firms - Part 1
- Lecture 40 - Striving for Service Leadership and Creating the Seamless Service Firms - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Production and Operation Management (Prof. Santosh Rangnekar)

Subject Co-ordinator - Prof. Santosh Rangnekar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Relational Development and Maintenance - I  
Lecture 2 - Relational Development and Maintenance - II  
Lecture 3 - Relational Development and Maintenance - III  
Lecture 4 - Relational Development and Maintenance - IV  
Lecture 5 - Fundamental Interpersonal Relationship Orientation - Behavior - I  
Lecture 6 - Fundamental Interpersonal Relationship Orientation - Behavior - II  
Lecture 7 - Forgiveness - I  
Lecture 8 - Forgiveness - II  
Lecture 9 - Happiness at Workplace - I  
Lecture 10 - Happiness at Workplace - II  
Lecture 11 - Trust - I  
Lecture 12 - Trust - II  
Lecture 13 - Employee Recognition - I  
Lecture 14 - Employee Recognition - II  
Lecture 15 - Psychological Ownership - I  
Lecture 16 - Psychological Ownership - II  
Lecture 17 - Managerial Effectiveness - I  
Lecture 18 - Managerial Effectiveness - II  
Lecture 19 - Managerial Effectiveness - III  
Lecture 20 - Servant Leadership  
Lecture 21 - Moods and Emotions - I  
Lecture 22 - Moods and Emotions - II  
Lecture 23 - Moods and Emotions - III  
Lecture 24 - Optimism - I  
Lecture 25 - Optimism - II  
Lecture 26 - Career Engagement - I  
Lecture 27 - Career Engagement - II  
Lecture 28 - Adaptability - I  
Lecture 29 - Adaptability - II

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- Lecture 30 - Spiritual Intelligence - I
- Lecture 31 - Spiritual Intelligence - II
- Lecture 32 - Spiritual Intelligence - III
- Lecture 33 - Insult and Interpersonal Dynamics
- Lecture 34 - Work motivation - I
- Lecture 35 - Work motivation - II
- Lecture 36 - Employee Involvement
- Lecture 37 - Humour at Workplace
- Lecture 38 - Preparedness and performance
- Lecture 39 - Maturity at Workplace
- Lecture 40 - Hope
- Lecture 41 - Ego Defense Mechanism and Group Dynamics
- Lecture 42 - Dyadic Relationship at Workplace
- Lecture 43 - Emotional Negotiation - I
- Lecture 44 - Emotional Negotiation - II
- Lecture 45 - Anger, Anxiety and Depression - I
- Lecture 46 - Anger, Anxiety and Depression - II
- Lecture 47 - Expectations
- Lecture 48 - Thinking Process
- Lecture 49 - Managerial Flexibility
- Lecture 50 - Reinstating Relationships
- Lecture 51 - Buddhist approach to MSID - I
- Lecture 52 - Buddhist approach to MSID - II
- Lecture 53 - Panchatantra and Interpersonal Dynamics
- Lecture 54 - Emotion, Nutrition and Brain
- Lecture 55 - Bhagwat Gita and Interpersonal Dynamics
- Lecture 56 - Flexibility, Quality of Life and Work family Enrichment - I
- Lecture 57 - Flexibility, Quality of Life and Work family Enrichment - II
- Lecture 58 - Employee Loyalty - I
- Lecture 59 - Employee Loyalty - II
- Lecture 60 - Chanakya and Interpersonal Dynamics

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Financial Management for Managers

Subject Co-ordinator - Prof. Anil K. Sharma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Financial Management - Part I
- Lecture 2 - Fundamentals of Financial Management - Part II
- Lecture 3 - Fundamentals of Financial Management - Part III
- Lecture 4 - Fundamentals of Financial Management - Part IV
- Lecture 5 - Fundamentals of Financial Management - Part V
- Lecture 6 - Financial Planning and Forecasting - Part I
- Lecture 7 - Financial Planning and Forecasting - Part II
- Lecture 8 - Financial Planning and Forecasting - Part III
- Lecture 9 - Financial Planning and Forecasting - Part IV
- Lecture 10 - Time Value of Money - Part I
- Lecture 11 - Time Value of Money - Part II
- Lecture 12 - Time Value of Money - Part III
- Lecture 13 - Time Value of Money - Part IV
- Lecture 14 - Time Value of Money - Part V
- Lecture 15 - Time Value of Money - Part VI
- Lecture 16 - Time Value of Money - Part VII
- Lecture 17 - Capital Budgeting - Part I
- Lecture 18 - Capital Budgeting - Part II
- Lecture 19 - Capital Budgeting - Part III
- Lecture 20 - Capital Budgeting - Part IV
- Lecture 21 - Capital Budgeting - Part V
- Lecture 22 - Capital Budgeting - Part VI
- Lecture 23 - Capital Budgeting - Part VII
- Lecture 24 - Capital Budgeting - Part VIII
- Lecture 25 - Capital Budgeting - Part IX
- Lecture 26 - Capital Budgeting - Part X
- Lecture 27 - Capital Budgeting - Part XI
- Lecture 28 - Capital Budgeting - Part XII
- Lecture 29 - Estimation of Project Cash Flows - Part I

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- Lecture 30 - Estimation of Project Cash Flows - Part II
- Lecture 31 - Estimation of Project Cash Flows - Part III
- Lecture 32 - Estimation of Project Cash Flows - Part IV
- Lecture 33 - Estimation of Project Cash Flows - Part V
- Lecture 34 - Estimation of Project Cash Flows - Part VI
- Lecture 35 - Estimation of Project Cash Flows - Part VII
- Lecture 36 - Estimation of Project Cash Flows - Part VIII
- Lecture 37 - Estimation of Project Cash Flows - Part IX
- Lecture 38 - Estimation of Project Cash Flows - Part X
- Lecture 39 - Estimation of Project Cash Flows - Part XI
- Lecture 40 - Risk Analysis in Capital Budgeting - Part I
- Lecture 41 - Risk Analysis in Capital Budgeting - Part II
- Lecture 42 - Risk Analysis in Capital Budgeting - Part III
- Lecture 43 - Risk Analysis in Capital Budgeting - Part IV
- Lecture 44 - Risk Analysis in Capital Budgeting - Part V
- Lecture 45 - Risk Analysis in Capital Budgeting - Part VI
- Lecture 46 - Risk Analysis in Capital Budgeting - Part VII
- Lecture 47 - Cost of Capital - Part I
- Lecture 48 - Cost of Capital - Part II
- Lecture 49 - Cost of Capital - Part III
- Lecture 50 - Cost of Capital - Part IV
- Lecture 51 - Cost of Capital - Part V
- Lecture 52 - Cost of Capital - Part VI
- Lecture 53 - Cost of Capital - Part VII
- Lecture 54 - Capital Structure - Part I
- Lecture 55 - Capital Structure - Part II
- Lecture 56 - Capital Structure - Part III
- Lecture 57 - Capital Structure - Part IV
- Lecture 58 - Capital Structure - Part V
- Lecture 59 - Dividend Decisions - Part I
- Lecture 60 - Dividend Decisions - Part II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:International Business

Subject Co-ordinator - Dr. Jogendra Kumar Nayak

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to International Business
- Lecture 2 - Importance, Nature and Scope
- Lecture 3 - Modes of Entry - I
- Lecture 4 - Modes of Entry - II
- Lecture 5 - Challenges and Approaches, EPRG Framework
- Lecture 6 - New Economic Policy, LPG Framework
- Lecture 7 - Patterns of International Trade, Trade Theories, Export-Import
- Lecture 8 - International Trade Theories - I
- Lecture 9 - International Trade Theories - II
- Lecture 10 - Leontieff's Paradox, PLC Theory, National Competitive Advantage and Factor Mobility Theory
- Lecture 11 - Trade and Factor Mobility, Bangladesh Textile Case
- Lecture 12 - Multiplier Effect, Types and its Characteristics
- Lecture 13 - Multiplier Effect with Numericals
- Lecture 14 - Commercial/Trade Policy, Business Cycle, Tariff Barriers, Subsidies
- Lecture 15 - Non-Tariff Barriers, India's Foreign Trade Policy, Make in India, Trade Protectionism
- Lecture 16 - International Business Environment, PESTEL Analysis, Culture and Business
- Lecture 17 - Language, Religion, Behavioural Practices, Communication
- Lecture 18 - Political Environment, Beliefs, Types of Democracy
- Lecture 19 - Political Systems, Beliefs, Risks
- Lecture 20 - Legal Environment, Legal Protection, Legal Systems, IPR
- Lecture 21 - Economic Factors, Economic Environment
- Lecture 22 - Components of an Economy, Inflation, Unemployment, Debt
- Lecture 23 - Income Distribution, Poverty, Productivity
- Lecture 24 - BOP, Components, Economic Freedom, Economic Transitions
- Lecture 25 - Technology and Its Impact, IT, Technology Transfer
- Lecture 26 - Hofstede's Cultural Dimensions
- Lecture 27 - BOP, Balance of Trade
- Lecture 28 - BOP, Capital Account, Financial Account, Numericals, Reserve Account, SDR
- Lecture 29 - Foreign Exchange, Foreign Exchange Market, Features, Participants

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Functions of Foreign Exchange Market, Interest Rate, Relative Inflation Rate
- Lecture 31 - Factors Affecting Exchange Rate, Current Account Deficit, Government Debt, Exchange Rate
- Lecture 32 - Exchange Rate Systems, Currency Convertibility, Types
- Lecture 33 - Currency Convertibility, Theories of Exchange Rate, Purchasing Power Parity
- Lecture 34 - PPP Theory, Interest Rate Parity Theory, Fischer Effect, Numericals
- Lecture 35 - Foreign Exchange Exposure, Type Of Exposure
- Lecture 36 - Exposure Management Theory, Hedging, FERA and FEMA, RBI and its Power
- Lecture 37 - Financial Market, Importance and its Function, Financial Intermediaries, Money Market
- Lecture 38 - International Money Market, Euro Credit, Capital Market, Features, Component, ADR and GDR
- Lecture 39 - Trade Promotion, Foreign Trade Regulations in India, Exporting, Stages, Difficulties
- Lecture 40 - Export-Import Plan, Foreign Trade Promotion Measures, Schemes, Trade Regulations
- Lecture 41 - Trade Promotions, Institution Involved in Export Finance, Foreign Trade Organisations
- Lecture 42 - Foreign Trade Organizations, PNB Scam
- Lecture 43 - Bretton Woods Agreement, IMF, Its Role and Function
- Lecture 44 - World Bank
- Lecture 45 - WTO, GATT, Origin and Functions, MFN Principles, Agreements
- Lecture 46 - Uruguay Round Agreement on Agriculture, GATS
- Lecture 47 - TRIMS, TRIPS, Patents, Copyrights
- Lecture 48 - Multifiber Agreement, Agreement on Textiles and Clothing, UNCTAD, GSP, GSTP
- Lecture 49 - Regional Economic Integration
- Lecture 50 - Regionalism, Multilateralism, NAFTA, EU, EURO
- Lecture 51 - International Marketing, Segmentation, Positioning
- Lecture 52 - Product Strategies, Product Adaptations, Pricing, Communication, Logistics
- Lecture 53 - Global Firms Success Strategies
- Lecture 54 - Marketing Orientations, Market Research
- Lecture 55 - Estimating Market Demand, Pitfalls in Research
- Lecture 56 - Survey Methods For International Research
- Lecture 57 - Supply Chain Management, Global Production and Distribution, Manufacturing Strategy
- Lecture 58 - Global Sourcing, Distribution System, Role Of Interest
- Lecture 59 - International HRM
- Lecture 60 - Recruitment and Training in International HRM

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Path Integral Methods in Physics and Finance

Subject Co-ordinator - Prof. J. P. Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Setting The Scene
- Lecture 2 - Introduction to the Path Integral
- Lecture 3 - Probability Fundamentals, Generating Functions
- Lecture 4 - Generating Functions, Gaussian Distribution
- Lecture 5 - Gaussian Distribution, Gaussian Integration
- Lecture 6 - Gaussian Integration, Central Limit Theorem
- Lecture 7 - Elementary Theory of Stochastic Processes
- Lecture 8 - Evolutionary Equations of Stochastic Processes
- Lecture 9 - Brownian Motion
- Lecture 10 - Diffusion Equation
- Lecture 11 - Diffusion Equation Path Integral - 1
- Lecture 12 - Diffusion Equation Path Integral - 2, Autocorrelators
- Lecture 13 - Schrodinger Equation Path Integral, Langevin Equation
- Lecture 14 - Langevin- Equation
- Lecture 15 - Statistical Formalism of Path Integral
- Lecture 16 - Langevin Equation Path Integral - 1
- Lecture 17 - Langevin Equation Path Integral - 2
- Lecture 18 - Langevin and Fokker Planck Equation; CLT Example
- Lecture 19 - Basic Machinery of Quantum Mechanics
- Lecture 20 - Quantum Mechanical Path Integral
- Lecture 21 - Harmonic Oscillator Path Integral
- Lecture 22 - Free Particle Path Integral
- Lecture 23 - Equivalence of Schrodinger and Path Integral Formalisms, Matrix Elements of Operators
- Lecture 24 - Ground State Expectation Values
- Lecture 25 - Vacuum Persistence Amplitude
- Lecture 26 - Harmonic Oscillator 2-Point Problem
- Lecture 27 - Relativistic Path Integral
- Lecture 28 - Interpretation of Path Integral
- Lecture 29 - Need For Quantum Field Theory

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quantum Field Theory, Introduction
- Lecture 31 - Field Theory Basics
- Lecture 32 - Field Theory In Zero Dimensions - 1
- Lecture 33 - Field Theory In Zero Dimensions - 2
- Lecture 34 - Schwinger Dyson Eqs, Convergence Of Integrals
- Lecture 35 - Sde, Feynman Diagrams
- Lecture 36 - Feynman Diagrams and Sde
- Lecture 37 - Effective Action, Renormalization
- Lecture 38 - Renormalization In 0-d
- Lecture 39 - Field Theory In 1-D - 1
- Lecture 40 - Field Theory in 1-d - 2
- Lecture 41 - Euclidean Field Theory - 1
- Lecture 42 - Euclidean Field Theory - 2
- Lecture 43 - Euclidean Field Theory - 3
- Lecture 44 - Field Theory In Minkowski Space
- Lecture 45 - Propagator In Minkowski Space
- Lecture 46 - Propagator Properties In Minkowski Space
- Lecture 47 - Interactive Field Theory In Minkowski Space
- Lecture 48 - Causality, Sde In Minkowski Space
- Lecture 49 - Sde For Field Theory In Minkowski Space
- Lecture 50 - Spinor Fields Path Integral
- Lecture 51 - Gauge Fields - 1
- Lecture 52 - Gauge Fields - 2
- Lecture 53 - Ito Equation, Stock Price Modelling
- Lecture 54 - Financial Derivatives
- Lecture 55 - Properties Of Options
- Lecture 56 - Pricing Of Options
- Lecture 57 - Pricing Of Options
- Lecture 58 - Black Scholes Model
- Lecture 59 - Path Integral Solution Of Black Scholes Pde
- Lecture 60 - Misc Financial Applications Of Path Integrals

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Introduction to Marketing Essentials

Subject Co-ordinator - Prof. Zillur Rahman

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Creating Customer Relationships and Value through Marketing - 1
- Lecture 2 - Creating Customer Relationships and Value through Marketing - 2
- Lecture 3 - The new realities of marketing
- Lecture 4 - Developing Successful Marketing and Organizational Strategies - 1
- Lecture 5 - Developing Successful Marketing and Organizational Strategies - 2
- Lecture 6 - Organizing and managing marketing department
- Lecture 7 - Developing marketing strategy
- Lecture 8 - Understanding the Marketing Environment, Ethical Behavior, and Social Responsibility - 1
- Lecture 9 - Understanding the Marketing Environment, Ethical Behavior, and Social Responsibility - 2
- Lecture 10 - Understanding Consumer Behavior - 1
- Lecture 11 - Understanding Consumer Behavior - 2
- Lecture 12 - Understanding Consumer Behavior - 3
- Lecture 13 - Understanding Organizations as Customers - 1
- Lecture 14 - Understanding Organizations as Customers - 2
- Lecture 15 - Understanding Organizations as Customers - 3
- Lecture 16 - Understanding and Reaching Global Consumers and Markets - 1
- Lecture 17 - Understanding and Reaching Global Consumers and Markets - 2
- Lecture 18 - Understanding and Reaching Global Consumers and Markets - 3
- Lecture 19 - Marketing Research: From Customer Insights to Actions - 1
- Lecture 20 - Marketing Research: From Customer Insights to Actions - 2
- Lecture 21 - Market Segmentation, Targeting, and Positioning - 1
- Lecture 22 - Market Segmentation, Targeting, and Positioning - 2
- Lecture 23 - Market Segmentation, Targeting, and Positioning - 3
- Lecture 24 - Crafting customer value proposition, sustainable competitive advantage and positioning - 1
- Lecture 25 - Crafting customer value proposition, sustainable competitive advantage and positioning - 2
- Lecture 26 - Developing New Products and Services - 1
- Lecture 27 - Developing New Products and Services - 2
- Lecture 28 - Developing New Products and Services - 3
- Lecture 29 - Developing New Products and Services - 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Developing New Products and Services - 5
- Lecture 31 - Developing New Products and Services - 6
- Lecture 32 - Developing New Products and Services - 7
- Lecture 33 - Managing Successful Products, Services, and Brands - 1
- Lecture 34 - Managing Successful Products, Services, and Brands - 2
- Lecture 35 - Managing Successful Products, Services, and Brands - 3
- Lecture 36 - Managing Successful Products, Services, and Brands - 4
- Lecture 37 - Managing Successful Products, Services, and Brands - 5
- Lecture 38 - Pricing Products and Services - 1
- Lecture 39 - Pricing Products and Services - 2
- Lecture 40 - Pricing Products and Services - 3
- Lecture 41 - Managing Marketing Channels and Supply Chains - 1
- Lecture 42 - Managing Marketing Channels and Supply Chains - 2
- Lecture 43 - Retailing and Wholesaling - 1
- Lecture 44 - Retailing and Wholesaling - 2
- Lecture 45 - Retailing and Wholesaling - 3
- Lecture 46 - Integrated Marketing Communications and Direct Marketing - 1
- Lecture 47 - Integrated Marketing Communications and Direct Marketing - 2
- Lecture 48 - Advertising, Sales Promotion, and Public Relations - 1
- Lecture 49 - Advertising, Sales Promotion, and Public Relations - 2
- Lecture 50 - Using Social Media to Connect with Consumers - 1
- Lecture 51 - Using Social Media to Connect with Consumers - 2
- Lecture 52 - Personal Selling and Sales Management - 1
- Lecture 53 - Personal Selling and Sales Management - 2
- Lecture 54 - Implementing Interactive and Multichannel Marketing - 1
- Lecture 55 - Implementing Interactive and Multichannel Marketing - 2
- Lecture 56 - Addressing Competition And Driving Growth - 1
- Lecture 57 - Addressing Competition And Driving Growth - 2
- Lecture 58 - Building Customer Loyalty - 1
- Lecture 59 - Building Customer Loyalty - 2
- Lecture 60 - Socially Responsible Marketing

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Principles of Management (2021)

Subject Co-ordinator - Prof. Usha Lenka

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Management - I  
Lecture 2 - Introduction to Management - II  
Lecture 3 - Introduction to Management - III  
Lecture 4 - Introduction to Management - IV  
Lecture 5 - Evolution of Management - I  
Lecture 6 - Evolution of Management - II  
Lecture 7 - Evolution of Management - III  
Lecture 8 - Evolution of Management - IV  
Lecture 9 - Planning - I  
Lecture 10 - Planning - II  
Lecture 11 - Planning - III  
Lecture 12 - Planning - IV  
Lecture 13 - Planning - V  
Lecture 14 - Forecasting and Premising - I  
Lecture 15 - Forecasting and Premising - II  
Lecture 16 - Forecasting and Premising - III  
Lecture 17 - Forecasting and Premising - IV  
Lecture 18 - Decision Making - I  
Lecture 19 - Decision Making - II  
Lecture 20 - Decision Making - III  
Lecture 21 - Decision Making - IV  
Lecture 22 - Decision Making - V  
Lecture 23 - Management by Objectives - I  
Lecture 24 - Management by Objectives - II  
Lecture 25 - Management by Objectives - III  
Lecture 26 - Styles of Management - I  
Lecture 27 - Styles of Management - II  
Lecture 28 - Styles of Management - III  
Lecture 29 - Organizing and Directing - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Organizing and Directing - II
- Lecture 31 - Organizing and Directing - III
- Lecture 32 - Organizing and Directing - IV
- Lecture 33 - Organizing and Directing - V
- Lecture 34 - Staffing and Coordination - I
- Lecture 35 - Staffing and Coordination - II
- Lecture 36 - Staffing and Coordination - III
- Lecture 37 - Staffing and Coordination - IV
- Lecture 38 - Staffing and Coordination - V
- Lecture 39 - Staffing and Coordination - VI
- Lecture 40 - Staffing and Coordination - VII
- Lecture 41 - Staffing and Coordination - VIII
- Lecture 42 - Career Development Strategy - I
- Lecture 43 - Career Development Strategy - II
- Lecture 44 - Career Development Strategy - III
- Lecture 45 - Career Development Strategy - IV
- Lecture 46 - Career Development Strategy - V
- Lecture 47 - Leadership Styles of Managers - I
- Lecture 48 - Leadership Styles of Managers - II
- Lecture 49 - Leadership Styles of Managers - III
- Lecture 50 - Leadership Styles of Managers - IV
- Lecture 51 - Organizational Communication - I
- Lecture 52 - Organizational Communication - II
- Lecture 53 - Organizational Communication - III
- Lecture 54 - Organizational Communication - IV
- Lecture 55 - Organizational Communication - V
- Lecture 56 - Change Management - I
- Lecture 57 - Change Management - II
- Lecture 58 - Change Management - III
- Lecture 59 - Organizational Change - IV
- Lecture 60 - Change Management - V
- Lecture 61 - Organizational Change - VI
- Lecture 62 - Change Management - VII

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Organization Theory-Structure and Design (2021)

Subject Co-ordinator - Prof. Zillur Rahman

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - An Overview - Part 1  
Lecture 2 - An Overview - Part 2  
Lecture 3 - The Evolution of Organization Theory - Part 1  
Lecture 4 - The Evolution of Organization Theory - Part 2  
Lecture 5 - Organizational Effectiveness - Part 1  
Lecture 6 - Organizational Effectiveness - Part 2  
Lecture 7 - Organizational Effectiveness - Part 3  
Lecture 8 - Dimensions of Organization Structure - Part 1  
Lecture 9 - Dimensions of Organization Structure - Part 2  
Lecture 10 - Dimensions of Organization Structure - Part 3  
Lecture 11 - Strategy - Part 1  
Lecture 12 - Strategy - Part 2  
Lecture 13 - Strategy - Part 3  
Lecture 14 - Organization Size - Part 1  
Lecture 15 - Organization Size - Part 2  
Lecture 16 - Technology - Part 1  
Lecture 17 - Technology - Part 2  
Lecture 18 - Environment - Part 1  
Lecture 19 - Environment - Part 2  
Lecture 20 - Environment - Part 3  
Lecture 21 - Power Control - Part 1  
Lecture 22 - Power Control - Part 2  
Lecture 23 - Power Control - Part 3  
Lecture 24 - Organizational Design Options - Part 1  
Lecture 25 - Organizational Design Options - Part 2  
Lecture 26 - Organizational Design Options - Part 3  
Lecture 27 - Bureaucracy - Part 1  
Lecture 28 - Bureaucracy - Part 2  
Lecture 29 - Adhocracy - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Adhocracy - Part 2
- Lecture 31 - Managing the Environment - Part 1
- Lecture 32 - Managing the Environment - Part 2
- Lecture 33 - Managing Organizational Change - Part 1
- Lecture 34 - Managing Organizational Change - Part 2
- Lecture 35 - Managing Organizational Conflict - Part 1
- Lecture 36 - Managing Organizational Conflict - Part 2
- Lecture 37 - Managing Organizational Culture - Part 1
- Lecture 38 - Managing Organizational Culture - Part 2
- Lecture 39 - Managing Organizational Evolution - Part 1
- Lecture 40 - Managing Organizational Evolution - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Talent Acquisition and Management

Subject Co-ordinator - Prof. S. Rangnekar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Talent Acquisition and Management - I  
Lecture 2 - Introduction to talent Acquisition and Management - II  
Lecture 3 - Introduction to Talent Acquisition and Management - III  
Lecture 4 - Introduction to Talent Acquisition and Management - IV  
Lecture 5 - Nurturing the Leaders of Tomorrow  
Lecture 6 - Talent Acquisition  
Lecture 7 - Talent Acquisition Practices - Infosys  
Lecture 8 - Talent Acquisition Practices - IBM  
Lecture 9 - Talent Acquisition and Attracting Talent at Fedex  
Lecture 10 - Talent Acquisition and Attracting Talent at Google  
Lecture 11 - Introduction of Psychometric Test  
Lecture 12 - Six principles of Talent Management  
Lecture 13 - Employee Engagement  
Lecture 14 - Employer Brand  
Lecture 15 - Employee Retention  
Lecture 16 - The Zinger Model of Employee Engagement  
Lecture 17 - Integrating Competencies into Talent Process  
Lecture 18 - Integrated Talent Management  
Lecture 19 - Global Talent Management - Drivers-I  
Lecture 20 - Global Talent Management - Drivers-II  
Lecture 21 - Global Leadership Competencies - I  
Lecture 22 - Global Leadership Competencies - II  
Lecture 23 - Global Leadership Competencies - III  
Lecture 24 - Global Leadership Competencies - IV  
Lecture 25 - Talent Analytics  
Lecture 26 - Talent Management Challenges - In the near Future  
Lecture 27 - Talent Development  
Lecture 28 - Talent Enhancement  
Lecture 29 - Talent Mobility

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Rewards Programs in Talent Management
- Lecture 31 - Integrated Talent Management Models - I
- Lecture 32 - Integrated Talent Management Models - II
- Lecture 33 - Rewards Strategy for Talent Management - I
- Lecture 34 - Rewards Strategy for Talent Management - II
- Lecture 35 - Coaching and Development
- Lecture 36 - Talent Development - I
- Lecture 37 - Talent Development - II
- Lecture 38 - Talent Development - III
- Lecture 39 - Meta Analysis and Talent Analytics - I
- Lecture 40 - Meta Analysis and Talent Analytics - II
- Lecture 41 - Organization Culture - I
- Lecture 42 - Organization Culture - II
- Lecture 43 - Organization Culture - III
- Lecture 44 - Coaching with Compassion - I
- Lecture 45 - Coaching with Compassion - II
- Lecture 46 - Talent Success Drivers
- Lecture 47 - Talent Acquisition Strategy - I
- Lecture 48 - Talent Acquisition Strategy - II
- Lecture 49 - Talent Management at PepsiCo - I
- Lecture 50 - Talent Management at PepsiCo - II
- Lecture 51 - Automated Screening - Talent Analytics
- Lecture 52 - Big Data - Talent Analytics
- Lecture 53 - Management in the New Economy
- Lecture 54 - Employment to Consultation
- Lecture 55 - Embedding and Sustaining Talent Power
- Lecture 56 - Talent Enhancement and Drivers of Success
- Lecture 57 - Building Sustainable Talent through Talent Management
- Lecture 58 - Talent Powered Organization
- Lecture 59 - Critical issues in Talent Management
- Lecture 60 - Feeling and Sentiments Analysis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Econometric Modelling

Subject Co-ordinator - Prof. Sujata Kar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Overview
- Lecture 2 - Formulation of Econometric Modelling
- Lecture 3 - Review of Basic Concepts - I
- Lecture 4 - Review of Basic Concepts - II
- Lecture 5 - Types of Data
- Lecture 6 - Simple Regression - I
- Lecture 7 - Simple Regression - II
- Lecture 8 - Assumptions of Classical Linear Regression
- Lecture 9 - Properties of OLS Estimators
- Lecture 10 - Hypothesis Testing
- Lecture 11 - Multiple Regression - I
- Lecture 12 - Multiple Regression - II
- Lecture 13 - Multiple Regression - III
- Lecture 14 - Problem of Multicollinearity
- Lecture 15 - Omitted Variables and Parameter Stability - I
- Lecture 16 - Omitted Variables and Parameter Stability - II
- Lecture 17 - Problem of Heteroscedasticity - I
- Lecture 18 - Problem of Heteroscedasticity - II
- Lecture 19 - T- Test
- Lecture 20 - Wald Test
- Lecture 21 - F-test - I
- Lecture 22 - F-Test - II
- Lecture 23 - Chow Test
- Lecture 24 - Problem of Serial Correlation - I
- Lecture 25 - Problem of Serial Correlation - II
- Lecture 26 - AR, MA and ARMA Processes - I
- Lecture 27 - AR, MA and ARMA Processes - II
- Lecture 28 - Modelling Trend and Seasonal Variations - I
- Lecture 29 - Modelling Trend and Seasonal Variations - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Spline function and Categorical Variables
- Lecture 31 - Linear Probability Model
- Lecture 32 - Probit and Logit Models
- Lecture 33 - Tobit and Multinomial Logit Models
- Lecture 34 - Panel Data Methods
- Lecture 35 - Simultaneous Equations System - I
- Lecture 36 - Simultaneous Equations System - II
- Lecture 37 - Introduction to VARs
- Lecture 38 - Stationarity and Unit Root Testing - I
- Lecture 39 - Stationarity and Unit Root Testing - II
- Lecture 40 - Basics of Cointegration

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Security Analysis and Portfolio Management

Subject Co-ordinator - Prof. J. P. Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview and Introduction
- Lecture 2 - Introduction (Debt and Equity)
- Lecture 3 - Introduction (Derivatives I)
- Lecture 4 - Introduction (Derivatives II)
- Lecture 5 - Financial Risk
- Lecture 6 - Risk and Arbitrage - I
- Lecture 7 - Risk and Arbitrage - II
- Lecture 8 - Arbitrage Theorems, EMH, Money Markets
- Lecture 9 - Money Market Instruments, Bond Terminology
- Lecture 10 - Intrinsic Value of Bonds
- Lecture 11 - Yield to Maturity - I
- Lecture 12 - Yield to Maturity - II
- Lecture 13 - Yield to Maturity - III
- Lecture 14 - Yield to Maturity - IV
- Lecture 15 - Yield to Maturity - V
- Lecture 16 - Holding Period Yield etc.
- Lecture 17 - Clean and Dirty Price, Interest Rate Risk - I
- Lecture 18 - Interest Rate Risk - II
- Lecture 19 - Interest Rate Risk - III
- Lecture 20 - Immunization
- Lecture 21 - Immunization Example
- Lecture 22 - Price Sensitivities, Key Rates
- Lecture 23 - Term Structure of Interest Rates
- Lecture 24 - Yield Spreads, Equity Valuation - I
- Lecture 25 - Equity Valuation - II
- Lecture 26 - Equity Valuation - III
- Lecture 27 - Equity Valuation - IV
- Lecture 28 - Equity Valuation - V
- Lecture 29 - Equity Valuation - VI

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equity Valuation - VII
- Lecture 31 - Equity Valuation - VIII
- Lecture 32 - Equity Valuation - IX
- Lecture 33 - Fundamental Analysis
- Lecture 34 - Balance Sheet Analysis - I
- Lecture 35 - Balance Sheet Analysis - II
- Lecture 36 - Balance Sheet Analysis - III
- Lecture 37 - Balance Sheet Analysis - IV
- Lecture 38 - Balance Sheet Analysis - V
- Lecture 39 - Balance Sheet Analysis - VI
- Lecture 40 - Income Statement, Cash Flow Statement, Ratio Analysis
- Lecture 41 - Mean Variance Portfolio Optimization - I
- Lecture 42 - Mean Variance Portfolio Optimization - II
- Lecture 43 - Mean Variance Portfolio Optimization - III
- Lecture 44 - Mean Variance Portfolio Optimization - IV
- Lecture 45 - Mean Variance Portfolio Optimization - V
- Lecture 46 - Mean Variance Portfolio Optimization - VI
- Lecture 47 - Mean Variance Portfolio Optimization - VII
- Lecture 48 - Mean Variance Portfolio Optimization - VIII
- Lecture 49 - Single Index Model - I
- Lecture 50 - Single Index Model - II
- Lecture 51 - Capital Asset Pricing Model - I
- Lecture 52 - Capital Asset Pricing Model - II
- Lecture 53 - Capital Asset Pricing Model - III
- Lecture 54 - Arbitrage Pricing Model - I
- Lecture 55 - Arbitrage Pricing Model - II
- Lecture 56 - Arbitrage Pricing Model - III, Portfolio Performance Evaluation
- Lecture 57 - Efficient Market Hypothesis - I
- Lecture 58 - Efficient Market Hypothesis - II, Financial Derivatives - I
- Lecture 59 - Financial Derivatives - II
- Lecture 60 - Financial Derivatives - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Decision Making with Spreadsheet

Subject Co-ordinator - Prof. Ramesh Anbanandam

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Cost, Revenue, and Profit Models, Break Even Analysis
- Lecture 3 - Linear Programming Problem: Formulation and Assumptions
- Lecture 4 - Linear Programming Problem: Graphical Solution Method
- Lecture 5 - Graphical Calculator and Excel Solver for solving LPP
- Lecture 6 - Sensitivity Analysis - 1
- Lecture 7 - Sensitivity Analysis - 2
- Lecture 8 - Sensitivity Analysis - 3
- Lecture 9 - LPP Applications in Marketing
- Lecture 10 - LPP Applications in Finance
- Lecture 11 - LPP Applications in Operations - 1
- Lecture 12 - LPP Applications in Operations - 2
- Lecture 13 - LPP Applications in Operations - 3
- Lecture 14 - Advanced LP Applications - Data Envelopment Analysis
- Lecture 15 - Game Theory - 1
- Lecture 16 - Game Theory - 2
- Lecture 17 - Portfolio Management
- Lecture 18 - Revenue Management
- Lecture 19 - Distribution and Network Problems: Transportation Problem
- Lecture 20 - Assignment and Shortest Path Problem
- Lecture 21 - Maximal Flow, Production and Inventory Application, Scheduling and Assignment Problems
- Lecture 22 - Integer Linear Programming
- Lecture 23 - Integer Programming Distribution Problem
- Lecture 24 - Nonlinear Optimization Models - I
- Lecture 25 - Nonlinear Optimization Models - II
- Lecture 26 - Nonlinear Optimization Models - III
- Lecture 27 - Nonlinear Optimization Models - IV
- Lecture 28 - Nonlinear Optimization Models - V
- Lecture 29 - Project Scheduling: PERT/CPM - I

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- Lecture 30 - Project Scheduling: PERT/CPM - II
- Lecture 31 - Project Scheduling For Uncertain Activity Duration: PERT/CPM - III
- Lecture 32 - Project Scheduling: PERT/CPM - IV
- Lecture 33 - Inventory Models: Economic Order Quantity (EOQ) Model - I
- Lecture 34 - Inventory Models: Economic Order Quantity (EOQ) Model - Iâ I
- Lecture 35 - Economic Production Lot Size Model
- Lecture 36 - Inventory Model with Planned Shortages
- Lecture 37 - Inventory Model - III
- Lecture 38 - Single-period Inventory model with Probabilistic demand
- Lecture 39 - Multi-period Order-Quantity, Reorder Point Model with Probabilistic Demand
- Lecture 40 - Periodic Review Model (P-type) with Probabilistic Demand
- Lecture 41 - Financial risks associated with the development of a new product - I
- Lecture 42 - Financial risks associated with the development of a new product - II
- Lecture 43 - Inventory Simulation
- Lecture 44 - Simulation - III
- Lecture 45 - Simulation - IV
- Lecture 46 - Decision Analysis - I
- Lecture 47 - Decision Analysis - II
- Lecture 48 - Decision Analysis - III
- Lecture 49 - Decision Analysis - IV
- Lecture 50 - Decision Analysis - V
- Lecture 51 - Formulation Of Goal Programming - I
- Lecture 52 - Formulation Of Goal Programming - II
- Lecture 53 - Multicriteria Decisions - I
- Lecture 54 - Multicriteria Decisions - II
- Lecture 55 - Multicriteria Decisions - III
- Lecture 56 - Time Series Analysis and Forecasting - I
- Lecture 57 - Time Series Analysis and Forecasting - II
- Lecture 58 - Time Series Analysis and Forecasting - III
- Lecture 59 - Time Series Analysis and Forecasting - IV
- Lecture 60 - Time Series Analysis and Forecasting - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Integrated Marketing Communication

Subject Co-ordinator - Prof. Vinay Sharma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Integrated Marketing Communication (IMC)
- Lecture 2 - Defining Marketing Communication, Marketing and IMC
- Lecture 3 - Relationship with Marketing and IMC
- Lecture 4 - Effective Marketing Communication
- Lecture 5 - Emerging trends in IMC - Part I
- Lecture 6 - Emerging Trends in IMC - Part II
- Lecture 7 - Design Thinking in IMC - Part I
- Lecture 8 - Design Thinking in IMC - Part II
- Lecture 9 - Effectiveness of Communication - Part I
- Lecture 10 - Effectiveness of Communication - Part II
- Lecture 11 - Communication Process and Reflexivity in IMC
- Lecture 12 - Role of Consumer Behaviour in IMC
- Lecture 13 - Consumer Decision Making Process - Part I
- Lecture 14 - Consumer Decision Making Process - Part II
- Lecture 15 - Relationship Between Consumer Behaviour and IMC
- Lecture 16 - Role of Persuasion in IMC
- Lecture 17 - Objectives and Budgeting
- Lecture 18 - IMC as a Strategic Tool - Part I
- Lecture 19 - IMC as a Strategic Tool - Part II
- Lecture 20 - IMC and Branding
- Lecture 21 - History of Advertising
- Lecture 22 - History of Advertising Indian Perspective
- Lecture 23 - Contribution of IMC in Brand Attitude
- Lecture 24 - Advertising Agencies
- Lecture 25 - Association of Research with IMC
- Lecture 26 - Advertising Research Methods
- Lecture 27 - IMC Planning - Part I
- Lecture 28 - IMC Planning - Part II
- Lecture 29 - IMC Planning - Part III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Case Studies
- Lecture 31 - Advertising and Marketing Mix
- Lecture 32 - Advertising and Support Media
- Lecture 33 - Media Planning - Part I
- Lecture 34 - Media Planning - Part II
- Lecture 35 - Introduction to Creativity
- Lecture 36 - Creativity Elements - Part I
- Lecture 37 - Creativity Elements - Part II
- Lecture 38 - Creative Execution in Advertising - Part I
- Lecture 39 - Creative Execution in Advertising - Part II
- Lecture 40 - Creative Execution in Print Advertising
- Lecture 41 - Sales Promotion - Part I
- Lecture 42 - Sales Promotion - Part II
- Lecture 43 - Sales Promotion - Part III
- Lecture 44 - Personal Selling - Part I
- Lecture 45 - Personal Selling - Part II
- Lecture 46 - Direct Marketing - Part I
- Lecture 47 - Direct Marketing - Part II
- Lecture 48 - Cause-Related Marketing
- Lecture 49 - Public Relations
- Lecture 50 - Word-of-Mouth and Corporate Advertising
- Lecture 51 - Digital Advertising
- Lecture 52 - Search Engine Optimization (SEO)
- Lecture 53 - Social Media Advertising - Part I
- Lecture 54 - Social Media Advertising - Part II
- Lecture 55 - Social Media Advertising - Part III
- Lecture 56 - Content Marketing
- Lecture 57 - Ethics and Marketing Communications
- Lecture 58 - Measuring Effectiveness of IMC - Part I
- Lecture 59 - Measuring Effectiveness of IMC - Part II
- Lecture 60 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Leadership and Team Effectiveness

Subject Co-ordinator - Prof. Santosh Rangnekar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Leadership and Team Management
- Lecture 2 - Leadership Myths and Facts - I
- Lecture 3 - Leadership Myths and Facts - II
- Lecture 4 - Interactional Framework for Analyzing Leadership
- Lecture 5 - Leadership Development: The First 90 Days as a Leader
- Lecture 6 - Leader Development: The Action-Observation-Reflection Model
- Lecture 7 - Leader Member Exchange (LMX) Theory
- Lecture 8 - Normative Decision Model
- Lecture 9 - Situational Leadership Model
- Lecture 10 - Contingency Model and Path-Goal Theory
- Lecture 11 - Charismatic and Transformational Leadership
- Lecture 12 - Leadership for Tomorrow
- Lecture 13 - Leadership Attributes
- Lecture 14 - Personality Traits and Leadership
- Lecture 15 - Personality Types and Leadership
- Lecture 16 - Intelligence and Leadership
- Lecture 17 - Emotional Intelligence and Leadership
- Lecture 18 - Power and Leadership
- Lecture 19 - The Art of Influence in Leadership
- Lecture 20 - Leadership and Doing the Right Things
- Lecture 21 - Character Based Approach to Leadership
- Lecture 22 - Role of Ethics and Values in Organisational Leadership
- Lecture 23 - Leadership Behaviour
- Lecture 24 - Leadership Pipeline
- Lecture 25 - Assessing Leadership Behaviors: Multi-rater feedback instruments
- Lecture 26 - The Dark Side of Leadership- Destructive Leadership
- Lecture 27 - Managerial Incompetence and Derailment
- Lecture 28 - Negotiation and Leadership
- Lecture 29 - Leadership in Crisis Situation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Situation and The Environment
- Lecture 31 - Culture and Leadership
- Lecture 32 - Global Leadership
- Lecture 33 - Motivation and Leadership
- Lecture 34 - Introduction to Groups and Teams
- Lecture 35 - Characteristics of Leader, Follower and Situation
- Lecture 36 - Group Dynamics
- Lecture 37 - Team Formation
- Lecture 38 - Delegation and Empowerment
- Lecture 39 - Leading Teams: Enhancing Teamwork within a Group
- Lecture 40 - The Leader's Role in Team-Based Organizations
- Lecture 41 - Leader Actions That Foster Team Effectiveness
- Lecture 42 - Offsite Training and Team Development
- Lecture 43 - Understanding Team Processes and Team Coaching
- Lecture 44 - Team Decision Making and Conflict Management
- Lecture 45 - Virtual teams
- Lecture 46 - Managing Multicultural Teams
- Lecture 47 - Building Great Teams
- Lecture 48 - Experiential Learning
- Lecture 49 - Action Learning
- Lecture 50 - Development Planning: GAPS Analysis
- Lecture 51 - Coaching and Mentoring
- Lecture 52 - Women in Leadership Roles
- Lecture 53 - Building Effective Relationship with Subordinates and Peers
- Lecture 54 - Fostering Followers Satisfaction
- Lecture 55 - The Art of Communication
- Lecture 56 - Setting Goals and Providing Constructive Feedback
- Lecture 57 - Enhancing Creativity Problem Solving Skills
- Lecture 58 - Building High-Performance Teams: The Rocket Model
- Lecture 59 - Building Credibility and Trust
- Lecture 60 - Skills for Developing Others

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Product and Brand Management

Subject Co-ordinator - Prof. Vinay Sharma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Product and Brand Management  
Lecture 2 - Defining Product  
Lecture 3 - Terminologies Associated with Product - 1  
Lecture 4 - Terminologies Associated with Product - 2  
Lecture 5 - Terminologies Associated with Product - 3  
Lecture 6 - Terminologies Associated with Product - 4  
Lecture 7 - Product Management and Concepts Associated with Product  
Lecture 8 - Product Classification  
Lecture 9 - Product Differentiation and its Elements - 1  
Lecture 10 - Product Differentiation and its Elements - 2  
Lecture 11 - Product Positioning - 1  
Lecture 12 - Product Positioning - 2  
Lecture 13 - Product Life cycle - 1  
Lecture 14 - Product Life Cycle - 2  
Lecture 15 - Product Life Cycle - 3  
Lecture 16 - Saddle Effect and Relationship of Product with Marketing Mix Elements  
Lecture 17 - Market and Product Planning - 1  
Lecture 18 - Market and Product Planning - 2  
Lecture 19 - Product Strategy and Decisions - 1  
Lecture 20 - Product Strategy and Decisions - 2  
Lecture 21 - Product Decisions  
Lecture 22 - Product Portfolio Management  
Lecture 23 - Product Category Management  
Lecture 24 - Customer Analysis  
Lecture 25 - Competitors Analysis  
Lecture 26 - Product Pricing  
Lecture 27 - Product Pricing and Packaging  
Lecture 28 - Product Distribution  
Lecture 29 - Design Thinking - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design Thinking - 2
- Lecture 31 - Design Thinking - 3
- Lecture 32 - Product Innovation - 1
- Lecture 33 - Product Innovation - 2
- Lecture 34 - New Product Development
- Lecture 35 - Reflexivity, Insight, and Value Co-Creation
- Lecture 36 - Brand Management
- Lecture 37 - Defining Brand
- Lecture 38 - Strategic Brand Management Process
- Lecture 39 - Brand Proposition
- Lecture 40 - Customer-based Brand Equity - 1
- Lecture 41 - Customer-based Brand Equity - 2
- Lecture 42 - Brand Positioning
- Lecture 43 - Brand Resonance Model
- Lecture 44 - Brand Value Chain - 1
- Lecture 45 - Brand Value Chain - 2
- Lecture 46 - Brand Equity Elements - 1
- Lecture 47 - Brand Equity Elements - 2
- Lecture 48 - Designing Marketing Programs to Build Brand Equity
- Lecture 49 - Secondary Brand Associations
- Lecture 50 - Brand Audit and Research
- Lecture 51 - Brand Architecture Strategies And Brand Portfolio
- Lecture 52 - Brand Portfolio And Brand Hierarchies
- Lecture 53 - Brand Equity: Measuring Outcomes - 1
- Lecture 54 - Brand Equity: Measuring Outcomes - 2
- Lecture 55 - Brand Extension
- Lecture 56 - Brand Experience and Brand Loyalty
- Lecture 57 - Brand Continuum and Brand Reinforcement
- Lecture 58 - Brand Revitalization and Repositioning
- Lecture 59 - Rebranding, Brand Demise and Brand Lifecycle
- Lecture 60 - Product and Brand Management - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Quantitative Investment Management

Subject Co-ordinator - Prof. J P Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview and Introduction, Debt and Equity
- Lecture 2 - Hybrids, Derivatives
- Lecture 3 - Financial Risk
- Lecture 4 - Arbitrage
- Lecture 5 - Arbitrage Free Pricing
- Lecture 6 - Arbitrage Free Pricing of Bonds
- Lecture 7 - Forward Rates, Bond Pricing with Forward Rates
- Lecture 8 - Binomial Interest Rate Tree
- Lecture 9 - Bond Pricing with Binomial Trees
- Lecture 10 - Bond Pricing (Continued...)
- Lecture 11 - Valuation of Bonds with Embedded Options
- Lecture 12 - Features of Option Embedded Bonds
- Lecture 13 - Yield to Maturity
- Lecture 14 - Bond Yields and Yield Spreads
- Lecture 15 - Z Spread and Option Adjusted Spread (OAS)
- Lecture 16 - Yield Spreads
- Lecture 17 - Interest Rate Risk
- Lecture 18 - Duration and Immunization
- Lecture 19 - Immunization and Bond Dynamics
- Lecture 20 - Duration: Properties
- Lecture 21 - Effective Duration
- Lecture 22 - Key Rate Duration
- Lecture 23 - One Sided Duration
- Lecture 24 - Modeling of Fixed Income Returns
- Lecture 25 - Immunizing a Single Liability
- Lecture 26 - The Barbell Strategy - 1
- Lecture 27 - The Barbell Strategy - 2
- Lecture 28 - Yield Shifts and Immunization
- Lecture 29 - Fixed Income Portfolio Strategies - 1

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- Lecture 30 - Fixed Income Portfolio Strategies - 2
- Lecture 31 - Fixed Income Portfolio Strategies - 3
- Lecture 32 - Floaters, Caps and Floors
- Lecture 33 - Derivatives, A Recapitulation
- Lecture 34 - Forward Pricing - Investment Assets
- Lecture 35 - Forward Pricing - Consumption Assets
- Lecture 36 - Introduction to Options
- Lecture 37 - Put Call Parity and Arbitrage
- Lecture 38 - American Options - 1
- Lecture 39 - American Options - 2
- Lecture 40 - Option Trading Strategies - 1
- Lecture 41 - Option Trading Strategies - 2
- Lecture 42 - Option Trading Strategies - 3
- Lecture 43 - Option Pricing - Binomial Model - 1
- Lecture 44 - Option Pricing - Binomial Model - 2
- Lecture 45 - Option Pricing - American Options
- Lecture 46 - Random Walks
- Lecture 47 - Brownian Motion
- Lecture 48 - Stochastic Calculus
- Lecture 49 - Stock Price Modelling
- Lecture 50 - Black Scholes Model
- Lecture 51 - Futures - 1
- Lecture 52 - Futures - 2
- Lecture 53 - Forward vs Futures Prices
- Lecture 54 - Futures Hedging
- Lecture 55 - Issues in Futures Hedging
- Lecture 56 - Perfect Futures Hedge, Cross Hedge, Tailing the Hedge
- Lecture 57 - Stock Index Futures - 1
- Lecture 58 - Stock Index Futures - 2
- Lecture 59 - Interest Rate Futures - 1
- Lecture 60 - Interest Rate Futures - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Strategic Sales Management

Subject Co-ordinator - Prof. Kalpak Kulkarni, Prof. Sourabh Arora

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Breaking the Myths and Learning the Basics
- Lecture 2 - Evolution and Role of Sales Management
- Lecture 3 - Tactical Role of Sales Management
- Lecture 4 - Complexities in Sales Management and Characteristics of Modern Selling
- Lecture 5 - Difference Between Sales and Marketing
- Lecture 6 - Selling in a VUCA World
- Lecture 7 - Place of Selling in Overall Marketing Plan
- Lecture 8 - Use of Marketing Principles in Creating Strategic Sales Plan
- Lecture 9 - Sales Forecasting Methods for Informed Decision-Making
- Lecture 10 - Tools to Assess Market While Developing Strategic Sales Plan
- Lecture 11 - Models of Sales planning
- Lecture 12 - Types of sales man and what makes a good sales man
- Lecture 13 - Buying Centre and stages of sales call
- Lecture 14 - Transformative Factors And Evolved Selling Process And Theories
- Lecture 15 - Miller Heiman approach and virtual framework strategic selling
- Lecture 16 - Miller Heiman Approach And Virtual Framework Strategic Selling (Continued...)
- Lecture 17 - Buyer Persona and Consumer and B2B Decision Making process
- Lecture 18 - Consumer and B2B Decision Making process Selling and Consumer Behavior
- Lecture 19 - B2B Decision Making Process and Difference in B2B and B2C Selling
- Lecture 20 - Key Account Management and Customer Centric Selling
- Lecture 21 - Key Account Management, Customer Centric Selling and CRM Strategies (Continued...)
- Lecture 22 - Key Responsibilities of Salespeople
- Lecture 23 - Preparing for a Sales Role
- Lecture 24 - Preparing for a Sales Role (Continued...)
- Lecture 25 - Personal Selling Skills and Motivating Sales Team
- Lecture 26 - Personal Selling Skills and Motivating Sales Team (Continued...)
- Lecture 27 - Meaning and Role of Sales Intelligence
- Lecture 28 - Data for Sales intelligence
- Lecture 29 - Ideal Customer Profile

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Data-Driven Approaches to Selling
- Lecture 31 - Social Media for Lead Generation
- Lecture 32 - Understanding International Selling
- Lecture 33 - Global Sales Dynamics and Sales Force Management
- Lecture 34 - Do's and Don'ts of International Selling
- Lecture 35 - Role of culture in International Selling
- Lecture 36 - Challenges of Selling in International Markets
- Lecture 37 - Role of technology management in selling
- Lecture 38 - Use of Sales force Automation for Effective Selling
- Lecture 39 - Role of AR/VR and AI in Selling
- Lecture 40 - Managing a Diversified Sales-force
- Lecture 41 - Ethical and Social issues in Selling

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Retail Marketing Strategy

Subject Co-ordinator - Prof. Sourabh Arora

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Understanding Retailing from a Strategic Standpoint
- Lecture 2 - Why is Retailing so Important: Strategic Perspectives
- Lecture 3 - Strategic Standpoint and Evolution of Retailing
- Lecture 4 - Evolution of Retailing
- Lecture 5 - Value Creation
- Lecture 6 - Retailing Theories Role in Supply Chain
- Lecture 7 - Retailing Theories and Retailers Role in Supply Chain
- Lecture 8 - Retailers Role in Supply Chain and Retail Management Decision Process
- Lecture 9 - Retail Management Decision Process (Continued...) and Kahn's Retailing Success Matrix
- Lecture 10 - Retail Management Decision Process and Kahn's Retailing Success Matrix
- Lecture 11 - Retail Management Decision Process, Kahn's Retailing Success Matrix and Success Factors
- Lecture 12 - Kahn's Retailing Success Matrix and Success Factors for Retailing
- Lecture 13 - Success Factors for Retailing and View of Consumer Decision Making Processes
- Lecture 14 - Success Factors for Retailing and View of Consumer Decision Making Processes (Continued...)
- Lecture 15 - Consumer Decision Making Processes (Continued...)
- Lecture 16 - Consumer Decision Making Processes (Continued...)
- Lecture 17 - Consumer Decision Making Processes (Continued...) and Consumer Motives
- Lecture 18 - Tenets of Customer Centric Approach: A Retailers Perspective
- Lecture 19 - Private Label Brands
- Lecture 20 - Types of Private Label Brands and Introduction to Multi and Omni-Channel Retail
- Lecture 21 - Introduction to Multi and Omni-Channel Retail
- Lecture 22 - Introduction to Multi and Omni-Channel Retail (Continued...)
- Lecture 23 - Introduction to Multi and Omni-Channel Retail (Continued...)
- Lecture 24 - Formulating a Successful Retail Strategy
- Lecture 25 - Formulating a Successful Retail Strategy
- Lecture 26 - Formulating a Successful Retail Strategy (Continued...)
- Lecture 27 - Formulating a Successful Retail Strategy (Continued...)
- Lecture 28 - Formulating a Successful Retail Strategy (Continued...)
- Lecture 29 - Formulating a Successful Retail Strategy (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Formulating a Successful Retail Strategy (Continued...)
- Lecture 31 - Location Decisions
- Lecture 32 - Location Decisions
- Lecture 33 - Pricing Decisions
- Lecture 34 - Merchandise Management and Planning
- Lecture 35 - Merchandise Management and Planning (Continued...)
- Lecture 36 - Role of HRM in Retailing
- Lecture 37 - Role of HRM in Retailing (Continued...)
- Lecture 38 - Motivating Employees
- Lecture 39 - Showrooming and Webrooming
- Lecture 40 - Showrooming and Webrooming
- Lecture 41 - Virtual Reality, Augmented Reality and Artificial Intelligence in Retailing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Business to Business Marketing (B2B)

Subject Co-ordinator - Prof. Jogendra Nayak

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Business to Business Marketing
- Lecture 2 - Classification of Products and Customers in B2B
- Lecture 3 - B2B vs B2C Marketing - 1
- Lecture 4 - B2B vs B2C Marketing - 2
- Lecture 5 - Some Important Concepts and Case Study
- Lecture 6 - Value Chain Analysis, Core Competence and Outsourcing
- Lecture 7 - Introduction to Organisational Buying Behaviour
- Lecture 8 - Howard's Seth Model
- Lecture 9 - Seth's Model
- Lecture 10 - Webster and Wind Model, Buying Center and Buygrid Framework
- Lecture 11 - Purchasing function Goals and Kralijic's Model
- Lecture 12 - Purchasing Cycle and Procurement Development Process
- Lecture 13 - Strategic Sourcing and Case Study
- Lecture 14 - E-Procurement and Supplier Assesment
- Lecture 15 - B2B Marketing Strategy Formulation
- Lecture 16 - B2B Marketing Strategy Formulation and Balance Scorecard
- Lecture 17 - Balance Scorecard, Strategy Maps and Case Study
- Lecture 18 - Managing Products in B2B Markets: PLC Approach
- Lecture 19 - Managing Products in B2B Markets: TA Life Cycle Approach
- Lecture 20 - Managing Services in B2B Markets
- Lecture 21 - Introduction to STP
- Lecture 22 - Segmentation in B2B Markets
- Lecture 23 - Bonama and Shapiro's Nested Approach and Targeting in B2B
- Lecture 24 - Target Market Strategies
- Lecture 25 - Positioning in B2B Markets
- Lecture 26 - B2B Positioning Strategies
- Lecture 27 - Business Market Communication: Personal Selling
- Lecture 28 - Business Market Communication: Sales Force Management
- Lecture 29 - Business Market Communication: Advertising

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Business Market Communication: Social Media, Trade shows and more
- Lecture 31 - Business Market Communication: Promotional Budgeting
- Lecture 32 - Demand Forecasting in B2B Markets: Introduction
- Lecture 33 - Demand Forecasting in B2B Markets: Qualitative Methods
- Lecture 34 - Demand Forecasting in B2B Markets: Quantitative Methods - 1
- Lecture 35 - Demand Forecasting in B2B Markets: Quantitative Methods - 2
- Lecture 36 - B2B Product Management: New Product Development
- Lecture 37 - B2B Product Management: Identifying New Products
- Lecture 38 - B2B Product Management: Customer Value, Product Launch and more
- Lecture 39 - B2B Product Management: Branding
- Lecture 40 - B2B Pricing: Introduction
- Lecture 41 - B2B Pricing: Price Setting Process - 1
- Lecture 42 - B2B Pricing: Price Setting Process - 2
- Lecture 43 - B2B Pricing: Pricing Methods
- Lecture 44 - B2B Pricing: Geographical and Value Based Pricing
- Lecture 45 - B2B Pricing: Competitive Bidding
- Lecture 46 - Introduction to Relationship Management in B2B Markets
- Lecture 47 - Types of Relationships in B2B Markets and Customer Profitability
- Lecture 48 - Customer Relationship Management
- Lecture 49 - Customer Lifetime Value
- Lecture 50 - B2B Marketing Research: Introduction
- Lecture 51 - B2B Marketing Research: Research Methods
- Lecture 52 - Business Marketing Channels: Introduction and its Types
- Lecture 53 - Business Marketing Channels: Types of Participants
- Lecture 54 - Business Marketing Channels: E-Commerce
- Lecture 55 - Supply Chain Management and its Drivers
- Lecture 56 - Approaches to SCM and Logistics Management
- Lecture 57 - Strategic Business Units (SBU) and BCG Matrix
- Lecture 58 - GE Matrix and McKinsey 7S Framework
- Lecture 59 - Marketing Techniques Implementation and Control
- Lecture 60 - A Comprehensive Case Study

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Designing Work Organization

Subject Co-ordinator - Prof. Santosh Rangnekar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Organization Design
- Lecture 2 - Evolution of Organization Theory and Design
- Lecture 3 - Approaches to Design Based on Different Models
- Lecture 4 - Role of Strategy in Organization Design
- Lecture 5 - A Framework for Selecting Strategy and Design
- Lecture 6 - Assessing Organizational Effectiveness - 1
- Lecture 7 - Assessing Organizational Effectiveness - 2
- Lecture 8 - Understanding Organizational Structure
- Lecture 9 - Dimension of Organization Structure - 1
- Lecture 10 - Dimension of Organization Structure - 2
- Lecture 11 - Dimension of Organization Structure - 3
- Lecture 12 - Interorganizational Relationship - 1
- Lecture 13 - Interorganizational Relationship - 2
- Lecture 14 - The Impact of External Environment
- Lecture 15 - Framework for Response to Environmental Change
- Lecture 16 - Organization Resilience and Adaptability
- Lecture 17 - Introduction to Organization Decision-making
- Lecture 18 - Models of Organizational decision-making
- Lecture 19 - Contingency Decision-Making Framework
- Lecture 20 - Role of IT in decision making
- Lecture 21 - Strategic Role of Change
- Lecture 22 - Model of Change Management
- Lecture 23 - Managing Technology Change
- Lecture 24 - Leading in VUCA World
- Lecture 25 - Enhancing Organizational Readiness for Change
- Lecture 26 - Designing Organizations for Competitive Success
- Lecture 27 - Understanding and Developing Organization culture
- Lecture 28 - Managing Culture by Design
- Lecture 29 - Learning Organization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ethical values and Social Responsibility
- Lecture 31 - Organizational Design Challenges
- Lecture 32 - Interdepartmental Conflict in Organization
- Lecture 33 - Power and Organization
- Lecture 34 - Political Processes in an organization
- Lecture 35 - Communications Structure of Organization
- Lecture 36 - Leadership in Organization Design
- Lecture 37 - The strategic value of Information Technology
- Lecture 38 - E-business Organization Design
- Lecture 39 - Workplace Technology and Design - 1
- Lecture 40 - Workplace Technology and Design - 2
- Lecture 41 - Innovation Management and its Principles
- Lecture 42 - Models of Organizational Innovation
- Lecture 43 - Innovation for Impact
- Lecture 44 - Design Thinking for Innovation - 1
- Lecture 45 - Design Thinking for Innovation - 2
- Lecture 46 - Growth and Organization Life cycle
- Lecture 47 - Organization Size and Complexity of Organization
- Lecture 48 - Organization Bureaucracy and Control
- Lecture 49 - Organization Development and Tools - 1
- Lecture 50 - Organization Development and Tools - 2
- Lecture 51 - Understanding Global Organizational Design
- Lecture 52 - Designing Structure to Fit Global Strategy
- Lecture 53 - Building Global Capabilities
- Lecture 54 - Sustainable Organization Design
- Lecture 55 - Job Crafting
- Lecture 56 - Workplace Design for Well-being
- Lecture 57 - Organization Building in Context of Employee Engagement
- Lecture 58 - The Experience-Centric Organization
- Lecture 59 - The Wheel of Experience Centricity
- Lecture 60 - Designing Organization for Meaningful Experiences

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Project Management (2024)

Subject Co-ordinator - Prof. Ramesh Anbanandam

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Project Management - I
- Lecture 2 - Introduction to Project Management - II
- Lecture 3 - Agile Project Management
- Lecture 4 - Project Selection Models
- Lecture 5 - Examples of Project Selection Models
- Lecture 6 - Project Manager
- Lecture 7 - Attributes of Effective Project Manager
- Lecture 8 - Managing for Stakeholders
- Lecture 9 - Resolving Conflicts
- Lecture 10 - Negotiation
- Lecture 11 - Project in the Organization structure
- Lecture 12 - Human factors and the Project Team
- Lecture 13 - Traditional Project Activity Planning
- Lecture 14 - Agile Project Planning, Project Charter
- Lecture 15 - Coordination through Integration Management
- Lecture 16 - Project Feasibility Analysis
- Lecture 17 - Estimating Project Budgets
- Lecture 18 - Project Risk Management
- Lecture 19 - Quantitative Risk Assessment Methodologies
- Lecture 20 - Critical Path Method (CPM)
- Lecture 21 - Programme Evaluation And Review Technique PERT
- Lecture 22 - Risk Analysis with simulation for scheduling
- Lecture 23 - Gantt Chart and Scheduling with scrum
- Lecture 24 - Crashing a project
- Lecture 25 - Resource Loading
- Lecture 26 - Resource Levelling
- Lecture 27 - Goldratt's critical chain
- Lecture 28 - Planning monitoring controlling cycle
- Lecture 29 - Earned value analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Agile tools for tracking project
- Lecture 31 - Three types of Project Controlling
- Lecture 32 - Control of change scope and scope creep
- Lecture 33 - Project Audit
- Lecture 34 - Essentials of an audit evaluation
- Lecture 35 - When to close a project ?
- Lecture 36 - Benefits realization, Case study on the success of Chandrayan 3
- Lecture 37 - Software for Project Management
- Lecture 38 - Demo on project management software
- Lecture 39 - Simulations Software for Project Management
- Lecture 40 - Course Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:AI in Marketing

Subject Co-ordinator - Prof. Zillur Rahman

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Understanding the basics of AI in Marketing - I
- Lecture 2 - Understanding the basics of AI in Marketing - II
- Lecture 3 - Understanding the basics of AI in Marketing - III
- Lecture 4 - Introduction to AI Algorithms
- Lecture 5 - Designs of AI, Transition process and AI matrix
- Lecture 6 - Customer value and Role of AI in Value Delivery Process
- Lecture 7 - Transforming Marketing Strategy using AI - I
- Lecture 8 - Transforming Marketing Strategy using AI - II
- Lecture 9 - Transforming Marketing Strategy using AI - III
- Lecture 10 - Transforming Marketing Strategy using AI - IV
- Lecture 11 - Transforming Marketing Strategy using AI - V
- Lecture 12 - Using AI for STP
- Lecture 13 - Application of AI in Marketing Mix - I
- Lecture 14 - Application of AI in Marketing Mix - II
- Lecture 15 - Marketing Information Systems and its Components
- Lecture 16 - What is Marketing Research - I
- Lecture 17 - What is Marketing Research - II
- Lecture 18 - Individual Dynamics and its influence on Consumer Behaviour
- Lecture 19 - Consumer Buying Decision Process
- Lecture 20 - Understanding Customer Journey - I
- Lecture 21 - Understanding Customer Journey - II
- Lecture 22 - Customer Experience: Meaning and Characteristics
- Lecture 23 - Personalization: Going Beyond Segmentation - I
- Lecture 24 - Personalization: Going Beyond Segmentation - II
- Lecture 25 - Avatar marketing
- Lecture 26 - Standardization, Personalization and Relationalization of Brands using AI
- Lecture 27 - Understanding Networks and Brand Network Effect
- Lecture 28 - Understanding the Use of AI for Addressing Competition
- Lecture 29 - AI and Brand Equity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - AI and New Brand Realities - I
- Lecture 31 - AI and New Brand Realities - II
- Lecture 32 - AI for Value Creation and Product Development
- Lecture 33 - Personalization and hyper-personalization Using AI - I
- Lecture 34 - Personalization and hyper-personalization Using AI - II
- Lecture 35 - Personalization and hyper-personalization Using AI - III
- Lecture 36 - Personalization and hyper-personalization Using AI - IV
- Lecture 37 - Personalization and hyper-personalization Using AI - V
- Lecture 38 - Implementation of AI by Product Managers
- Lecture 39 - AI in Service
- Lecture 40 - Pricing Strategies Using AI - I
- Lecture 41 - Pricing Strategies Using AI - II
- Lecture 42 - Pricing Strategies Using AI - III
- Lecture 43 - Pricing Strategies Using AI - IV
- Lecture 44 - Role of AI in Advertising - I
- Lecture 45 - Role of AI in Advertising - II
- Lecture 46 - AI in Sales promotion and Direct Marketing
- Lecture 47 - AI in PR and Publicity and Social Media Marketing - I
- Lecture 48 - AI in PR and Publicity and Social Media Marketing - II
- Lecture 49 - Personal Selling using AI
- Lecture 50 - Sales management using AI
- Lecture 51 - AI and Marketing Channel Management
- Lecture 52 - Omnichannel Marketing and Retailing
- Lecture 53 - Changing face of Retailing in the age of AI
- Lecture 54 - AI in Logistics Management - I
- Lecture 55 - AI in Logistics Management - II
- Lecture 56 - Navigating Ethical Challenges in AI - I
- Lecture 57 - Navigating Ethical Challenges in AI - II
- Lecture 58 - Navigating Ethical Challenges in AI - III
- Lecture 59 - Navigating Ethical Challenges in AI - IV
- Lecture 60 - AI and Sustainability

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Innovation in Marketing and Marketing of Innovation

Subject Co-ordinator - Prof. Vinay Sharma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Innovation
- Lecture 3 - Innovations in Marketing and Marketing of Innovations
- Lecture 4 - Innovations in Marketing
- Lecture 5 - Need for Innovations in Marketing - 1
- Lecture 6 - Need for Innovations in Marketing - 2
- Lecture 7 - Change in Consumer Behaviour - 1
- Lecture 8 - Change in Consumer Behaviour - 2
- Lecture 9 - Innovative Perspectives about 4P's for Innovation
- Lecture 10 - Innovator's Dilemma
- Lecture 11 - Go-To-Market Strategy
- Lecture 12 - Targeting - Evolutionary Perspective
- Lecture 13 - Innovations in Targeting and Positioning
- Lecture 14 - Changing Concepts in Marketing of Products and Services
- Lecture 15 - Changing Concepts of Marketing and Innovations in Service Marketing
- Lecture 16 - Countering Commoditization: An Innovative Perspective
- Lecture 17 - Innovations and Branding
- Lecture 18 - Innovation in Pricing and Factors Affecting Pricing Innovations
- Lecture 19 - Innovation in Pricing
- Lecture 20 - Innovation in Pricing Strategies - 1
- Lecture 21 - Innovation in Pricing Strategies - 2
- Lecture 22 - Innovation in Distribution Channels
- Lecture 23 - Innovation in Channel Management
- Lecture 24 - Innovation in Retailing - 1
- Lecture 25 - Innovation in Retailing - 2
- Lecture 26 - Influence of distribution innovation on Marketing Mix
- Lecture 27 - Innovation in Marketing Communication - 1
- Lecture 28 - Innovation in Marketing Communication - 2
- Lecture 29 - Innovation in Marketing Communication - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Innovative Marketing Communications: Direct Marketing
- Lecture 31 - Innovative Marketing Communications: Sales Promotion and Public Relations
- Lecture 32 - Innovative Marketing Communications: Advertising - Print, Radio and Television
- Lecture 33 - Innovative Marketing Communications: Digital and Social Media Marketing
- Lecture 34 - Influence of Innovation in Marketing Communications on the Marketing Mix
- Lecture 35 - Co-Creation of Value and Value Co-Creation
- Lecture 36 - Innovation and Value Chains - 1
- Lecture 37 - Innovation and Value Chains - 2
- Lecture 38 - Beyond Business
- Lecture 39 - What is Marketing of Innovation? - Part 1
- Lecture 40 - What is Marketing of Innovation? - Part 2
- Lecture 41 - What is Marketing of Innovation? - Part 3
- Lecture 42 - Marketing of Innovation - new products/new usage/ new services/ new perspective?
- Lecture 43 - Marketing Research on Marketing of Innovation - Part 1
- Lecture 44 - Marketing Research on Marketing of Innovation - Part 2
- Lecture 45 - Marketing of Innovation - A fundamental change of thought process
- Lecture 46 - Introduction to Innovation
- Lecture 47 - Sources and Principles of Innovation
- Lecture 48 - Strategy and Innovation
- Lecture 49 - Connecting Innovation to Strategy
- Lecture 50 - Understanding Consumers
- Lecture 51 - Consumer Behavior and Innovations
- Lecture 52 - Product Life Cycle in case of Innovations; Is it different?
- Lecture 53 - Branding of Innovation
- Lecture 54 - Marketing of Innovation in Service Industry - Part 1
- Lecture 55 - Marketing of Innovation in Service Industry - Part 2
- Lecture 56 - Positioning of Innovation
- Lecture 57 - New Product Development
- Lecture 58 - Monetizing and Delivering Innovation
- Lecture 59 - What if it did not happen?
- Lecture 60 - Conclusion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Strategic Services Marketing

Subject Co-ordinator - Prof. Kalpak Kulkarni

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Services and their Unique Characteristics
- Lecture 2 - Services in Modern Economy
- Lecture 3 - Trends and Challenges in Services Marketing
- Lecture 4 - Service Marketing Mix and Value Creation
- Lecture 5 - Services Ecosystem and Stakeholder Analysis
- Lecture 6 - Customer Journey Mapping and Touchpoint Analysis
- Lecture 7 - Designing memorable customer experiences
- Lecture 8 - Personalization and Customization in Services
- Lecture 9 - Emotional and Sensory marketing in Services
- Lecture 10 - Technology-enabled customer experiences
- Lecture 11 - Service Design Thinking and Design-driven Innovation
- Lecture 12 - Open Innovation and Collaboration in Services
- Lecture 13 - Crowdsourcing and customer involvement in service development
- Lecture 14 - Managing Service Failures and Service Recovery Strategies
- Lecture 15 - Leveraging Customer Feedback for Continuous Improvement
- Lecture 16 - Digitalization of Services and Digital Service Platforms
- Lecture 17 - Online Customer Engagement and Social Media Marketing
- Lecture 18 - Mobile Marketing and Location-based Services
- Lecture 19 - Artificial Intelligence and Chatbot Integration in Services
- Lecture 20 - Blockchain and its application in service industries
- Lecture 21 - Data-driven Decision-making in Services Marketing
- Lecture 22 - Customer Analytics and Segmentation Strategies
- Lecture 23 - Predictive Analytics for Personalized Marketing
- Lecture 24 - Sentiment Analysis and Social Listening in Services
- Lecture 25 - Ethical Considerations in Handling Customer Data
- Lecture 26 - Building a Strong Service Brand Identity
- Lecture 27 - Brand Positioning and Differentiation Strategies
- Lecture 28 - Online Brand Management and Reputation Monitoring
- Lecture 29 - Managing Brand Extensions and Brand Partnerships

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Internal Branding and Aligning Employees with the Brand
- Lecture 31 - Measuring and Improving Service Quality
- Lecture 32 - SERVQUAL and Other Service Quality Measurement Tools
- Lecture 33 - Service Guarantees and Service-level Agreements
- Lecture 34 - Service Recovery Strategies and Complaint Handling
- Lecture 35 - Cultivating a Culture of Service Excellence
- Lecture 36 - Pricing Strategies for Services and Value-based Pricing
- Lecture 37 - Dynamic Pricing and Revenue Optimization Techniques
- Lecture 38 - Bundling and Packaging Strategies in Service Pricing
- Lecture 39 - Subscription Models and Revenue Diversification
- Lecture 40 - Pricing Strategies for Freemium and Subscription-based Services
- Lecture 41 - Cultural Nuances and Their Impact on Service Marketing
- Lecture 42 - Adapting Services for Different Cultural Contexts
- Lecture 43 - Global Branding and Localization Strategies
- Lecture 44 - Managing Diversity and Inclusivity in Service Delivery
- Lecture 45 - Cross-cultural Communication and Customer Relationship Management
- Lecture 46 - Sustainable practices and corporate social responsibility in services
- Lecture 47 - Environmental consciousness and green marketing
- Lecture 48 - Eco-friendly service design and operations
- Lecture 49 - Ethical sourcing and responsible supply chain management
- Lecture 50 - Consumer attitudes towards sustainable services
- Lecture 51 - Developing service leadership skills
- Lecture 52 - Motivating and empowering service employees
- Lecture 53 - Service culture and service-oriented organizational behaviour
- Lecture 54 - Training and development for service excellence
- Lecture 55 - Managing service teams and fostering collaboration
- Lecture 56 - Innovations in Service Delivery and Technology
- Lecture 57 - Augmented Reality and Virtual Reality in Services
- Lecture 58 - Internet of Things (IoT) in Service Ecosystem
- Lecture 59 - Servitization and Product-Service Systems
- Lecture 60 - Future Prospects and Challenges in Services Marketing

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Strategic Management

Subject Co-ordinator - Prof. R. Srinivasan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Strategic Management

Lecture 2 - Concept of Corporate Strategy

Lecture 3 - Strategic Management Process - 1

Lecture 4 - Strategic Management Process - 2

Lecture 5 - The 7-S Framework

Lecture 6 - Corporate Policy and Planning in India

Lecture 7 - Board of Directors - Role and Functions

Lecture 8 - Board of Directors - Role and Functions, Top Management - Role and Skills, Board Functioning - In

Lecture 9 - Board Functioning - Indian Context and Environmental Scanning

Lecture 10 - Environmental Scanning and Industry Analysis

Lecture 11 - The synthesis of External Factors and External Factors Analysis Summary (EFAS)

Lecture 12 - Internal Corporate Analysis and Impact Matrix

Lecture 13 - Value Chain Analysis

Lecture 14 - Synthesis of Internal Factors - 1

Lecture 15 - Synthesis of Internal Factors - 2

Lecture 16 - Internal Factors Analysis Summary (IFAS) and Case Study - 1

Lecture 17 - Case Analysis

Lecture 18 - Key Financial Ratios

Lecture 19 - Case Analysis - 2 and SFAS Matrix

Lecture 20 - Business Strategy

Lecture 21 - Corporate Strategy - 1

Lecture 22 - Corporate Strategy - 2

Lecture 23 - Corporate Strategy - 3 and Functional Strategy

Lecture 24 - Functional Strategy - 1

Lecture 25 - Functional Strategy - 2

Lecture 26 - Functional Strategy - 3 and Strategic Choice

Lecture 27 - Strategy Implementation - 1

Lecture 28 - Strategy Implementation - 2

Lecture 29 - Evaluation and Control

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strategic Information Systems - 1
- Lecture 31 - Strategic Information Systems - 2
- Lecture 32 - Other Strategic Issues - 1
- Lecture 33 - Other Strategic Issues - 2
- Lecture 34 - Small and Medium Enterprises
- Lecture 35 - Non- Profit Organizations
- Lecture 36 - Summary - 1
- Lecture 37 - Summary - 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - Global Supply Chain Management

Subject Co-ordinator - Prof. N. Viswanadham

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Global Supply Chain Networks Part - 1  
Lecture 2 - Introduction to Global Supply Chain Networks Part - 2  
Lecture 3 - Zara - fast fashion  
Lecture 4 - The Supply Chain Eco-System Framework  
Lecture 5 - Supply Chain Eco-System Framework  
Lecture 6 - Supply Chain Eco-System Framework  
Lecture 7 - Metro Cash and Carry  
Lecture 8 - Performance Analysis  
Lecture 9 - Supply Chain Risk - Part-1  
Lecture 10 - Supply Chain Risk - Part-2  
Lecture 11 - Supply Chain Risk - Part-3  
Lecture 12 - Mattel Toy Recalls and Supply Chain Management  
Lecture 13 - Innovation in Emerging markets  
Lecture 14 - Innovations in Supply Chain Ecosystem  
Lecture 15 - Indian Telecom and Bharti Airtel  
Lecture 16 - CEMEX - Part-1  
Lecture 17 - CEMEX - Part-2  
Lecture 18 - Governance  
Lecture 19 - Governance of networked organizations  
Lecture 20 - The Orchestration Governance Model  
Lecture 21 - Orchestration-Examples  
Lecture 22 - Li & Fung - Part-1  
Lecture 23 - Li & Fung - Part-2  
Lecture 24 - Supply Chain Design - Part-1  
Lecture 25 - Supply Chain Design - Part-2  
Lecture 26 - Green supply chain design - Part-1  
Lecture 27 - Green supply chain design - Part-2  
Lecture 28 - Green Supply Chain Ecosystem Analysis  
Lecture 29 - GRIP Framework

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- Lecture 30 - Location Selection
- Lecture 31 - Ecosystem Aware Location Analysis
- Lecture 32 - Food supply chain in India
- Lecture 33 - Food supply chain ecosystem - Grip frame work
- Lecture 34 - Food Security in India
- Lecture 35 - Smart Villages and Cities - Part-1
- Lecture 36 - Smart Villages and Cities - Part-2
- Lecture 37 - Overview of the Course
- Lecture 38 - How to use the Video lectures

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC: Integrated Marketing Management

Subject Co-ordinator - Prof. R. Srinivasan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Evolution of Marketing
- Lecture 2 - Marketing Management
- Lecture 3 - Marketing in India
- Lecture 4 - Role of Marketing
- Lecture 5 - Case Analysis
- Lecture 6 - Case Analysis
- Lecture 7 - Case of Suryodaya
- Lecture 8 - Marketing System
- Lecture 9 - Input-Output Map
- Lecture 10 - Competition
- Lecture 11 - Consumer Behaviour Model
- Lecture 12 - BCG Matrix, Strategic Marketing
- Lecture 13 - Marketing Strategy
- Lecture 14 - Market Segmentation, VALS Model
- Lecture 15 - Sales Function and Marketing Mix
- Lecture 16 - B-B Markets, Macro Environment
- Lecture 17 - Analytical Marketing System
- Lecture 18 - Decision Models
- Lecture 19 - E-Business
- Lecture 20 - Market Demand, Concept Testing
- Lecture 21 - Product, Product Mix, PLC
- Lecture 22 - PLC (Continued...)
- Lecture 23 - Pricing Strategies
- Lecture 24 - Brands, Channels
- Lecture 25 - Channel Management, Marketing Communication
- Lecture 26 - Advertising, Marketing Organisation
- Lecture 27 - Role of Product Manager, Industrial Buying
- Lecture 28 - Sales Forecasting, Marketing Control
- Lecture 29 - Marketing Expense Analysis

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- Lecture 30 - Toyota Strategy
- Lecture 31 - Cafe Coffee Day(CCD)
- Lecture 32 - CCD (Continued...)
- Lecture 33 - I flex (OFSS)
- Lecture 34 - OFSS
- Lecture 35 - Oilseeds Growers Cooperative Society (OGCS)
- Lecture 36 - OGCS

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Management - NOC:Strategic Management - The Competitive Edge

Subject Co-ordinator - Prof. R Srinivasan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Long Range/Strategic Planning
- Lecture 2 - Purpose, Mission, Goals
- Lecture 3 - Different types of Strategies
- Lecture 4 - Different types of Strategies
- Lecture 5 - Strategic Management Process (SMP)
- Lecture 6 - Modes of Strategic decisions
- Lecture 7 - 7-S Frame work
- Lecture 8 - Director, powers
- Lecture 9 - Functions of BoD
- Lecture 10 - Responsibilities of Business
- Lecture 11 - Taxonomy of Company Environment
- Lecture 12 - Competitive Landscape
- Lecture 13 - Global Uncertainty Internal Corporate Analysis
- Lecture 14 - Industry structure, Competitor Analysis
- Lecture 15 - Firm's value chain
- Lecture 16 - Key factors of Success, Porter's Industry Competition Model
- Lecture 17 - S and W Profile Analysis
- Lecture 18 - Competitive Advantage(CA), IFAS,SFAS
- Lecture 19 - Case Analysis
- Lecture 20 - Case Analysis (Continued...)
- Lecture 21 - Case Study - 1
- Lecture 22 - Case Study - 2
- Lecture 23 - Business Strategy
- Lecture 24 - BEA, Doom Loops, Corporate Strategy, Portfolio Analysis
- Lecture 25 - Corporate Strategy, Display Matrices
- Lecture 26 - Display Matrices
- Lecture 27 - Display Matrices
- Lecture 28 - National Diamond
- Lecture 29 - Functional Strategy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strategic Choice
- Lecture 31 - Stage I, II, III, IV organizations
- Lecture 32 - Risk, Corporate Diversification
- Lecture 33 - Mergers and Acquisitions
- Lecture 34 - Model for Evaluation
- Lecture 35 - Rewards
- Lecture 36 - Technology Road Map
- Lecture 37 - IT and Strategy, R&D Strategy
- Lecture 38 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Elementary Numerical Analysis

Subject Co-ordinator - Prof. Rekha P. Kulkarni

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Polynomial Approximation  
Lecture 3 - Interpolating Polynomials  
Lecture 4 - Properties of Divided Difference  
Lecture 5 - Error in the Interpolating polynomial  
Lecture 6 - Cubic Hermite Interpolation  
Lecture 7 - Piecewise Polynomial Approximation  
Lecture 8 - Cubic Spline Interpolation  
Lecture 9 - Tutorial 1  
Lecture 10 - Numerical Integration  
Lecture 11 - Composite Numerical Integration  
Lecture 12 - Gauss 2-point Rule  
Lecture 13 - Gauss 2-point Rule  
Lecture 14 - Convergence of Gaussian Integration  
Lecture 15 - Tutorial 2  
Lecture 16 - Numerical Differentiation  
Lecture 17 - Gauss Elimination  
Lecture 18 - L U decomposition  
Lecture 19 - Cholesky decomposition  
Lecture 20 - Gauss Elimination with partial pivoting  
Lecture 21 - Vector and Matrix Norms  
Lecture 22 - Perturbed Linear Systems  
Lecture 23 - Ill-conditioned Linear System  
Lecture 24 - Tutorial 3  
Lecture 25 - Effect of Small Pivots  
Lecture 26 - Solution of Non-linear Equations  
Lecture 27 - Quadratic Convergence of Newton's Method  
Lecture 28 - Jacobi Method  
Lecture 29 - Gauss-Seidel Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial 4
- Lecture 31 - Initial Value Problem
- Lecture 32 - Multi-step Methods
- Lecture 33 - Predictor-Corrector Formulae
- Lecture 34 - Boundary Value Problems
- Lecture 35 - Eigenvalues and Eigenvectors
- Lecture 36 - Spectral Theorem
- Lecture 37 - Power Method
- Lecture 38 - Inverse Power Method
- Lecture 39 - Q R Decomposition
- Lecture 40 - Q R Method

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Measure and Integration

Subject Co-ordinator - Prof. Inder K Rana

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Extended Real numbers
- Lecture 2 - Algebra and Sigma Algebra of a subset of a set
- Lecture 3 - Sigma Algebra generated by a class
- Lecture 4 - Monotone Class
- Lecture 5 - Set function
- Lecture 6 - The Length function and its properties
- Lecture 7 - Countably additive set functions on intervals
- Lecture 8 - Uniqueness Problem for Measure
- Lecture 9 - Extension of measure
- Lecture 10 - Outer measure and its properties
- Lecture 11 - Measurable sets
- Lecture 12 - Lebesgue measure and its properties
- Lecture 13 - Characterization of Lebesgue measurable sets
- Lecture 14 - Measurable functions
- Lecture 15 - Properties of measurable functions
- Lecture 16 - Measurable functions on measure spaces
- Lecture 17 - Integral of non negative simple measurable functions
- Lecture 18 - Properties of non negative simple measurable functions
- Lecture 19 - Monotone convergence theorem & Fatou's Lemma
- Lecture 20 - Properties of Integral functions & Dominated Convergence Theorem
- Lecture 21 - Dominated Convergence Theorem and applications
- Lecture 22 - Lebesgue Integral and its properties
- Lecture 23 - Denseness of continuous function
- Lecture 24 - Product measures, an Introduction
- Lecture 25 - Construction of Product Measure
- Lecture 26 - Computation of Product Measure - I
- Lecture 27 - Computation of Product Measure - II
- Lecture 28 - Integration on Product spaces
- Lecture 29 - Fubini's Theorems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lebesgue Measure and integral on  $\mathbb{R}^2$
- Lecture 31 - Properties of Lebesgue Measure and integral on  $\mathbb{R}^n$
- Lecture 32 - Lebesgue integral on  $\mathbb{R}^2$
- Lecture 33 - Integrating complex-valued functions
- Lecture 34 -  $L_p$  - spaces
- Lecture 35 -  $L^2(X, S, \mu)$
- Lecture 36 - Fundamental Theorem of calculus for Lebesgue Integral - I
- Lecture 37 - Fundamental Theorem of calculus for Lebesgue Integral - II
- Lecture 38 - Absolutely continuous measures
- Lecture 39 - Modes of convergence
- Lecture 40 - Convergence in Measure

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Mathematics in India - From Vedic Period to Modern Times

Subject Co-ordinator - Prof. M.D. Srinivas, Prof. K. Ramasubramanian, Prof. M.S. Sriram

Co-ordinating Institute - Centre for Policy Studies, Chennai | IIT - Bombay | University of Madras, Chennai

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Indian Mathematics
- Lecture 2 - Vedas and Sulbasutras - Part 1
- Lecture 3 - Vedas and Sulbasutras - Part 2
- Lecture 4 - Panini's Astadhyayi
- Lecture 5 - Pingala's Chandahsastra
- Lecture 6 - Decimal place value system
- Lecture 7 - Aryabhata's Aryabhata - Part 1
- Lecture 8 - Aryabhata's Aryabhata - Part 2
- Lecture 9 - Aryabhata's Aryabhata - Part 3
- Lecture 10 - Aryabhata's Aryabhata - Part 4 and Introduction to Jaina Mathematics
- Lecture 11 - Brahmasphutasiddhanta of Brahmagupta - Part 1
- Lecture 12 - Brahmasphutasiddhanta of Brahmagupta - Part 2
- Lecture 13 - Brahmasphutasiddhanta of Brahmagupta - Part 3
- Lecture 14 - Brahmasphutasiddhanta of Brahmagupta - Part 4 and The Bakhshali Manuscript
- Lecture 15 - Mahavira's Ganitasarasangraha - Part 1
- Lecture 16 - Mahavira's Ganitasarasangraha - Part 2
- Lecture 17 - Mahavira's Ganitasarasangraha - Part 3
- Lecture 18 - Development of Combinatorics - Part 1
- Lecture 19 - Development of Combinatorics - Part 2
- Lecture 20 - Lilavati of Bhaskaracarya - Part 1
- Lecture 21 - Lilavati of Bhaskaracarya - Part 2
- Lecture 22 - Lilavati of Bhaskaracarya - Part 3
- Lecture 23 - Bijaganita of Bhaskaracarya - Part 1
- Lecture 24 - Bijaganita of Bhaskaracarya - Part 2
- Lecture 25 - Ganitakaumudi of Narayana Pandita - Part 1
- Lecture 26 - Ganitakaumudi of Narayana Pandita - Part 2
- Lecture 27 - Ganitakaumudi of Narayana Pandita - Part 3
- Lecture 28 - Magic Squares - Part 1
- Lecture 29 - Magic Squares - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Development of Calculus in India - Part 1
- Lecture 31 - Development of Calculus in India - Part 2
- Lecture 32 - Jyanayanam
- Lecture 33 - Trigonometry and Spherical Trigonometry - Part 1
- Lecture 34 - Trigonometry and Spherical Trigonometry - Part 2
- Lecture 35 - Trigonometry and Spherical Trigonometry - Part 3
- Lecture 36 - Proofs in Indian Mathematics - Part 1
- Lecture 37 - Proofs in Indian Mathematics - Part 2
- Lecture 38 - Proofs in Indian Mathematics - Part 3
- Lecture 39 - Mathematics in Modern India - Part 1
- Lecture 40 - Mathematics in Modern India - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Measure Theory

Subject Co-ordinator - Prof. Inder K Rana

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - (1A) Introduction, Extended Real Numbers
- Lecture 2 - (1B) Introduction, Extended Real Numbers
- Lecture 3 - (2A) Algebra and Sigma Algebra of Subsets of a Set
- Lecture 4 - (2B) Algebra and Sigma Algebra of Subsets of a Set
- Lecture 5 - (3A) Sigma Algebra generated by a Class
- Lecture 6 - (3B) Sigma Algebra generated by a Class
- Lecture 7 - (4A) Monotone Class
- Lecture 8 - (4B) Monotone Class
- Lecture 9 - (5A) Set Functions
- Lecture 10 - (5B) Set Functions
- Lecture 11 - (6A) The Length Function and its Properties
- Lecture 12 - (6B) The Length Function and its Properties
- Lecture 13 - (7A) Countably Additive Set Functions on Intervals
- Lecture 14 - (7B) Countably Additive Set Functions on Intervals
- Lecture 15 - (8A) Uniqueness Problem for Measure
- Lecture 16 - (8B) Uniqueness Problem for Measure
- Lecture 17 - (9A) Extension of Measure
- Lecture 18 - (9B) Extension of Measure
- Lecture 19 - (10A) Outer Measure and its Properties
- Lecture 20 - (10B) Outer Measure and its Properties
- Lecture 21 - (11A) Measurable Sets
- Lecture 22 - (11B) Measurable Sets
- Lecture 23 - (12A) Lebesgue Measure and its Properties
- Lecture 24 - (12B) Lebesgue Measure and its Properties
- Lecture 25 - (13A) Characterization of Lebesgue Measurable Sets
- Lecture 26 - (13B) Characterization of Lebesgue Measurable Sets
- Lecture 27 - (14A) Measurable Functions
- Lecture 28 - (14B) Measurable Functions
- Lecture 29 - (15A) Properties of Measurable Functions

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - (15B) Properties of Measurable Functions
- Lecture 31 - (16A) Measurable Functions on Measure Spaces
- Lecture 32 - (16B) Measurable Functions on Measure Spaces
- Lecture 33 - (17A) Integral of Nonnegative Simple Measurable Functions
- Lecture 34 - (17B) Integral of Nonnegative Simple Measurable Functions
- Lecture 35 - (18A) Properties of Nonnegative Simple Measurable Functions
- Lecture 36 - (18B) Properties of Nonnegative Simple Measurable Functions
- Lecture 37 - (19A) Monotone Convergence Theorem and Fatou's Lemma
- Lecture 38 - (19B) Monotone Convergence Theorem and Fatou's Lemma
- Lecture 39 - (20A) Properties of Integrable Functions and Dominated Convergence Theorem
- Lecture 40 - (20B) Properties of Integrable Functions and Dominated Convergence Theorem
- Lecture 41 - (21A) Dominated Convergence Theorem and Applications
- Lecture 42 - (21B) Dominated Convergence Theorem and Applications
- Lecture 43 - (22A) Lebesgue Integral and its Properties
- Lecture 44 - (22B) Lebesgue Integral and its Properties
- Lecture 45 - (23A) Product Measure, an Introduction
- Lecture 46 - (23B) Product Measure, an Introduction
- Lecture 47 - (24A) Construction of Product Measures
- Lecture 48 - (24B) Construction of Product Measures
- Lecture 49 - (25A) Computation of Product Measure - I
- Lecture 50 - (25B) Computation of Product Measure - I
- Lecture 51 - (26A) Computation of Product Measure - II
- Lecture 52 - (26B) Computation of Product Measure - II
- Lecture 53 - (27A) Integration on Product Spaces
- Lecture 54 - (27B) Integration on Product Spaces
- Lecture 55 - (28A) Fubini's Theorems
- Lecture 56 - (28B) Fubini's Theorems
- Lecture 57 - (29A) Lebesgue Measure and Integral on  $\mathbb{R}^2$
- Lecture 58 - (29B) Lebesgue Measure and Integral on  $\mathbb{R}^2$
- Lecture 59 - (30A) Properties of Lebesgue Measure on  $\mathbb{R}^2$
- Lecture 60 - (30B) Properties of Lebesgue Measure on  $\mathbb{R}^2$
- Lecture 61 - (31A) Lebesgue Integral on  $\mathbb{R}^2$
- Lecture 62 - (31B) Lebesgue Integral on  $\mathbb{R}^2$

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Calculus for Economics, Commerce and Management

Subject Co-ordinator - Prof.Inder Kumar Rana

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course
- Lecture 2 - Concept of a Set, Ways of Representing Sets
- Lecture 3 - Venn Diagrams, Operations on Sets
- Lecture 4 - Operations on Sets, Cardinal Number, Real Numbers
- Lecture 5 - Real Numbers, Sequences
- Lecture 6 - Sequences, Convergent Sequences, Bounded Sequences
- Lecture 7 - Limit Theorems, Sandwich Theorem, Monotone Sequences, Completeness of Real Numbers
- Lecture 8 - Relations and Functions
- Lecture 9 - Functions, Graph of a Functions, Function Formulas
- Lecture 10 - Function Formulas, Linear Models
- Lecture 11 - Linear Models, Elasticity, Linear Functions, Nonlinear Models, Quadratic Functions
- Lecture 12 - Quadratic Functions, Quadratic Models, Power Function, Exponential Function
- Lecture 13 - Exponential Function, Exponential Models, Logarithmic Function
- Lecture 14 - Limit of a Function at a Point, Continuous Functions
- Lecture 15 - Limit of a Function at a Point
- Lecture 16 - Limit of a Function at a Point, Left and Right Limits
- Lecture 17 - Computing Limits, Continuous Functions
- Lecture 18 - Applications of Continuous Functions
- Lecture 19 - Applications of Continuous Functions, Marginal of a Function
- Lecture 20 - Rate of Change, Differentiation
- Lecture 21 - Rules of Differentiation
- Lecture 22 - Derivatives of Some Functions, Marginal, Elasticity
- Lecture 23 - Elasticity, Increasing and Decreasing Functions, Optimization, Mean Value Theorem
- Lecture 24 - Mean Value Theorem, Marginal Analysis, Local Maxima and Minima
- Lecture 25 - Local Maxima and Minima
- Lecture 26 - Local Maxima and Minima, Continuity Test, First Derivative Test, Successive Differentiation
- Lecture 27 - Successive Differentiation, Second Derivative Test
- Lecture 28 - Average and Marginal Product, Marginal of Revenue and Cost, Absolute Maximum and Minimum
- Lecture 29 - Absolute Maximum and Minimum

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Monopoly Market, Revenue and Elasticity
- Lecture 31 - Property of Marginals, Monopoly Market, Publisher v/s Author Problem
- Lecture 32 - Convex and Concave Functions
- Lecture 33 - Derivative Tests for Convexity, Concavity and Points of Inflection, Higher Order Derivative Conc
- Lecture 34 - Convex and Concave Functions, Asymptotes
- Lecture 35 - Asymptotes, Curve Sketching
- Lecture 36 - Functions of Two Variables, Visualizing Graph, Level Curves, Contour Lines
- Lecture 37 - Partial Derivatives and Application to Marginal Analysis
- Lecture 38 - Marginals in Cobb-Douglas model, partial derivatives and elasticity, chain rules
- Lecture 39 - Chain Rules, Higher Order Partial Derivatives, Local Maxima and Minima, Critical Points
- Lecture 40 - Saddle Points, Derivative Tests, Absolute Maxima and Minima
- Lecture 41 - Some Examples, Constrained Maxima and Minima

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Basic Linear Algebra

Subject Co-ordinator - Prof.Inder Kumar Rana

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - I
- Lecture 2 - Introduction - II
- Lecture 3 - Introduction - III
- Lecture 4 - Systems of Linear Equations - I
- Lecture 5 - Systems of Linear Equations - II
- Lecture 6 - Systems of Linear Equations - III
- Lecture 7 - Reduced Row Echelon Form and Rank - I
- Lecture 8 - Reduced Row Echelon Form and Rank - II
- Lecture 9 - Reduced Row Echelon Form and Rank - III
- Lecture 10 - Solvability of a Linear System, Linear Span, Basis - I
- Lecture 11 - Solvability of a Linear System, Linear Span, Basis - II
- Lecture 12 - Solvability of a Linear System, Linear Span, Basis - III
- Lecture 13 - Linear Span, Linear Independence and Basis - I
- Lecture 14 - Linear Span, Linear Independence and Basis - II
- Lecture 15 - Linear Span, Linear Independence and Basis - III
- Lecture 16 - Row Space, Column Space, Rank-Nullity Theorem - I
- Lecture 17 - Row Space, Column Space, Rank-Nullity Theorem - II
- Lecture 18 - Row Space, Column Space, Rank-Nullity Theorem - III
- Lecture 19 - Determinants and their Properties - I
- Lecture 20 - Determinants and their Properties - II
- Lecture 21 - Determinants and their Properties - III
- Lecture 22 - Linear Transformations - I
- Lecture 23 - Linear Transformations - II
- Lecture 24 - Linear Transformations - III
- Lecture 25 - Orthonormal Basis, Geometry in  $\mathbb{R}^2$  - I
- Lecture 26 - Orthonormal Basis, Geometry in  $\mathbb{R}^2$  - II
- Lecture 27 - Orthonormal Basis, Geometry in  $\mathbb{R}^2$  - III
- Lecture 28 - Isometries, Eigenvalues and Eigenvectors - I
- Lecture 29 - Isometries, Eigenvalues and Eigenvectors - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Isometries, Eigenvalues and Eigenvectors - III
- Lecture 31 - Diagonalization and Real Symmetric Matrices - I
- Lecture 32 - Diagonalization and Real Symmetric Matrices - II
- Lecture 33 - Diagonalization and Real Symmetric Matrices - III
- Lecture 34 - Diagonalization and its Applications - I
- Lecture 35 - Diagonalization and its Applications - II
- Lecture 36 - Diagonalization and its Applications - III
- Lecture 37 - Abstract Vector Spaces - I
- Lecture 38 - Abstract Vector Spaces - II
- Lecture 39 - Abstract Vector Spaces - III
- Lecture 40 - Inner Product Spaces - I
- Lecture 41 - Inner Product Spaces - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Commutative Algebra

Subject Co-ordinator - Prof. Dilip P. Patil

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Zariski Topology and K-Spectrum

Lecture 2 - Algebraic Varieties and Classical Nullstellensatz

Lecture 3 - Motivation for Krull's Dimension

Lecture 4 - Chevalley's dimension

Lecture 5 - Associated Prime Ideals of a Module

Lecture 6 - Support of a Module

Lecture 7 - Primary Decomposition

Lecture 8 - Primary Decomposition (Continued...)

Lecture 9 - Uniqueness of Primary Decomposition

Lecture 10 - Modules of Finite Length

Lecture 11 - Modules of Finite Length (Continued...)

Lecture 12 - Introduction to Krull's Dimension

Lecture 13 - Noether Normalization Lemma (Classical Version)

Lecture 14 - Consequences of Noether Normalization Lemma

Lecture 15 - Nil Radical and Jacobson Radical of Finite type Algebras over a Field and digression of Integral

Lecture 16 - Nagata's version of NNL

Lecture 17 - Dimensions of Polynomial ring over Noetherian rings

Lecture 18 - Dimension of Polynomial Algebra over arbitrary Rings

Lecture 19 - Dimension Inequalities

Lecture 20 - Hilbert's Nullstellensatz

Lecture 21 - Computational rules for Poincaré Series

Lecture 22 - Graded Rings, Modules and Poincaré Series

Lecture 23 - Hilbert-Samuel Polynomials

Lecture 24 - Hilbert-Samuel Polynomials (Continued...)

Lecture 25 - Numerical Function of polynomial type

Lecture 26 - Hilbert-Samuel Polynomial of a Local ring

Lecture 27 - Filtration on a Module

Lecture 28 - Artin-Rees Lemma

Lecture 29 - Dimension Theorem

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dimension Theorem (Continued...)
- Lecture 31 - Consequences of Dimension Theorem
- Lecture 32 - Generalized Krull's Principal Ideal Theorem
- Lecture 33 - Second proof of Krull's Principal Ideal Theorem
- Lecture 34 - The Spec Functor
- Lecture 35 - Prime ideals in Polynomial rings
- Lecture 36 - Characterization of Equidimensional Affine Algebra
- Lecture 37 - Connection between Regular local rings and associated graded rings
- Lecture 38 - Statement of the Jacobian Criterion for Regularity
- Lecture 39 - Hilbert function for Affine Algebra
- Lecture 40 - Hilbert Serre Theorem
- Lecture 41 - Jacobian Matrix and its Rank
- Lecture 42 - Jacobian Matrix and its Rank (Continued...)
- Lecture 43 - Proof of Jacobian Criterion
- Lecture 44 - Proof of Jacobian Criterion (Continued...)
- Lecture 45 - Preparation for Homological Dimension
- Lecture 46 - Complexes of Modules and Homology
- Lecture 47 - Projective Modules
- Lecture 48 - Homological Dimension and Projective module
- Lecture 49 - Global Dimension
- Lecture 50 - Homological characterization of Regular Local Rings (RLR)
- Lecture 51 - Homological characterization of Regular Local Rings (Continued...)
- Lecture 52 - Homological Characterization of Regular Local Rings (Continued...)
- Lecture 53 - Regular Local Rings are UFD
- Lecture 54 - RLR-Prime ideals of height 1
- Lecture 55 - Discrete Valuation Ring
- Lecture 56 - Discrete Valuation Ring (Continued...)
- Lecture 57 - Dedekind Domains
- Lecture 58 - Fractionary Ideals and Dedekind Domains
- Lecture 59 - Characterization of Dedekind Domain
- Lecture 60 - Dedekind Domains and prime factorization of ideals

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Galois Theory

Subject Co-ordinator - Prof. Dilip P. Patil

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Historical Perspectives

Lecture 2 - Examples of Fields

Lecture 3 - Polynomials and Basic properties

Lecture 4 - Polynomial Rings

Lecture 5 - Unit and Unit Groups

Lecture 6 - Division with remainder and prime factorization

Lecture 7 - Zeroes of Polynomials

Lecture 8 - Polynomial functions

Lecture 9 - Algebraically closed Fields and statement of FTA

Lecture 10 - Gauss's Theorem (Uniqueness of factorization)

Lecture 11 - Digression on Rings homomorphism, Algebras

Lecture 12 - Kernel of homomorphisms and ideals in  $K[X], Z$

Lecture 13 - Algebraic elements

Lecture 14 - Examples

Lecture 15 - Minimal Polynomials

Lecture 16 - Characterization of Algebraic elements

Lecture 17 - Theorem of Kronecker

Lecture 18 - Examples

Lecture 19 - Digression on Groups

Lecture 20 - Some examples and Characteristic of a Ring

Lecture 21 - Finite subGroups of the Unit Group of a Field

Lecture 22 - Construction of Finite Fields

Lecture 23 - Digression on Group action - I

Lecture 24 - Automorphism Groups of a Field Extension

Lecture 25 - Dedekind-Artin Theorem

Lecture 26 - Galois Extension

Lecture 27 - Examples of Galois extension

Lecture 28 - Examples of Automorphism Groups

Lecture 29 - Digression on Linear Algebra

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Minimal and Characteristic Polynomials, Norms, Trace of elements
- Lecture 31 - Primitive Element Theorem for Galois Extension
- Lecture 32 - Fundamental Theorem of Galois Theory
- Lecture 33 - Fundamental Theorem of Galois Theory (Continued...)
- Lecture 34 - Cyclotomic extensions
- Lecture 35 - Cyclotomic Polynomials
- Lecture 36 - Irreducibility of Cyclotomic Polynomials over  $\mathbb{Q}$
- Lecture 37 - Reducibility of Cyclotomic Polynomials over Finite Fields
- Lecture 38 - Galois Group of Cyclotomic Polynomials
- Lecture 39 - Extension over a fixed Field of a finite subGroup is Galois Extension
- Lecture 40 - Digression on Group action - II
- Lecture 41 - Correspondence of Normal SubGroups and Galois sub-extensions
- Lecture 42 - Correspondence of Normal SubGroups and Galois sub-extensions (Continued...)
- Lecture 43 - Inverse Galois problem for Abelian Groups
- Lecture 44 - Elementary Symmetric Polynomials
- Lecture 45 - Fundamental Theorem on Symmetric Polynomials
- Lecture 46 -  $\text{Gal}(K[X_1, X_2, \dots, X_n]/K[S_1, S_2, \dots, S_n])$
- Lecture 47 - Digression on Symmetric and Alternating Group
- Lecture 48 - Discriminant of a Polynomial
- Lecture 49 - Zeroes and Embeddings
- Lecture 50 - Normal Extensions
- Lecture 51 - Existence of Algebraic Closure
- Lecture 52 - Uniqueness of Algebraic Closure
- Lecture 53 - Proof of The Fundamental Theorem of Algebra
- Lecture 54 - Galois Group of a Polynomial
- Lecture 55 - Perfect Fields
- Lecture 56 - Embeddings
- Lecture 57 - Characterization of finite Separable extension
- Lecture 58 - Primitive Element Theorem
- Lecture 59 - Equivalence of Galois extensions and Normal-Separable extensions
- Lecture 60 - Operation of Galois Group of Polynomial on the set of zeroes
- Lecture 61 - Discriminants
- Lecture 62 - Examples for further study

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Basic Real Analysis

Subject Co-ordinator - Prof. I. K. Rana

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Real Numbers and Sequences - Part I  
Lecture 2 - Real Numbers and Sequences - Part II  
Lecture 3 - Real Numbers and Sequences - Part III  
Lecture 4 - Convergence of Sequences - Part I  
Lecture 5 - Convergence of Sequences - Part II  
Lecture 6 - Convergence of Sequences - Part III  
Lecture 7 - The LUB Property and Consequences - Part I  
Lecture 8 - The LUB Property and Consequences - Part II  
Lecture 9 - The LUB Property and Consequences - Part III  
Lecture 10 - Topology of Real Numbers  
Lecture 11 - Topology of Real Numbers  
Lecture 12 - Topology of Real Numbers  
Lecture 13 - Topology of Real Numbers  
Lecture 14 - Topology of Real Numbers  
Lecture 15 - Topology of Real Numbers  
Lecture 16 - Topology of Real Numbers  
Lecture 17 - Topology of Real Numbers  
Lecture 18 - Topology of Real Numbers  
Lecture 19 - Topology of Real Numbers  
Lecture 20 - Topology of Real Numbers  
Lecture 21 - Topology of Real Numbers  
Lecture 22 - Continuity and Uniform continuity - Part I  
Lecture 23 - Continuity and Uniform continuity - Part II  
Lecture 24 - Continuity and Uniform continuity - Part III  
Lecture 25 - Uniform continuity and connected sets - Part I  
Lecture 26 - Uniform continuity and connected sets - Part II  
Lecture 27 - Uniform continuity and connected sets - Part III  
Lecture 28 - Connected sets and continuity - Part I  
Lecture 29 - Connected sets and continuity - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Connected sets and continuity - Part III
- Lecture 31 - Differentiability - Part I
- Lecture 32 - Differentiability - Part II
- Lecture 33 - Differentiability - Part III
- Lecture 34 - Differentiability - Part IV
- Lecture 35 - Differentiability - Part V
- Lecture 36 - Differentiability - Part VI
- Lecture 37 - Riemann Integration - Part I
- Lecture 38 - Riemann Integration - Part II
- Lecture 39 - Riemann Integration - Part III
- Lecture 40 - Riemann Integration - Part IV
- Lecture 41 - Riemann Integration - Part V
- Lecture 42 - Riemann Integration - Part VI
- Lecture 43 - Riemann Sum and Riemann Integrals - Part I
- Lecture 44 - Riemann Sum and Riemann Integrals - Part II
- Lecture 45 - Riemann Sum and Riemann Integrals - Part III
- Lecture 46 - Optimization in several variables - Part I
- Lecture 47 - Optimization in several variables - Part II
- Lecture 48 - Optimization in several variables - Part III
- Lecture 49 - Integration in several variables - Part I
- Lecture 50 - Integration in several variables - Part II
- Lecture 51 - Integration in several variables - Part III
- Lecture 52 - Change of variables - Part I
- Lecture 53 - Change of variables - Part II
- Lecture 54 - Change of variables - Part III
- Lecture 55 - Change of variables - Part IV
- Lecture 56 - Metric Spaces - Part I
- Lecture 57 - Metric Spaces - Part II
- Lecture 58 - Metric Spaces - Part III
- Lecture 59 -  $L^p$  Metrics - Part I
- Lecture 60 -  $L^p$  Metrics - Part II
- Lecture 61 -  $L^p$  Metrics - Part III
- Lecture 62 - Pointwise and Uniform convergence - Part I
- Lecture 63 - Pointwise and Uniform convergence - Part II
- Lecture 64 - Pointwise and Uniform convergence - Part III
- Lecture 65 - Pointwise and Uniform convergence - Part IV
- Lecture 66 - Series of Numbers - Part I
- Lecture 67 - Series of Numbers - Part II
- Lecture 68 - Series of Numbers - Part III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Alternating Series and Power Series

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:A Basic Course in Number Theory

Subject Co-ordinator - Prof. Shripad Garge

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Integers
- Lecture 2 - Divisibility and primes
- Lecture 3 - Infinitude of primes
- Lecture 4 - Division algorithm and the GCD
- Lecture 5 - Computing the GCD and Euclid's lemma
- Lecture 6 - Fundamental theorem of arithmetic
- Lecture 7 - Stories around primes
- Lecture 8 - Winding up on 'Primes' and introducing Congruences'
- Lecture 9 - Basic results in congruences
- Lecture 10 - Residue classes modulo  $n$
- Lecture 11 - Arithmetic modulo  $n$ , theory and examples
- Lecture 12 - Arithmetic modulo  $n$ , more examples
- Lecture 13 - Solving linear polynomials modulo  $n$  - I
- Lecture 14 - Solving linear polynomials modulo  $n$  - II
- Lecture 15 - Solving linear polynomials modulo  $n$  - III
- Lecture 16 - Solving linear polynomials modulo  $n$  - IV
- Lecture 17 - Chinese remainder theorem, the initial cases
- Lecture 18 - Chinese remainder theorem, the general case and examples
- Lecture 19 - Chinese remainder theorem, more examples
- Lecture 20 - Using the CRT, square roots of 1 in  $\mathbb{Z}/n\mathbb{Z}$
- Lecture 21 - Wilson's theorem
- Lecture 22 - Roots of polynomials over  $\mathbb{Z}/p\mathbb{Z}$
- Lecture 23 - Euler  $\phi$ -function - I
- Lecture 24 - Euler  $\phi$ -function - II
- Lecture 25 - Primitive roots - I
- Lecture 26 - Primitive roots - II
- Lecture 27 - Primitive roots - III
- Lecture 28 - Primitive roots - IV
- Lecture 29 - Structure of  $U_n$  - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Structure of  $U_n$  - II
- Lecture 31 - Quadratic residues
- Lecture 32 - The Legendre symbol
- Lecture 33 - Quadratic reciprocity law - I
- Lecture 34 - Quadratic reciprocity law - II
- Lecture 35 - Quadratic reciprocity law - III
- Lecture 36 - Quadratic reciprocity law - IV
- Lecture 37 - The Jacobi symbol
- Lecture 38 - Binary quadratic forms
- Lecture 39 - Equivalence of binary quadratic forms
- Lecture 40 - Discriminant of a binary quadratic form
- Lecture 41 - Reduction theory of integral binary quadratic forms
- Lecture 42 - Reduced forms up to equivalence - I
- Lecture 43 - Reduced forms up to equivalence - II
- Lecture 44 - Reduced forms up to equivalence - III
- Lecture 45 - Sums of squares - I
- Lecture 46 - Sums of squares - II
- Lecture 47 - Sums of squares - III
- Lecture 48 - Beyond sums of squares - I
- Lecture 49 - Beyond sums of squares - II
- Lecture 50 - Continued fractions - basic results
- Lecture 51 - Dirichlet's approximation theorem
- Lecture 52 - Good rational approximations
- Lecture 53 - Continued fraction expansion for real numbers - I
- Lecture 54 - Continued fraction expansion for real numbers - II
- Lecture 55 - Convergents give better approximations
- Lecture 56 - Convergents are the best approximations - I
- Lecture 57 - Convergents are the best approximations - II
- Lecture 58 - Quadratic irrationals as continued fractions
- Lecture 59 - Some basics of algebraic number theory
- Lecture 60 - Units in quadratic fields
- Lecture 61 - Units in quadratic fields
- Lecture 62 - Brahmagupta-Pell equations
- Lecture 63 - Tying some loose ends

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Algebraic Topology - Part I

Subject Co-ordinator - Prof. Anant R. Shastri

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Problem in Topology
- Lecture 2 - Concept of homotopy
- Lecture 3 - Bird's eye-view of the course
- Lecture 4 - Path Homotopy
- Lecture 5 - Composition of paths
- Lecture 6 - Fundamental group  $\pi_1$
- Lecture 7 - Computation of Fund. Group of a circle
- Lecture 8 - Computation (Continued...)
- Lecture 9 - Computation concluded
- Lecture 10 - Van-Kampen's Theorem
- Lecture 11 - Function Spaces
- Lecture 12 - Quotient Maps
- Lecture 13 - Group Actions
- Lecture 14 - Examples of Group Actions
- Lecture 15 - Assorted Results on Quotient Spaces
- Lecture 16 - Quotient Constructions Typical to Alg. Top
- Lecture 17 - Quotient Constructions (Continued...)
- Lecture 18 - Relative Homotopy
- Lecture 19 - Construction of a typical SDR
- Lecture 20 - Generalized construction of SDRs
- Lecture 21 - A theoretical application
- Lecture 22 - The Harvest
- Lecture 23 - NDR pairs
- Lecture 24 - General Remarks
- Lecture 25 - Basics of Geometric Realization
- Lecture 26 - Abstract Simplicial Complex
- Lecture 27 - Geometric Realization
- Lecture 28 - Topology on  $|K|$
- Lecture 29 - Simplicial maps

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Polyhedrons
- Lecture 31 - Point Set topological Aspects
- Lecture 32 - Barycentric Subdivision
- Lecture 33 - Finer Subdivisions
- Lecture 34 - Simplicial Approximation
- Lecture 35 - Sperner Lemma
- Lecture 36 - Invariance of domain
- Lecture 37 - Proof of controlled homotopy
- Lecture 38 - Links and Stars
- Lecture 39 - Homotopical Aspects of Simplicial Complexes
- Lecture 40 - Homotopical Aspects
- Lecture 41 - Covering Spaces and Fund. Groups
- Lecture 42 - Lifting Properties
- Lecture 43 - Homotopy Lifting
- Lecture 44 - Relation with the fund. Group
- Lecture 45 - Regular covering
- Lecture 46 - Lifting Problem
- Lecture 47 - Classification of Coverings
- Lecture 48 - Classification
- Lecture 49 - Existence of Simply connected coverings
- Lecture 50 - Construction of Simply connected covering
- Lecture 51 - Properties Shared by total space and base
- Lecture 52 - Examples
- Lecture 53 - G-coverings
- Lecture 54 - Pull-backs
- Lecture 55 - Classification of G-coverings
- Lecture 56 - Proof of classification
- Lecture 57 - Pushouts and Free products
- Lecture 58 - Existence of Free Products, pushouts
- Lecture 59 - Free Products and free groups
- Lecture 60 - Seifert-Van Kampen Theorems
- Lecture 61 - Applications
- Lecture 62 - Applications (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Algebraic Topology - Part II

Subject Co-ordinator - Prof. Anant R. Shastri

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Attaching cells
- Lecture 3 - Subcomplexes and Examples
- Lecture 4 - More examples
- Lecture 5 - More Examples
- Lecture 6 - Topological Properties
- Lecture 7 - Coinduced Topology
- Lecture 8 - Compactly generated topology on Products
- Lecture 9 - Product of Cell complexes
- Lecture 10 - Product of Cell complexes (Continued...)
- Lecture 11 - Partition of Unity on CW-complexes
- Lecture 12 - Partition of Unity (Continued...)
- Lecture 13 - Homotopical Aspects
- Lecture 14 - Homotopical Aspects (Continued...)
- Lecture 15 - Cellular Maps
- Lecture 16 - Cellular Maps (Continued...)
- Lecture 17 - Homotopy exact sequence of a pair
- Lecture 18 - Homotopy exact sequence of a fibration
- Lecture 19 - Categories-Definitions and Examples
- Lecture 20 - More Examples
- Lecture 21 - Functors
- Lecture 22 - Equivalence of Functors (Continued...)
- Lecture 23 - Universal Objects
- Lecture 24 - Basic Homological Algebra
- Lecture 25 - Diagram-Chasing
- Lecture 26 - Homology of Chain Complexes
- Lecture 27 - Euler Characteristics
- Lecture 28 - Singular Homology Groups
- Lecture 29 - Basic Properties of Singular Homology

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- Lecture 30 - Excision
- Lecture 31 - Examples of Excision-Mayer Vietoris
- Lecture 32 - Applications
- Lecture 33 - Applications (Continued...)
- Lecture 34 - The Singular Simplicial Homology
- Lecture 35 - Simplicial Homology
- Lecture 36 - Simplicial Homology (Continued...)
- Lecture 37 - CW-Homology and Cellular Singular Homology
- Lecture 38 - Construction of CW-chain complex
- Lecture 39 - CW structure and CW homology of Lens Spaces
- Lecture 40 - Assorted Topics
- Lecture 41 - Some Applications of Homology
- Lecture 42 - Applications of LFT
- Lecture 43 - Jordan-Brouwer
- Lecture 44 - Proof of Lemmas
- Lecture 45 - Relation between  $H_1$  and  $H_1$
- Lecture 46 - All Postponed Proofs
- Lecture 47 - Proofs (Continued...)
- Lecture 48 - Definitions and Examples
- Lecture 49 - Paracompactness
- Lecture 50 - Manifolds with Boundary
- Lecture 51 - Embeddings and Homotopical Aspects
- Lecture 52 - Homotopical Aspects (Continued...)
- Lecture 53 - Classification of 1-manifolds
- Lecture 54 - Classification of 1-manifolds (Continued...)
- Lecture 55 - Triangulation of Manifolds
- Lecture 56 - Pseudo-Manifolds
- Lecture 57 - One result due to Poincaré and another due to Munkres
- Lecture 58 - Some General Remarks
- Lecture 59 - Classification of Compact Surface
- Lecture 60 - Final Reduction-Completion of the Proof
- Lecture 61 - Proof of Part B
- Lecture 62 - Orientability

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Partial Differential Equations

Subject Co-ordinator - Prof. Sivaji Ganesh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Partial Differential Equations - Basic concepts and Nomenclature
- Lecture 2 - First Order Partial Differential Equations- How they arise? Cauchy Problems, IVPs, IBVPs
- Lecture 3 - First order Partial Differential Equations - Geometry of Quasilinear equations
- Lecture 4 - FOPDE's - General Solutions to Linear and Semilinear equations
- Lecture 5 - First order Partial Differential Equations- Lagrange's method for Quasilinear equations
- Lecture 6 - Relation between Characteristic curves and Integral surfaces for Quasilinear equations
- Lecture 7 - Relation between Characteristic curves and Integral surfaces for Quasilinear equations
- Lecture 8 - FOPDE's - Method of characteristics for Quasilinear equations - 1
- Lecture 9 - First order Partial Differential Equations - Failure of transversality condition
- Lecture 10 - First order Partial Differential Equations - Tutorial of Quasilinear equations
- Lecture 11 - FOPDE's - General nonlinear equations 1 - Search for a characteristic direction
- Lecture 12 - FOPDE's - General nonlinear equations 2 - Characteristic direction and characteristic strip
- Lecture 13 - FOPDE's - General nonlinear equations 3 - Finding an initial strip
- Lecture 14 - FOPDE's - General nonlinear equations 4 - Local existence and uniqueness theorem
- Lecture 15 - First order Partial Differential Equations - Tutorial on General nonlinear equations
- Lecture 16 - First order Partial Differential Equations - Initial value problems for Burgers equation
- Lecture 17 - FOPDE's - Conservation laws with a view towards global solutions to Burgers equation
- Lecture 18 - Second Order Partial Differential Equations - Special Curves associated to a PDE
- Lecture 19 - Second Order Partial Differential Equations - Curves of discontinuity
- Lecture 20 - Second Order Partial Differential Equations - Classification
- Lecture 21 - SOPDE's - Canonical form for an equation of Hyperbolic type
- Lecture 22 - SOPDE's - Canonical form for an equation of Parabolic type
- Lecture 23 - SOPDE's - Canonical form for an equation of Elliptic type
- Lecture 24 - Second Order Partial Differential Equations - Characteristic Surfaces
- Lecture 25 - SOPDE's - Canonical forms for constant coefficient PDEs
- Lecture 26 - Wave Equation - A mathematical model for vibrating strings
- Lecture 27 - Wave Equation in one space dimension - d'Alembert formula
- Lecture 28 - Tutorial on One dimensional wave equation
- Lecture 29 - Wave Equation in d space dimensions - Equivalent Cauchy problems via Spherical means

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cauchy problem for Wave Equation in 3 space dimensions - Poisson-Kirchhoff formulae
- Lecture 31 - Cauchy problem for Wave Equation in 2 space dimensions - Hadamard's method of descent
- Lecture 32 - Nonhomogeneous Wave Equation - Duhamel principle
- Lecture 33 - Wellposedness of Cauchy problem for Wave Equation
- Lecture 34 - Wave Equation on an interval in? - Solution to an IBVP from first principles
- Lecture 35 - Tutorial on IBVPs for wave equation
- Lecture 36 - IBVP for Wave Equation - Separation of Variables Method
- Lecture 37 - Tutorial on Separation of variables method for wave equation
- Lecture 38 - Qualitative analysis of Wave equation - Parallelogram identity
- Lecture 39 - Qualitative analysis of Wave equation - Domain of dependence, domain of influence
- Lecture 40 - Qualitative analysis of Wave equation - Causality Principle, Finite speed of propagation
- Lecture 41 - Qualitative analysis of Wave equation - Uniqueness by Energy method
- Lecture 42 - Qualitative analysis of Wave equation - Huygens Principle
- Lecture 43 - Qualitative analysis of Wave equation - Generalized solutions to Wave equation
- Lecture 44 - Qualitative analysis of Wave equation - Propagation of waves
- Lecture 45 - Laplace equation - Associated Boundary value problems
- Lecture 46 - Laplace equation - Fundamental solution
- Lecture 47 - Dirichlet BVP for Laplace equation - Green's function and Poisson's formula
- Lecture 48 - Laplace equation - Weak maximum principle and its applications
- Lecture 49 - Laplace equation - Dirichlet BVP on a disk in  $R^2$  for Laplace equations
- Lecture 50 - Tutorial 1 on Laplace equation
- Lecture 51 - Laplace equation - Mean value property
- Lecture 52 - Laplace equation - More qualitative properties
- Lecture 53 - Laplace equation - Strong Maximum Principle and Dirichlet Principle
- Lecture 54 - Tutorial 2 on Laplace equation
- Lecture 55 - Cauchy Problem for Heat Equation - 1
- Lecture 56 - Cauchy Problem for Heat Equation - 2
- Lecture 57 - IBVP for Heat equation Subtitle: Method of Separation of Variables
- Lecture 58 - Maximum principle for heat equation
- Lecture 59 - Tutorial on heat equation
- Lecture 60 - Heat equation Subheading : Infinite speed of propagation, Energy, Backward Problem



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:An Introduction to Point-Set-Topology - Part I

Subject Co-ordinator - Prof. Anant R Shastri

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction  
Lecture 3 - Introduction  
Lecture 4 - Introduction  
Lecture 5 - Introduction  
Lecture 6 - Introduction  
Lecture 7 - Introduction  
Lecture 8 - Introduction  
Lecture 9 - Introduction  
Lecture 10 - Introduction  
Lecture 11 - Introduction  
Lecture 12 - Introduction  
Lecture 13 - Introduction  
Lecture 14 - Introduction  
Lecture 15 - Introduction  
Lecture 16 - Introduction  
Lecture 17 - Introduction  
Lecture 18 - Introduction  
Lecture 19 - Introduction  
Lecture 20 - Introduction  
Lecture 21 - Introduction  
Lecture 22 - Creating New Spaces  
Lecture 23 - Creating New Spaces  
Lecture 24 - Creating New Spaces  
Lecture 25 - Creating New Spaces  
Lecture 26 - Creating New Spaces  
Lecture 27 - Creating New Spaces  
Lecture 28 - Creating New Spaces  
Lecture 29 - Creating New Spaces

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Creating New Spaces  
Lecture 31 - Creating New Spaces  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38 - Smallness Properties of Topological Spaces  
Lecture 39 - Smallness Properties of Topological Spaces  
Lecture 40 - Smallness Properties of Topological Spaces  
Lecture 41 - Smallness Properties of Topological Spaces  
Lecture 42 - Smallness Properties of Topological Spaces  
Lecture 43 - Smallness Properties of Topological Spaces  
Lecture 44 - Smallness Properties of Topological Spaces  
Lecture 45 - Smallness Properties of Topological Spaces  
Lecture 46 - Smallness Properties of Topological Spaces  
Lecture 47 - Largeness properties  
Lecture 48 - Largeness properties  
Lecture 49 - Largeness properties  
Lecture 50 - Largeness properties  
Lecture 51 - Largeness properties  
Lecture 52 - Largeness properties  
Lecture 53 - Largeness properties  
Lecture 54 - Largeness properties  
Lecture 55 - Largeness properties  
Lecture 56  
Lecture 57  
Lecture 58  
Lecture 59  
Lecture 60  
Lecture 61

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:An Introduction to Point-Set-Topology - Part II

Subject Co-ordinator - Prof. Anant R Shastri

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Welcome Speech
- Lecture 2 - Preliminaries from Banach spaces
- Lecture 3 - Differentiation on Banach spaces
- Lecture 4 - Preliminaries from one-variable real analysis
- Lecture 5 - Implicit and Inverse function theorems
- Lecture 6 - Compact Hausdorff spaces
- Lecture 7 - Local Compactness
- Lecture 8 - Local Compactness (Continued...)
- Lecture 9 - The retraction functor  $k(X)$
- Lecture 10 - Compactly generated spaces
- Lecture 11 - Paracompactness
- Lecture 12 - Partition of Unity
- Lecture 13 - Paracompactness (Continued...)
- Lecture 14 - Paracompactness (Continued...)
- Lecture 15 - Various Notions of Compactness
- Lecture 16 - Total Boundedness
- Lecture 17 - Arzel`a- Ascoli Theorem
- Lecture 18 - Generalities on Compactification
- Lecture 19 - Alexandroff's compactification
- Lecture 20 - Proper maps
- Lecture 21 - Stone-Cech compactification
- Lecture 22 - Stone-Weierstrass's Theorems
- Lecture 23 - Real Stone-Weierstrass Theorem
- Lecture 24 - Complex and extended Stone-Weierstrass theorem
- Lecture 25 - (Missing)
- Lecture 26 - Urysohn's Metrization theorem
- Lecture 27 - Nagata Smyrnov Metrization theorem
- Lecture 28 - Nets
- Lecture 29 - Cofinal families subnets

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Basics of Filters
- Lecture 31 - Convergence Properties of Filters
- Lecture 32 - Ultrafilters and Tychonoff's theorem
- Lecture 33 - Ultraclosed filters
- Lecture 34 - Wallman compactification
- Lecture 35 - Wallman compactification (Continued...)
- Lecture 36 - Global Separation of Sets
- Lecture 37 - More examples
- Lecture 38 - Knaster-Kuratowski Example
- Lecture 39 - Separation of Sets (Continued...)
- Lecture 40 - Definition of dimension and examples
- Lecture 41 - Dimensions of subspaces and Unions
- Lecture 42 - Sum theorem for higher dimensions
- Lecture 43 - Analytic Proof of Brouwer's Fixed Point Theorem
- Lecture 44 - Local Separation to Global Separation
- Lecture 45 - Partially Ordered sets
- Lecture 46 - Principle of Transfinite Induction
- Lecture 47 - Order topology
- Lecture 48 - Ordinals
- Lecture 49 - Ordinal Topology (Continued...)
- Lecture 50 - The Long Line
- Lecture 51 - Motivation and definition
- Lecture 52 - The Exponential Correspondence
- Lecture 53 - An Application to Quotient Maps
- Lecture 54 - Groups of Homeomorphisms
- Lecture 55 - Definition and Examples of Manifolds
- Lecture 56 - Manifolds with Boundary
- Lecture 57 - Homogeneity
- Lecture 58 - Homogeneity (Continued...)
- Lecture 59 - Classification of 1-dim. manifolds
- Lecture 60 - Classification of 1-dim. Manifolds (Continued...)
- Lecture 61 - Surfaces
- Lecture 62 - Connected Sum

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Fourier Analysis and its Applications

Subject Co-ordinator - Prof. G. K Srinivasan

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Genesis and a little history
- Lecture 2 - Basic convergence theorem
- Lecture 3 - Riemann Lebesgue Lemma
- Lecture 4 - The ubiquitous Gaussian
- Lecture 5 - Jacobi theta function identity
- Lecture 6 - The Riemann zeta function
- Lecture 7 - Bessel's functions of the first kind
- Lecture 8 - Least square approximation
- Lecture 9 - Parseval formula. Isoperimetric theorem
- Lecture 10 - Dirichlet problem for a disc
- Lecture 11 - The Poisson kernel
- Lecture 12 - Cesaro summability and Fejer's theorem
- Lecture 13 - Fejer's theorem (Continued...)
- Lecture 14 - Kronecker's theorem
- Lecture 15 - Weyl's equidistribution theorem
- Lecture 16 - Borel's theorem and beyond
- Lecture 17 - Fourier transform and Schwartz space
- Lecture 18 - Hermite's differential equation
- Lecture 19 - Fourier inversion theorem Riemann Lebesgue lemma
- Lecture 20 - Plancherel's Theorem
- Lecture 21 - Heat equation. The heat kernel
- Lecture 22 - The Airy's function
- Lecture 23 - Exercises on Fourier Transform
- Lecture 24 - Principle of equipartitioning of energy
- Lecture 25 - A formula of Srinivasa Ramanujan
- Lecture 26 - Sturm Liouville problems. Orthogonal systems
- Lecture 27 - Vibrations of a circular membrane
- Lecture 28 - Fourier Bessel Series
- Lecture 29 - Properties of Legendre Polynomials

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Properties of Legendre polynomials (Continued...)
- Lecture 31 - Legendre polynomials - interlacing of zeros
- Lecture 32 - Laplace's integrals for Legendre polynomials
- Lecture 33 - Regular Sturm-Liouville problems
- Lecture 34 - Variational properties of eigen-values
- Lecture 35 - The Dirichlet principle
- Lecture 36 - Regular Sturm-Liouville problems - Existence of eigen-values
- Lecture 37 - The Bergman space
- Lecture 38 - The Banach Steinhaus' Theorem
- Lecture 39 - Hilbert space basics
- Lecture 40 - Completeness of Hermite functions
- Lecture 41 - Hermite, Laguerre and Tchebycheff's polynomials
- Lecture 42 - Orthonormal bases in Hilbert spaces
- Lecture 43 - Non-separable Hilbert-spaces. Almost periodic functions
- Lecture 44 - Hilbert-Schmidt operators. Green's functions
- Lecture 45 - Spectrum of a bounded linear operator
- Lecture 46 - Weak (sequential) compactness of the closed unit ball
- Lecture 47 - Compact self-adjoint operators. Existence of eigen values
- Lecture 48 - Compact self-adjoint operators. Existence of eigen values (Continued...)
- Lecture 49 - Celestial Mechanics
- Lecture 50 - Inverting the Kepler equation using Fourier series
- Lecture 51 - Odds and Ends
- Lecture 52 - Dirichlet's Theorem on Fourier Series
- Lecture 53 - Dirichlet's Theorem on Fourier Series (Continued...)
- Lecture 54 - Topology on the Schwartz space
- Lecture 55 - Examples of tempered distributions
- Lecture 56 - Operations on distributions
- Lecture 57 - Fourier Transform of tempered distribution
- Lecture 58 - Support of a Distribution. Distributions with point support
- Lecture 59 - Distributional solutions of ODEs. Continuity of the Fourier transform and differentiation
- Lecture 60 - The Poisson summation formula

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Numerical Analysis (2023)

Subject Co-ordinator - Prof. S. Baskar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Mathematical Preliminaries: Taylor Approximation
- Lecture 3 - Mathematical Preliminaries: Order of Convergence
- Lecture 4 - Arithmetic Error: Floating-point Approximation
- Lecture 5 - Arithmetic Error: Significant Digits
- Lecture 6 - Arithmetic Error: Condition Number and Stable Computation
- Lecture 7 - Tutorial Session-1: Problem Solving
- Lecture 8 - Python Coding: Introduction
- Lecture 9 - Linear Systems: Gaussian Elimination Method
- Lecture 10 - Linear Systems: LU-Factorization (Doolittle and Crout)
- Lecture 11 - Linear Systems: LU-Factorization (Cholesky)
- Lecture 12 - Linear Systems: Operation Count for Direct Methods
- Lecture 13 - Tutorial Session-2: Python Coding for Naive Gaussian Elimination Method
- Lecture 14 - Tutorial Session-3: Python Coding for Thomas Algorithm
- Lecture 15 - Matrix Norms: Subordinate Matrix Norms
- Lecture 16 - Matrix Norms: Condition Number of a Matrix
- Lecture 17 - Iterative Methods: Jacobi Method
- Lecture 18 - Iterative Methods: Convergence of Jacobi Method
- Lecture 19 - Iterative Methods: Gauss-Seidel Method
- Lecture 20 - Iterative Methods: Convergence Analysis of Iterative Methods
- Lecture 21 - Iterative Methods: Successive Over Relaxation Method
- Lecture 22 - Tutorial Session-4: Python implementation of Jacobi Method
- Lecture 23 - Eigenvalues and Eigenvectors: Power Method (Construction)
- Lecture 24 - Eigenvalues and Eigenvectors: Power Method (Convergence Theorem)
- Lecture 25 - Eigenvalues and Eigenvectors: Gerschgorin's Theorem and Applications
- Lecture 26 - Eigenvalues and Eigenvectors: Power Method (Inverse and Shifted Methods)
- Lecture 27 - Nonlinear Equations: Overview
- Lecture 28 - Nonlinear Equations: Bisection Method
- Lecture 29 - Tutorial Session-5: Implementation of Bisection Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Nonlinear Equations: Regula-falsi and Secant Methods
- Lecture 31 - Nonlinear Equations: Convergence Theorem of Secant Method
- Lecture 32 - Nonlinear Equations: Newton-Raphson's method
- Lecture 33 - Nonlinear Equations: Newton-Raphson's method (Convergence Theorem)
- Lecture 34 - Nonlinear Equations: Fixed-point Iteration Methods
- Lecture 35 - Nonlinear Equations: Fixed-point Iteration Methods (Convergence) and Modified Newton's Method
- Lecture 36 - Nonlinear Equations: System of Nonlinear Equations
- Lecture 37 - Nonlinear Equations: Implementation of Newton-Raphson's Method as Python Code
- Lecture 38 - Polynomial Interpolation: Existence and Uniqueness
- Lecture 39 - Polynomial Interpolation: Lagrange and Newton Forms
- Lecture 40 - Polynomial Interpolation: Newton's Divided Difference Formula
- Lecture 41 - Polynomial Interpolation: Mathematical Error in Interpolating Polynomial
- Lecture 42 - Polynomial Interpolation: Arithmetic Error in Interpolating Polynomials
- Lecture 43 - Polynomial Interpolation: Implementation of Lagrange Form as Python Code
- Lecture 44 - Polynomial Interpolation: Runge Phenomenon and Piecewise Polynomial Interpolation
- Lecture 45 - Polynomial Interpolation: Hermite Interpolation
- Lecture 46 - Polynomial Interpolation: Cubic Spline Interpolation
- Lecture 47 - Polynomial Interpolation: Tutorial Session
- Lecture 48 - Numerical Integration: Rectangle Rule
- Lecture 49 - Numerical Integration: Trapezoidal Rule
- Lecture 50 - Numerical Integration: Simpson's Rule
- Lecture 51 - Numerical Integration: Gaussian Quadrature Rule
- Lecture 52 - Numerical Integration: Tutorial Session
- Lecture 53 - Numerical Differentiation: Primitive Finite Difference Formulae
- Lecture 54 - Numerical Differentiation: Method of Undetermined Coefficients and Arithmetic Error
- Lecture 55 - Numerical ODEs: Euler Methods
- Lecture 56 - Numerical ODEs: Euler Methods (Error Analysis)
- Lecture 57 - Numerical ODEs: Runge-Kutta Methods
- Lecture 58 - Numerical ODEs: Modified Euler's Methods
- Lecture 59 - Numerical ODEs: Multistep Methods
- Lecture 60 - Numerical ODEs: Stability Analysis
- Lecture 61 - Numerical ODEs: Two-point Boundary Value Problems



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Point Set Topology

Subject Co-ordinator - Prof. Ronnie Sebastian

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Definition and examples of topological spaces

Lecture 2 - Examples of topological spaces

Lecture 3 - Basis for topology

Lecture 4 - Subspace Topology

Lecture 5 - Product Topology

Lecture 6 - Product Topology (Continued...)

Lecture 7 - Continuous maps

Lecture 8 - Continuity of addition and multiplication maps

Lecture 9 - Continuous maps to a product

Lecture 10 - Projection from a point

Lecture 11 - Closed subsets

Lecture 12 - Closure

Lecture 13 - Joining continuous maps

Lecture 14 - Metric spaces

Lecture 15 - Connectedness

Lecture 16 - Connectedness (Continued...)

Lecture 17 - Connectedness (Continued...)

Lecture 18 - Connected components

Lecture 19 - Path connectedness

Lecture 20 - Path connectedness (Continued...)

Lecture 21 - Connectedness of  $GL(n, \mathbb{R})^+$  (math symbol)

Lecture 22 - Connectedness of  $GL(n, \mathbb{C})$ ,  $SL(n, \mathbb{C})$ ,  $SL(n, \mathbb{R})$

Lecture 23 - Compactness

Lecture 24 - Compactness (Continued...)

Lecture 25 - Compactness (Continued...)

Lecture 26 - Compactness (Continued...)

Lecture 27 -  $SO(n)$  is connected

Lecture 28 - Compact metric spaces

Lecture 29 - Lebesgue Number Lemma

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Locally compact spaces
- Lecture 31 - One point compactification
- Lecture 32 - One point compactification (Continued...)
- Lecture 33 - Uniqueness of one point compactification
- Lecture 34 - Part 1 : Quotient topology
- Lecture 35 - Part 2 : Quotient topology on  $G/H$
- Lecture 36 - Part 3 : Grassmannian
- Lecture 37 - Normal topological spaces
- Lecture 38 - Urysohn's Lemma
- Lecture 39 - Tietze Extension Theorem
- Lecture 40 - Regular and Second Countable spaces
- Lecture 41 - Product Topology on  $\mathbb{R}^{\mathbb{N}}$
- Lecture 42 - Urysohn's Metrization Theorem

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Stochastic Processes

Subject Co-ordinator - Dr. S. Dharmaraja

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Stochastic Processes
- Lecture 2 - Introduction to Stochastic Processes (Continued.)
- Lecture 3 - Problems in Random Variables and Distributions
- Lecture 4 - Problems in Sequences of Random Variables
- Lecture 5 - Definition, Classification and Examples
- Lecture 6 - Simple Stochastic Processes
- Lecture 7 - Stationary Processes
- Lecture 8 - Autoregressive Processes
- Lecture 9 - Introduction, Definition and Transition Probability Matrix
- Lecture 10 - Chapman-Kolmogorov Equations
- Lecture 11 - Classification of States and Limiting Distributions
- Lecture 12 - Limiting and Stationary Distributions
- Lecture 13 - Limiting Distributions, Ergodicity and Stationary Distributions
- Lecture 14 - Time Reversible Markov Chain, Application of Irreducible Markov Chain in Queueing Models
- Lecture 15 - Reducible Markov Chains
- Lecture 16 - Definition, Kolmogorov Differential Equations and Infinitesimal Generator Matrix
- Lecture 17 - Limiting and Stationary Distributions, Birth Death Processes
- Lecture 18 - Poisson Processes
- Lecture 19 - M/M/1 Queueing Model
- Lecture 20 - Simple Markovian Queueing Models
- Lecture 21 - Queueing Networks
- Lecture 22 - Communication Systems
- Lecture 23 - Stochastic Petri Nets
- Lecture 24 - Conditional Expectation and Filtration
- Lecture 25 - Definition and Simple Examples
- Lecture 26 - Definition and Properties
- Lecture 27 - Processes Derived from Brownian Motion
- Lecture 28 - Stochastic Differential Equations
- Lecture 29 - Ito Integrals

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ito Formula and its Variants
- Lecture 31 - Some Important SDE`s and Their Solutions
- Lecture 32 - Renewal Function and Renewal Equation
- Lecture 33 - Generalized Renewal Processes and Renewal Limit Theorems
- Lecture 34 - Markov Renewal and Markov Regenerative Processes
- Lecture 35 - Non Markovian Queues
- Lecture 36 - Non Markovian Queues Cont,,
- Lecture 37 - Application of Markov Regenerative Processes
- Lecture 38 - Galton-Watson Process
- Lecture 39 - Markovian Branching Process

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Stochastic Processes - 1

Subject Co-ordinator - Dr. S. Dharmaraja

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and motivation for studying stochastic processes
- Lecture 2 - Probability space and conditional probability
- Lecture 3 - Random variable and cumulative distributive function
- Lecture 4 - Discrete Uniform Distribution, Binomial Distribution, Geometric Distribution, Continuous Uniform
- Lecture 5 - Joint Distribution of Random Variables
- Lecture 6 - Independent Random Variables, Covariance and Correlation Coefficient and Conditional Distribution
- Lecture 7 - Conditional Expectation and Covariance Matrix
- Lecture 8 - Generating Functions, Law of Large Numbers and Central Limit Theorem
- Lecture 9 - Problems in Random variables and Distributions
- Lecture 10 - Problems in Random variables and Distributions (Continued...)
- Lecture 11 - Problems in Random variables and Distributions (Continued...)
- Lecture 12 - Problems in Random variables and Distributions (Continued...)
- Lecture 13 - Problems in Sequences of Random Variables
- Lecture 14 - Problems in Sequences of Random Variables (Continued...)
- Lecture 15 - Problems in Sequences of Random Variables (Continued...)
- Lecture 16 - Problems in Sequences of Random Variables (Continued...)
- Lecture 17 - Definition of Stochastic Processes, Parameter and State Spaces
- Lecture 18 - Classification of Stochastic Processes
- Lecture 19 - Examples of Classification of Stochastic Processes
- Lecture 20 - Examples of Classification of Stochastic Processes (Continued...)
- Lecture 21 - Bernoulli Process
- Lecture 22 - Poisson Process
- Lecture 23 - Poisson Process (Continued...)
- Lecture 24 - Simple Random Walk and Population Processes
- Lecture 25 - Introduction to Discrete time Markov Chain
- Lecture 26 - Introduction to Discrete time Markov Chain (Continued...)
- Lecture 27 - Examples of Discrete time Markov Chain
- Lecture 28 - Examples of Discrete time Markov Chain (Continued...)
- Lecture 29 - Introduction to Chapman-Kolmogorov equations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - State Transition Diagram and Examples
- Lecture 31 - Examples
- Lecture 32 - Introduction to Classification of States and Periodicity
- Lecture 33 - Closed set of States and Irreducible Markov Chain
- Lecture 34 - First Passage time and Mean Recurrence Time
- Lecture 35 - Recurrent State and Transient State
- Lecture 36 - Introduction and example of Classification of states
- Lecture 37 - Example of Classification of states (Continued...)
- Lecture 38 - Example of Classification of states (Continued...)
- Lecture 39 - Example of Classification of states (Continued...)
- Lecture 40 - Introduction and Limiting Distribution
- Lecture 41 - Example of Limiting Distribution and Ergodicity
- Lecture 42 - Stationary Distribution and Examples
- Lecture 43 - Examples of Stationary Distributions
- Lecture 44 - Time Reversible Markov Chain and Examples
- Lecture 45 - Definition of Reducible Markov Chains and Types of Reducible Markov Chains
- Lecture 46 - Stationary Distributions and Types of Reducible Markov chains
- Lecture 47 - Type of Reducible Markov Chains (Continued...)
- Lecture 48 - Gambler's Ruin Problem
- Lecture 49 - Introduction to Continuous time Markov Chain
- Lecture 50 - Waiting time Distribution
- Lecture 51 - Chapman-Kolmogorov Equation
- Lecture 52 - Infinitesimal Generator Matrix
- Lecture 53 - Introduction and Example Of Continuous time Markov Chain
- Lecture 54 - Limiting and Stationary Distributions
- Lecture 55 - Time reversible CTMC and Birth Death Process
- Lecture 56 - Steady State Distributions, Pure Birth Process and Pure Death Process
- Lecture 57 - Introduction to Poisson Process
- Lecture 58 - Definition of Poisson Process
- Lecture 59 - Superposition and Deposition of Poisson Process
- Lecture 60 - Compound Poisson Process and Examples
- Lecture 61 - Introduction to Queueing Systems and Kendall Notations
- Lecture 62 - M/M/1 Queueing Model
- Lecture 63 - Little's Law, Distribution of Waiting Time and Response Time
- Lecture 64 - Burke's Theorem and Simulation of M/M/1 queueing Model
- Lecture 65 - M/M/c Queueing Model
- Lecture 66 - M/M/1/N Queueing Model
- Lecture 67 - M/M/c/K Model, M/M/c/c Loss System, M/M/? Self Service System
- Lecture 68 - Transient Solution of Finite Birth Death Process and Finite Source Markovian Queueing Model

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- Lecture 69 - Queueing Networks Characteristics and Types of Queueing Networks
- Lecture 70 - Tandem Queueing Networks
- Lecture 71 - Stationary Distribution and Open Queueing Network
- Lecture 72 - Jackson's Theorem, Closed Queueing Networks, Gordon and Newell Results
- Lecture 73 - Wireless Handoff Performance Model and System Description
- Lecture 74 - Description of 3G Cellular Networks and Queueing Model
- Lecture 75 - Simulation of Queueing Systems
- Lecture 76 - Definition and Basic Components of Petri Net and Reachability Analysis
- Lecture 77 - Arc Extensions in Petri Net, Stochastic Petri Nets and examples

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Stochastic Processes

Subject Co-ordinator - Dr. S. Dharmaraja

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and motivation for studying stochastic processes
- Lecture 2 - Probability space and conditional probability
- Lecture 3 - Random variable and cumulative distributive function
- Lecture 4 - Discrete Uniform Distribution, Binomial Distribution, Geometric Distribution, Continuous Uniform
- Lecture 5 - Joint Distribution of Random Variables
- Lecture 6 - Independent Random Variables, Covariance and Correlation Coefficient and Conditional Distribution
- Lecture 7 - Conditional Expectation and Covariance Matrix
- Lecture 8 - Generating Functions, Law of Large Numbers and Central Limit Theorem
- Lecture 9 - Problems in Random variables and Distributions
- Lecture 10 - Problems in Random variables and Distributions (Continued...)
- Lecture 11 - Problems in Random variables and Distributions (Continued...)
- Lecture 12 - Problems in Random variables and Distributions (Continued...)
- Lecture 13 - Problems in Sequences of Random Variables
- Lecture 14 - Problems in Sequences of Random Variables (Continued...)
- Lecture 15 - Problems in Sequences of Random Variables (Continued...)
- Lecture 16 - Problems in Sequences of Random Variables (Continued...)
- Lecture 17 - Definition of Stochastic Processes, Parameter and State Spaces
- Lecture 18 - Classification of Stochastic Processes
- Lecture 19 - Examples of Classification of Stochastic Processes
- Lecture 20 - Examples of Classification of Stochastic Processes (Continued...)
- Lecture 21 - Bernoulli Process
- Lecture 22 - Poisson Process
- Lecture 23 - Poisson Process (Continued...)
- Lecture 24 - Simple Random Walk and Population Processes
- Lecture 25 - Introduction to Discrete time Markov Chain
- Lecture 26 - Introduction to Discrete time Markov Chain (Continued...)
- Lecture 27 - Examples of Discrete time Markov Chain
- Lecture 28 - Examples of Discrete time Markov Chain (Continued...)
- Lecture 29 - Introduction to Chapman-Kolmogorov equations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - State Transition Diagram and Examples
- Lecture 31 - Examples
- Lecture 32 - Introduction to Classification of States and Periodicity
- Lecture 33 - Closed set of States and Irreducible Markov Chain
- Lecture 34 - First Passage time and Mean Recurrence Time
- Lecture 35 - Recurrent State and Transient State
- Lecture 36 - Introduction and example of Classification of states
- Lecture 37 - Example of Classification of states (Continued...)
- Lecture 38 - Example of Classification of states (Continued...)
- Lecture 39 - Example of Classification of states (Continued...)
- Lecture 40 - Introduction and Limiting Distribution
- Lecture 41 - Example of Limiting Distribution and Ergodicity
- Lecture 42 - Stationary Distribution and Examples
- Lecture 43 - Examples of Stationary Distributions
- Lecture 44 - Time Reversible Markov Chain and Examples
- Lecture 45 - Definition of Reducible Markov Chains and Types of Reducible Markov Chains
- Lecture 46 - Stationary Distributions and Types of Reducible Markov chains
- Lecture 47 - Type of Reducible Markov Chains (Continued...)
- Lecture 48 - Gambler's Ruin Problem
- Lecture 49 - Introduction to Continuous time Markov Chain
- Lecture 50 - Waiting time Distribution
- Lecture 51 - Chapman-Kolmogorov Equation
- Lecture 52 - Infinitesimal Generator Matrix
- Lecture 53 - Introduction and Example Of Continuous time Markov Chain
- Lecture 54 - Limiting and Stationary Distributions
- Lecture 55 - Time reversible CTMC and Birth Death Process
- Lecture 56 - Steady State Distributions, Pure Birth Process and Pure Death Process
- Lecture 57 - Introduction to Poisson Process
- Lecture 58 - Definition of Poisson Process
- Lecture 59 - Superposition and Deposition of Poisson Process
- Lecture 60 - Compound Poisson Process and Examples
- Lecture 61 - Introduction to Queueing Systems and Kendall Notations
- Lecture 62 - M/M/1 Queueing Model
- Lecture 63 - Little's Law, Distribution of Waiting Time and Response Time
- Lecture 64 - Burke's Theorem and Simulation of M/M/1 queueing Model
- Lecture 65 - M/M/c Queueing Model
- Lecture 66 - M/M/1/N Queueing Model
- Lecture 67 - M/M/c/K Model, M/M/c/c Loss System, M/M/? Self Service System
- Lecture 68 - Transient Solution of Finite Birth Death Process and Finite Source Markovian Queueing Model

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Queueing Networks Characteristics and Types of Queueing Networks
- Lecture 70 - Tandem Queueing Networks
- Lecture 71 - Stationary Distribution and Open Queueing Network
- Lecture 72 - Jackson's Theorem, Closed Queueing Networks, Gordon and Newell Results
- Lecture 73 - Wireless Handoff Performance Model and System Description
- Lecture 74 - Description of 3G Cellular Networks and Queueing Model
- Lecture 75 - Simulation of Queueing Systems
- Lecture 76 - Definition and Basic Components of Petri Net and Reachability Analysis
- Lecture 77 - Arc Extensions in Petri Net, Stochastic Petri Nets and examples
- Lecture 78 - Generalized Stochastic Petri Net
- Lecture 79 - Generalized Stochastic Petri Net (Continued...)
- Lecture 80 - Conditional Expectation and Examples
- Lecture 81 - Filtration in Discrete time
- Lecture 82 - Remarks of Conditional Expectation and Adaptability
- Lecture 83 - Definition and Examples of Martingale
- Lecture 84 - Examples of Martingale (Continued...)
- Lecture 85 - Examples of Martingale (Continued...)
- Lecture 86 - Doob's Martingale Process, Sub martingale and Super Martingale
- Lecture 87 - Definition of Brownian Motion
- Lecture 88 - Definition of Brownian Motion (Continued...)
- Lecture 89 - Properties of Brownian Motion
- Lecture 90 - Processes Derived from Brownian Motion
- Lecture 91 - Processes Derived from Brownian Motion (Continued...)
- Lecture 92 - Processes Derived from Brownian Motion (Continued...)
- Lecture 93 - Stochastic Differential Equations
- Lecture 94 - Stochastic Differential Equations (Continued...)
- Lecture 95 - Stochastic Differential Equations (Continued...)
- Lecture 96 - Ito Integrals
- Lecture 97 - Ito Integrals (Continued...)
- Lecture 98 - Ito Integrals (Continued...)
- Lecture 99 - Renewal Function and Renewal Equation
- Lecture 100 - Renewal Function and Renewal Equation (Continued...)
- Lecture 101 - Renewal Function and Renewal Equation (Continued...)
- Lecture 102 - Generalized Renewal Processes and Renewal Limit Theorems
- Lecture 103 - Generalized Renewal Processes and Renewal Limit Theorems (Continued...)
- Lecture 104 - Generalized Renewal Processes and Renewal Limit Theorems (Continued...)
- Lecture 105 - Markov Renewal and Markov Regenerative Processes
- Lecture 106 - Markov Renewal and Markov Regenerative Processes (Continued...)
- Lecture 107 - Markov Renewal and Markov Regenerative Processes (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Markov Renewal and Markov Regenerative Processes (Continued...)
- Lecture 109 - Non Markovian Queues
- Lecture 110 - Non Markovian Queues (Continued...)
- Lecture 111 - Non Markovian Queues (Continued...)
- Lecture 112 - Stationary Processes
- Lecture 113 - Stationary Processes (Continued...)
- Lecture 114 - Stationary Processes (Continued...)
- Lecture 115 - Stationary Processes (Continued...) and Ergodicity
- Lecture 116 - G1/M/1 queue
- Lecture 117 - G1/M/1 queue (Continued...)
- Lecture 118 - G1/M/1/N queue and examples
- Lecture 119 - Galton-Watson Process
- Lecture 120 - Examples and Theorems
- Lecture 121 - Theorems and Examples (Continued...)
- Lecture 122 - Markov Branching Process
- Lecture 123 - Markov Branching Process Theorems and Properties
- Lecture 124 - Markov Branching Process Theorems and Properties (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Chaotic Dynamical Systems

Subject Co-ordinator - Dr. Anima Nagar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The beginning
- Lecture 2 - Elementary Concepts
- Lecture 3 - Elementary Concepts (Continued...)
- Lecture 4 - More on orbits
- Lecture 5 - Periods of Periodic Points
- Lecture 6 - Scrambled Sets
- Lecture 7 - Sensitive Dependence on Initial Conditions
- Lecture 8 - A Population Dynamics Model
- Lecture 9 - Bifurcations
- Lecture 10 - Nonlinear Systems
- Lecture 11 - Horseshoe Attractor
- Lecture 12 - Dynamics of the Horseshoe Attractor
- Lecture 13 - Recurrence
- Lecture 14 - Recurrence (Continued...)
- Lecture 15 - Transitivity
- Lecture 16 - Devaney's Chaos
- Lecture 17 - Transitivity = Chaos on Intervals
- Lecture 18 - Stronger forms of Transitivity
- Lecture 19 - Chaotic Properties of Mixing Systems
- Lecture 20 - Weakly Mixing and Chaos
- Lecture 21 - Strongly Transitive Systems
- Lecture 22 - Strongly Transitive Systems (Continued...)
- Lecture 23 - Introduction to Symbolic Dynamics
- Lecture 24 - Shift Spaces
- Lecture 25 - Subshifts of Finite Type
- Lecture 26 - Subshifts of Finite Type (Continued...), Chaotic Dynamical Systems
- Lecture 27 - Measuring Chaos - Topological Entropy
- Lecture 28 - Topological Entropy - Adler's Version
- Lecture 29 - Bowen's Definition of Topological Entropy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equivalence of the two definitions of Topological Entropy
- Lecture 31 - Linear Systems in Two Dimensions
- Lecture 32 - Asymptotic Properties of Orbits of Linear Transformation in  $\mathbb{R}^2$
- Lecture 33 - Hyperbolic Toral Automorphisms
- Lecture 34 - Chaos in Toral Automorphisms
- Lecture 35 - Chaotic Attractors of Henon Maps

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Probability Theory and Stochastic Processes

Subject Co-ordinator - Dr. S. Dharmaraja

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Random experiment, sample space, axioms of probability, probability space
- Lecture 2 - Random experiment, sample space, axioms of probability, probability space (Continued...)
- Lecture 3 - Random experiment, sample space, axioms of probability, probability space (Continued...)
- Lecture 4 - Conditional probability, independence of events.
- Lecture 5 - Multiplication rule, total probability rule, Bayes's theorem.
- Lecture 6 - Definition of Random Variable, Cumulative Distribution Function
- Lecture 7 - Definition of Random Variable, Cumulative Distribution Function (Continued...)
- Lecture 8 - Definition of Random Variable, Cumulative Distribution Function (Continued...)
- Lecture 9 - Type of Random Variables, Probability Mass Function, Probability Density Function
- Lecture 10 - Type of Random Variables, Probability Mass Function, Probability Density Function (Continued...)
- Lecture 11 - Distribution of Function of Random Variables
- Lecture 12 - Mean and Variance
- Lecture 13 - Mean and Variance (Continued...)
- Lecture 14 - Higher Order Moments and Moments Inequalities
- Lecture 15 - Higher Order Moments and Moments Inequalities (Continued...)
- Lecture 16 - Generating Functions
- Lecture 17 - Generating Functions (Continued...)
- Lecture 18 - Common Discrete Distributions
- Lecture 19 - Common Discrete Distributions (Continued...)
- Lecture 20 - Common Continuous Distributions
- Lecture 21 - Common Continuous Distributions (Continued...)
- Lecture 22 - Applications of Random Variable
- Lecture 23 - Applications of Random Variable (Continued...)
- Lecture 24 - Random vector and joint distribution
- Lecture 25 - Joint probability mass function
- Lecture 26 - Joint probability density function
- Lecture 27 - Independent random variables
- Lecture 28 - Independent random variables (Continued...)
- Lecture 29 - Functions of several random variables

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Functions of several random variables (Continued...)
- Lecture 31 - Some important results
- Lecture 32 - Order statistics
- Lecture 33 - Conditional distributions
- Lecture 34 - Random sum
- Lecture 35 - Moments and Covariance
- Lecture 36 - Variance Covariance matrix
- Lecture 37 - Multivariate Normal distribution
- Lecture 38 - Probability generating function and Moment generating function
- Lecture 39 - Correlation coefficient
- Lecture 40 - Conditional Expectation
- Lecture 41 - Conditional Expectation (Continued...)
- Lecture 42 - Modes of Convergence
- Lecture 43 - Mode of Convergence (Continued...)
- Lecture 44 - Law of Large Numbers
- Lecture 45 - Central Limit Theorem
- Lecture 46 - Central Limit Theorem (Continued...)
- Lecture 47 - Motivation for Stochastic Processes
- Lecture 48 - Definition of a Stochastic Process
- Lecture 49 - Classification of Stochastic Processes
- Lecture 50 - Examples of Stochastic Process
- Lecture 51 - Examples Of Stochastic Process (Continued...)
- Lecture 52 - Bernoulli Process
- Lecture 53 - Poisson Process
- Lecture 54 - Poisson Process (Continued...)
- Lecture 55 - Simple Random Walk
- Lecture 56 - Time Series and Related Definitions
- Lecture 57 - Strict Sense Stationary Process
- Lecture 58 - Wide Sense Stationary Process and Examples
- Lecture 59 - Examples of Stationary Processes (Continued...)
- Lecture 60 - Discrete Time Markov Chain (DTMC)
- Lecture 61 - DTMC (Continued...)
- Lecture 62 - Examples of DTMC
- Lecture 63 - Examples of DTMC (Continued...)
- Lecture 64 - Chapman-Kolmogorov equations and N-step transition matrix
- Lecture 65 - Examples based on N-step transition matrix
- Lecture 66 - Examples (Continued...)
- Lecture 67 - Classification of states
- Lecture 68 - Classification of states (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Calculation of N-Step - 9
- Lecture 70 - Calculation of N-Step - 10
- Lecture 71 - Limiting and Stationary distributions
- Lecture 72 - Limiting and Stationary distributions (Continued...)
- Lecture 73 - Continuous time Markov chain (CTMC)
- Lecture 74 - CTMC (Continued...)
- Lecture 75 - State transition diagram and Chapman-Kolmogorov equation
- Lecture 76 - Infinitesimal generator and Kolmogorov differential equations
- Lecture 77 - Limiting distribution
- Lecture 78 - Limiting and Stationary distributions - 1
- Lecture 79 - Birth death process
- Lecture 80 - Birth death process (Continued...)
- Lecture 81 - Poisson process - 1
- Lecture 82 - Poisson process (Continued...)
- Lecture 83 - Poisson process (Continued...)
- Lecture 84 - Non-homogeneous and compound Poisson process
- Lecture 85 - Introduction to Queueing Models and Kendall Notation
- Lecture 86 - M/M/1 Queueing Model
- Lecture 87 - M/M/1 Queueing Model (Continued...)
- Lecture 88 - M/M/1 Queueing Model and Burke's Theorem
- Lecture 89 - M/M/c Queueing Model
- Lecture 90 - M/M/c (Continued...) and M/M/1/N Model
- Lecture 91 - Other Markovian Queueing Models
- Lecture 92 - Transient Solution of Finite Capacity Markovian Queues



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Statistical Inference

Subject Co-ordinator - Prof. Nilladri Chatterjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Statistical Inference - 1  
Lecture 2 - Statistical Inference - 2  
Lecture 3 - Statistical Inference - 3  
Lecture 4 - Statistical Inference - 4  
Lecture 5 - Statistical Inference - 5  
Lecture 6 - Statistical Inference - 6  
Lecture 7 - Statistical Inference - 7  
Lecture 8 - Statistical Inference - 8  
Lecture 9 - Statistical Inference - 9  
Lecture 10 - Statistical Inference - 10  
Lecture 11 - Statistical Inference - 11  
Lecture 12 - Statistical Inference - 12  
Lecture 13 - Statistical Inference - 13  
Lecture 14 - Statistical Inference - 14  
Lecture 15 - Statistical Inference - 15  
Lecture 16 - Stasistical Inference - 16  
Lecture 17 - Stasistical Inference - 17  
Lecture 18 - Statistical Inference - 18  
Lecture 19 - Stasistical Inference - 19  
Lecture 20 - Stasistical Inference - 20  
Lecture 21 - Stasistical Inference - 21

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC: Integral Transforms and their Applications

Subject Co-ordinator - Prof. Sarthok Sircar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Fourier Transforms - Part 1  
Lecture 2 - Introduction to Fourier Transforms - Part 2  
Lecture 3 - Introduction to Fourier Transforms - Part 3  
Lecture 4 - Properties of Fourier transforms, Shannon Sampling Theorem, Gibb's Phenomena - Part 1  
Lecture 5 - Properties of Fourier transforms, Shannon Sampling Theorem, Gibb's Phenomena - Part 2  
Lecture 6 - Properties of Fourier transforms, Shannon Sampling Theorem, Gibb's Phenomena - Part 3  
Lecture 7 - Applications of Fourier Transforms - Part 1  
Lecture 8 - Applications of Fourier Transforms - Part 2  
Lecture 9 - Applications of Fourier Transforms - Part 3  
Lecture 10 - Introduction to Laplace Transforms - Part 1  
Lecture 11 - Introduction to Laplace Transforms - Part 2  
Lecture 12 - Introduction to Laplace Transforms - Part 3  
Lecture 13 - Inverse Laplace Transform, Initial and Final Value Theorems - Part 1  
Lecture 14 - Inverse Laplace Transform, Initial and Final Value Theorems - Part 2  
Lecture 15 - Inverse Laplace Transform, Initial and Final Value Theorems - Part 3  
Lecture 16 - Applications of Laplace Transforms - Part 1  
Lecture 17 - Applications of Laplace Transforms - Part 2  
Lecture 18 - Applications of Laplace Transforms - Part 3  
Lecture 19 - Applications of Laplace Transforms (Continued) - Part 1  
Lecture 20 - Applications of Laplace Transforms (Continued) - Part 2  
Lecture 21 - Applications of Laplace Transforms (Continued) - Part 3  
Lecture 22 - Applications of Fourier-Laplace Transforms - Part 1  
Lecture 23 - Applications of Fourier-Laplace Transforms - Part 2  
Lecture 24 - Applications of Fourier-Laplace Transforms - Part 3  
Lecture 25 - Introduction to Hankel Transforms - Part 1  
Lecture 26 - Introduction to Hankel Transforms - Part 2  
Lecture 27 - Introduction to Hankel Transforms - Part 3  
Lecture 28 - Introduction to Mellin Transforms - Part 1  
Lecture 29 - Introduction to Mellin Transforms - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Mellin Transforms - Part 3
- Lecture 31 - Introduction to Hilbert Transforms - Part 1
- Lecture 32 - Introduction to Hilbert Transforms - Part 2
- Lecture 33 - Introduction to Hilbert Transforms - Part 3
- Lecture 34 - Applications of Hilbert Transforms, Introduction to Stieltjes Transform - Part 1
- Lecture 35 - Applications of Hilbert Transforms, Introduction to Stieltjes Transform - Part 2
- Lecture 36 - Applications of Hilbert Transforms, Introduction to Stieltjes Transform - Part 3
- Lecture 37 - Applications of Stieltjes Transform, Generalized Stieltjes Transform - Part 1
- Lecture 38 - Applications of Stieltjes Transform, Generalized Stieltjes Transform - Part 2
- Lecture 39 - Applications of Stieltjes Transform, Generalized Stieltjes Transform - Part 3
- Lecture 40 - Introduction to Legendre Transform - Part 1
- Lecture 41 - Introduction to Legendre Transform - Part 2
- Lecture 42 - Introduction to Legendre Transform - Part 3
- Lecture 43 - Introduction to Z-transform - Part 1
- Lecture 44 - Introduction to Z-transform - Part 2
- Lecture 45 - Introduction to Z-transform - Part 3
- Lecture 46 - Inverse Z-transform, Applications of Z-Transform - Part 1
- Lecture 47 - Inverse Z-transform, Applications of Z-Transform - Part 2
- Lecture 48 - Inverse Z-transform, Applications of Z-Transform - Part 3
- Lecture 49 - Introduction to Radon Transform - Part 1
- Lecture 50 - Introduction to Radon Transform - Part 2
- Lecture 51 - Introduction to Radon Transform - Part 3
- Lecture 52 - Inverse Radon Transform, Applications to Radon Transform - Part 1
- Lecture 53 - Inverse Radon Transform, Applications to Radon Transform - Part 2
- Lecture 54 - Inverse Radon Transform, Applications to Radon Transform - Part 3
- Lecture 55 - Introduction to Fractional Calculus - Part 1
- Lecture 56 - Introduction to Fractional Calculus - Part 2
- Lecture 57 - Introduction to Fractional Calculus - Part 3
- Lecture 58 - Fractional ODEs, Abel's Integral Equations - Part 1
- Lecture 59 - Fractional ODEs, Abel's Integral Equations - Part 2
- Lecture 60 - Fractional ODEs, Abel's Integral Equations - Part 3
- Lecture 61 - Fractional PDEs - Part 1
- Lecture 62 - Fractional PDEs - Part 2
- Lecture 63 - Fractional PDEs - Part 3
- Lecture 64 - Fractional ODEs and PDEs (Continued) - Part 1
- Lecture 65 - Fractional ODEs and PDEs (Continued) - Part 2
- Lecture 66 - Fractional ODEs and PDEs (Continued) - Part 3
- Lecture 67 - Introduction to Wavelet Transform - Part 1
- Lecture 68 - Introduction to Wavelet Transform - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Introduction to Wavelet Transform - Part 3
- Lecture 70 - Discrete Haar, Shanon and Debauchies Wavelet - Part 1
- Lecture 71 - Discrete Haar, Shanon and Debauchies Wavelet - Part 2
- Lecture 72 - Discrete Haar, Shanon and Debauchies Wavelet - Part 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Fuzzy Set Theory, Arithmetic and Logic

Subject Co-ordinator - Prof. Nilladri Chatterjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Fuzzy Sets Arithmetic and Logic - 1  
Lecture 2 - Fuzzy Sets Arithmetic and Logic - 2  
Lecture 3 - Fuzzy Sets Arithmetic and Logic - 3  
Lecture 4 - Fuzzy Sets Arithmetic and Logic - 4  
Lecture 5 - Fuzzy Sets Arithmetic and Logic - 5  
Lecture 6 - Fuzzy Sets Arithmetic and Logic - 6  
Lecture 7 - Fuzzy Sets Arithmetic and Logic - 7  
Lecture 8 - Fuzzy Sets Arithmetic and Logic - 8  
Lecture 9 - Fuzzy Sets Arithmetic and Logic - 9  
Lecture 10 - Fuzzy Sets Arithmetic and Logic - 10  
Lecture 11 - Fuzzy Sets Arithmetic and Logic - 11  
Lecture 12 - Fuzzy Sets Arithmetic and Logic - 12  
Lecture 13 - Fuzzy Sets Arithmetic and Logic - 13  
Lecture 14 - Fuzzy Sets Arithmetic and Logic - 14  
Lecture 15 - Fuzzy Sets Arithmetic and Logic - 15  
Lecture 16 - Fuzzy Sets Arithmetic and Logic - 16  
Lecture 17 - Fuzzy Sets Arithmetic and Logic - 17  
Lecture 18 - Fuzzy Sets Arithmetic and Logic - 18  
Lecture 19 - Fuzzy Sets Arithmetic and Logic - 19  
Lecture 20 - Fuzzy Sets Arithmetic and Logic - 20  
Lecture 21 - Fuzzy Sets Arithmetic and Logic - 21  
Lecture 22 - Fuzzy Sets Arithmetic and Logic - 22  
Lecture 23 - Fuzzy Sets Arithmetic and Logic - 23  
Lecture 24 - Fuzzy Sets Arithmetic and Logic - 24  
Lecture 25 - Fuzzy Sets Arithmetic and Logic - 25  
Lecture 26 - Fuzzy Sets Arithmetic and Logic - 26  
Lecture 27 - Fuzzy Sets Arithmetic and Logic - 27  
Lecture 28 - Fuzzy Sets Arithmetic and Logic - 28  
Lecture 29 - Fuzzy Sets Arithmetic and Logic - 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Fuzzy Sets Arithmetic and Logic - 30

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Methods of Applied Mathematics

Subject Co-ordinator - Prof. Vivek Kumar Aggarwal

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to First Order Differential Equations
- Lecture 2 - Introduction to First Order Differential Equations (Continued...)
- Lecture 3 - Introduction to Second Order Linear Differential Equations
- Lecture 4 - Second Order Linear Differential Equations With Constant Coefficients
- Lecture 5 - Second Order Linear Differential Equations With Constant Coefficients (Continued...)
- Lecture 6 - Second Order Linear Differential Equations With Variable Coefficients
- Lecture 7 - Factorization of Second order Differential Operator and Euler Cauchy Equation
- Lecture 8 - Power Series Solution of General Differential Equation
- Lecture 9 - Green's function
- Lecture 10 - Method of Green's Function for Solving Initial Value and Boundary Value Problems
- Lecture 11 - Adjoint Linear Differential Operator
- Lecture 12 - Adjoint Linear Differential Operator (Continued...)
- Lecture 13 - Sturm-Liouville Problems
- Lecture 14 - Laplace transformation
- Lecture 15 - Laplace transformation (Continued...)
- Lecture 16 - Laplace Transform Method for Solving Ordinary Differential Equations
- Lecture 17 - Laplace Transform Applied to Differential Equations and Convolution
- Lecture 18 - Fourier Series
- Lecture 19 - Fourier Series (Continued...)
- Lecture 20 - Gibbs Phenomenon and Parseval's Identity
- Lecture 21 - Fourier Integral and Fourier Transform
- Lecture 22 - Fourier Integral and Fourier Transform (Continued...)
- Lecture 23 - Fourier Transform Method for Solving Ordinary Differential Equations
- Lecture 24 - Frames, Riesz Bases and Orthonormal Bases
- Lecture 25 - Frames, Riesz Bases and Orthonormal Bases (Continued...)
- Lecture 26 - Fourier Series and Fourier Transform
- Lecture 27 - Time-Frequency Analysis and Gabor Transform
- Lecture 28 - Window Fourier Transform and Multiresolution Analysis
- Lecture 29 - Construction of Scaling Functions and Wavelets Using Multiresolution Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Daubechies Wavelet
- Lecture 31 - Daubechies Wavelet (Continued...)
- Lecture 32 - Wavelet Transform and Shannon Wavelet



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Advanced Probability Theory

Subject Co-ordinator - Prof. Niladri Chatterjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Advanced Probability Theory
- Lecture 2 - Advanced Probability Theory
- Lecture 3 - Advanced Probability Theory
- Lecture 4 - Advanced Probability Theory
- Lecture 5 - Advanced Probability Theory
- Lecture 6 - Advanced Probability Theory
- Lecture 7 - Advanced Probability Theory
- Lecture 8 - Advanced Probability Theory
- Lecture 9 - Advanced Probability Theory
- Lecture 10 - Advanced Probability Theory
- Lecture 11 - Advanced Probability Theory
- Lecture 12 - Advanced Probability Theory
- Lecture 13 - Advanced Probability Theory
- Lecture 14 - Advanced Probability Theory
- Lecture 15 - Advanced Probability Theory
- Lecture 16 - Advanced Probability Theory
- Lecture 17 - Advanced Probability Theory
- Lecture 18 - Advanced Probability Theory
- Lecture 19 - Advanced Probability Theory
- Lecture 20 - Advanced Probability Theory
- Lecture 21 - Advanced Probability Theory
- Lecture 22 - Advanced Probability Theory
- Lecture 23 - Advanced Probability Theory
- Lecture 24 - Advanced Probability Theory
- Lecture 25 - Advanced Probability Theory
- Lecture 26 - Advanced Probability Theory
- Lecture 27 - Advanced Probability Theory
- Lecture 28 - Advanced Probability Theory
- Lecture 29 - Advanced Probability Theory

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Lecture 30 - Advanced Probability Theory

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Scientific Computing using Matlab

Subject Co-ordinator - Prof. Vivek Kumar Aggarwal, Prof. Mani Mehra

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Matlab
- Lecture 2 - Plotting of Functions in Matlab
- Lecture 3 - Symbolic Computation in Matlab
- Lecture 4 - Functions definition in Matlab
- Lecture 5 - In continuation of basics of Matlab
- Lecture 6 - In continuation of basics of Matlab (Continued...)
- Lecture 7 - Floating point representation of a number
- Lecture 8 - Errors arithmetic
- Lecture 9 - Iterative method for solving nonlinear equations
- Lecture 10 - Bisection method for solving nonlinear equations
- Lecture 11 - Order of Convergence of an Iterative Method
- Lecture 12 - Regula-Falsi and Secant Method for Solving Nonlinear Equations
- Lecture 13 - Raphson method for solving nonlinear equations
- Lecture 14 - Newton-Raphson Method for Solving Nonlinear System of Equations
- Lecture 15 - Matlab Code for Fixed Point Iteration Method
- Lecture 16 - Matlab Code for Newton-Raphson and Regula-Falsi Method
- Lecture 17 - Matlab Code for Newton Method for Solving System of Equations
- Lecture 18 - Linear System of Equations
- Lecture 19 - Linear System of Equations (Continued...)
- Lecture 20 - Gauss Elimination Method for solving Linear System of Equation
- Lecture 21 - Matlab Code for Gauss Elimination Method
- Lecture 22 - LU Decomposition Method for Solving Linear System of Equations
- Lecture 23 - LU Decomposition Method for Solving Linear System of Equations (Continued...)
- Lecture 24 - Iterative Method for Solving Linear System of Equations
- Lecture 25 - Iterative Method for Solving Linear System of Equations (Continued...)
- Lecture 26 - Matlab Code for Gauss Jacobi Method
- Lecture 27 - Matlab Code for Gauss Seidel Method
- Lecture 28 - Matlab Code for Gauss Seidel Method
- Lecture 29 - Power Method for Solving Eigenvalues of a Matrix

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Power Method for Solving Eigenvalues of a Matrix (Continued...)
- Lecture 31 - Gershgorin Circle Theorem for Estimating Eigenvalues of a Matrix
- Lecture 32 - Gershgorin Circle Theorem for Estimating Eigenvalues of a Matrix
- Lecture 33 - Matlab Code for Power Method/ Shifted Inverse Power Method
- Lecture 34 - Interpolation
- Lecture 35 - Interpolation (Continued...)
- Lecture 36 - Interpolation (Continued...)
- Lecture 37 - Interpolating Polynomial Using Newton's Forward Difference Formula
- Lecture 38 - Error Estimates in Polynomial Approximation
- Lecture 39 - Interpolating Polynomial Using Newton's Backward Difference Formula
- Lecture 40 - Stirling's Formula and Lagrange's Interpolating Polynomial
- Lecture 41 - In Continuation of Lagrange's Interpolating Formula
- Lecture 42 - Interpolating Polynomial Using Newton's Divided Difference Formula
- Lecture 43 - Examples Based on Lagrange's and Newton's Divided Difference Interpolation
- Lecture 44 - Spline Interpolation
- Lecture 45 - Cubic Spline
- Lecture 46 - Cubic Spline (Continued...)
- Lecture 47 - Curve Fitting
- Lecture 48 - Quadratic Polynomial Fitting and Code for Lagrange's Interpolating Polynomial using Octave
- Lecture 49 - Matlab Code for Newton's Divided Difference and Least Square Approximation
- Lecture 50 - Matlab Code for Cubic Spline
- Lecture 51 - Numerical Differentiation
- Lecture 52 - Various Numerical Differentiation Formulas
- Lecture 53 - Higher Order Accurate Numerical Differentiation Formula For First Order Derivative
- Lecture 54 - Higher Order Accurate Numerical Differentiation Formula For Second Order Derivative
- Lecture 55 - Numerical Integration
- Lecture 56 - Trapezoidal Rule for Numerical Integration
- Lecture 57 - Simpson's 1/3 rule for Numerical Integration
- Lecture 58 - Simpson's 3/8 Rule for Numerical Integration
- Lecture 59 - Method of Undetermined Coefficients
- Lecture 60 - Octave Code for Trapezoidal and Simpson's Rule
- Lecture 61 - Taylor Series Method for Ordinary Differential Equations
- Lecture 62 - Linear Multistep Method (LMM) for Ordinary Differential Equations
- Lecture 63 - Convergence and Zero Stability for LMM
- Lecture 64 - Matlab/Octave Code for Initial Value Problems
- Lecture 65 - Advantage of Implicit and Explicit Methods Over Each other via Matlab/Octave Codes for Initial v

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Non-parametric Statistical Inference

Subject Co-ordinator - Prof. Niladri Chatterjee

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Matrix Computation and its applications

Subject Co-ordinator - Prof. Vivek K. Aggarwal

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Binary Operation and Groups

Lecture 2 - Vector Spaces

Lecture 3 - Some Examples of Vector Spaces

Lecture 4 - Some Examples of Vector Spaces (Continued...)

Lecture 5 - Subspace of a Vector Space

Lecture 6 - Spanning Set

Lecture 7 - Properties of Subspaces

Lecture 8 - Properties of Subspaces (Continued...)

Lecture 9 - Linearly Independent and Dependent Vectors

Lecture 10 - Linearly Independent and Dependent Vectors (Continued...)

Lecture 11 - Properties of Linearly Independent and Dependent Vectors

Lecture 12 - Properties of Linearly Independent and Dependent Vectors (Continued...)

Lecture 13 - Basis and Dimension of a Vector Space

Lecture 14 - Example of Basis and Standard Basis of a Vector Space

Lecture 15 - Linear Functions

Lecture 16 - Range Space of a Matrix and Row Reduced Echelon Form

Lecture 17 - Row Equivalent Matrices

Lecture 18 - Row Equivalent Matrices (Continued...)

Lecture 19 - Null Space of a Matrix

Lecture 20 - Four Subspaces Associated with a Given Matrix

Lecture 21 - Four Subspaces Associated with a Given Matrix (Continued...)

Lecture 22 - Linear Independence of the rows and columns of a Matrix

Lecture 23 - Application of Diagonal Dominant Matrices

Lecture 24 - Application of Zero Null Space: Interpolating Polynomial and Wronskian Matrix

Lecture 25 - Characterization of basis of a Vector Space and its Subspaces

Lecture 26 - Coordinate of a Vector with respect to Ordered Basis

Lecture 27 - Examples of different subspaces of a vector space of polynomials having degree less than or equal to

Lecture 28 - Linear Transformation

Lecture 29 - Properties of Linear Transformation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Determining Linear Transformation on a Vector Space by its value on the basis element
- Lecture 31 - Range space and null space of a Linear Transformation
- Lecture 32 - Rank and Nullity of a Linear Transformation
- Lecture 33 - Rank Nullity Theorem
- Lecture 34 - Application of Rank Nullity Theorem and Inverse of a Linear Transformation
- Lecture 35 - Matrix Associated with Linear Transformation
- Lecture 36 - Matrix Representation of a Linear Transformation Relative to Ordered Bases
- Lecture 37 - Matrix Representation of a Linear Transformation Relative to Ordered Bases (Continued...)
- Lecture 38 - Linear Map Associated with a Matrix
- Lecture 39 - Similar Matrices and Diagonalisation of Matrix
- Lecture 40 - Orthonormal bases of a Vector Space
- Lecture 41 - Gram-Schmidt Orthogonalisation Process
- Lecture 42 - QR Factorisation
- Lecture 43 - Inner Product Spaces
- Lecture 44 - Inner Product of different real vector spaces and basics of complex vector space
- Lecture 45 - Inner Product on complex vector spaces and Cauchy-Schwarz inequality
- Lecture 46 - Norm of a Vector
- Lecture 47 - Matrix Norm
- Lecture 48 - Sensitivity Analysis of a System of Linear Equations
- Lecture 49 - Orthogonality of the four subspaces associated with a matrix
- Lecture 50 - Best Approximation: Least Square Method
- Lecture 51 - Best Approximation: Least Square Method (Continued...)
- Lecture 52 - Jordan-Canonical Form
- Lecture 53 - Some examples on the Jordan form of a given matrix and generalised eigen vectors
- Lecture 54 - Singular value decomposition (SVD) theorem
- Lecture 55 - Matlab/Octave code for Solving SVD
- Lecture 56 - Pseudo-Inverse/Moore-Penrose Inverse
- Lecture 57 - Householder Transformation
- Lecture 58 - Matlab/Octave code for Householder Transformation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Probability Theory and Statistics

Subject Co-ordinator - Prof. S Dharmaraja

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Random experiment, sample space, axioms of probability, probability space
- Lecture 2 - Random experiment, sample space, axioms of probability, probability space (Continued...)
- Lecture 3 - Random experiment, sample space, axioms of probability, probability space (Continued...)
- Lecture 4 - Conditional probability, independence of events
- Lecture 5 - Multiplication rule, total probability rule, Bayes's theorem
- Lecture 6 - Definition of Random Variable, Cumulative Distribution Function
- Lecture 7 - Definition of Random Variable, Cumulative Distribution Function (Continued...)
- Lecture 8 - Definition of Random Variable, Cumulative Distribution Function (Continued...)
- Lecture 9 - Type of Random Variables, Probability Mass Function, Probability Density Function
- Lecture 10 - Type of Random Variables, Probability Mass Function, Probability Density Function (Continued...)
- Lecture 11 - Distribution of Function of Random Variables
- Lecture 12 - Mean and Variance
- Lecture 13 - Mean and Variance (Continued...)
- Lecture 14 - Higher Order Moments and Moments Inequalities
- Lecture 15 - Higher Order Moments and Moments Inequalities (Continued...)
- Lecture 16 - Generating Functions
- Lecture 17 - Generating Functions (Continued...)
- Lecture 18 - Common Discrete Distributions
- Lecture 19 - Common Discrete Distributions (Continued...)
- Lecture 20 - Common Continuous Distributions
- Lecture 21 - Common Continuous Distributions (Continued...)
- Lecture 22 - Applications of Random Variable
- Lecture 23 - Applications of Random Variable (Continued...)
- Lecture 24 - Random vector and joint distribution
- Lecture 25 - Joint probability mass function
- Lecture 26 - Joint probability density function
- Lecture 27 - Independent random variables
- Lecture 28 - Independent random variables (Continued...)
- Lecture 29 - Functions of several random variables

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Functions of several random variables (Continued...)
- Lecture 31 - Some important results
- Lecture 32 - Order statistics
- Lecture 33 - Conditional distributions
- Lecture 34 - Random sum
- Lecture 35 - Moments and Covariance
- Lecture 36 - Variance Covariance matrix
- Lecture 37 - Multivariate Normal distribution
- Lecture 38 - Probability generating function and Moment generating function
- Lecture 39 - Correlation coefficient
- Lecture 40 - Conditional Expectation
- Lecture 41 - Conditional Expectation (Continued...)
- Lecture 42 - Mode of Convergence
- Lecture 43 - Mode of Convergence (Continued...)
- Lecture 44 - Law of Large Numbers
- Lecture 45 - Central Limit Theorem
- Lecture 46 - Central Limit Theorem (Continued...)
- Lecture 47 - Descriptive Statistics and Sampling Distributions
- Lecture 48 - Descriptive Statistics and Sampling Distributions (Continued...)
- Lecture 49 - Descriptive Statistics and Sampling Distributions (Continued...)
- Lecture 50 - Point estimation
- Lecture 51 - Methods of Point estimation
- Lecture 52 - Interval Estimation
- Lecture 53 - Testing of Statistical Hypothesis
- Lecture 54 - Nonparametric Statistical Tests
- Lecture 55 - Analysis of Variance
- Lecture 56 - Correlation
- Lecture 57 - Regression
- Lecture 58 - Logistic Regression

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Formal Languages and Automata Theory

Subject Co-ordinator - Dr. K.V. Krishna, Dr. Diganta Goswami

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Alphabet, Strings, Languages
- Lecture 3 - Finite Representation
- Lecture 4 - Grammars (CFG)
- Lecture 5 - Derivation Trees
- Lecture 6 - Regular Grammars
- Lecture 7 - Finite Automata
- Lecture 8 - Nondeterministic Finite Automata
- Lecture 9 - NFA  $\Leftrightarrow$  DFA
- Lecture 10 - Myhill-Nerode Theorem
- Lecture 11 - Minimization
- Lecture 12 - RE  $\Rightarrow$  FA
- Lecture 13 - FA  $\Rightarrow$  RE
- Lecture 14 - FA  $\Leftrightarrow$  RG
- Lecture 15 - Variants of FA
- Lecture 16 - Closure Properties of RL
- Lecture 17 - Homomorphism
- Lecture 18 - Pumping Lemma
- Lecture 19 - Simplification of CFG
- Lecture 20 - Normal Forms of CFG
- Lecture 21 - Properties of CFLs
- Lecture 22 - Pushdown Automata
- Lecture 23 - PDA  $\Leftrightarrow$  CFG
- Lecture 24 - Turing Machines
- Lecture 25 - Turing Computable Functions
- Lecture 26 - Combining Turing Machines
- Lecture 27 - Multi Input
- Lecture 28 - Turing Decidable Languages
- Lecture 29 - Variants of Turing Machines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Structured Grammars
- Lecture 31 - Decidability
- Lecture 32 - Undecidability 1
- Lecture 33 - Undecidability 2
- Lecture 34 - Undecidability 3
- Lecture 35 - Time Bounded Turing Machines
- Lecture 36 - P and NP
- Lecture 37 - NP-Completeness
- Lecture 38 - NP-Complete Problems 1
- Lecture 39 - NP-Complete Problems 2
- Lecture 40 - NP-Complete Problems 3
- Lecture 41 - Chomsky Hierarchy

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Complex Analysis

Subject Co-ordinator - Prof. P.A.S. Sree Krishna

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction to Complex Numbers
- Lecture 3 - de Moivre's Formula and Stereographic Projection
- Lecture 4 - Topology of the Complex Plane - Part-I
- Lecture 5 - Topology of the Complex Plane - Part-II
- Lecture 6 - Topology of the Complex Plane - Part-III
- Lecture 7 - Introduction to Complex Functions
- Lecture 8 - Limits and Continuity
- Lecture 9 - Differentiation
- Lecture 10 - Cauchy-Riemann Equations and Differentiability
- Lecture 11 - Analytic functions; the exponential function
- Lecture 12 - Sine, Cosine and Harmonic functions
- Lecture 13 - Branches of Multifunctions; Hyperbolic Functions
- Lecture 14 - Problem Solving Session I
- Lecture 15 - Integration and Contours
- Lecture 16 - Contour Integration
- Lecture 17 - Introduction to Cauchy's Theorem
- Lecture 18 - Cauchy's Theorem for a Rectangle
- Lecture 19 - Cauchy's theorem - Part-II
- Lecture 20 - Cauchy's Theorem - Part-III
- Lecture 21 - Cauchy's Integral Formula and its Consequences
- Lecture 22 - The First and Second Derivatives of Analytic Functions
- Lecture 23 - Morera's Theorem and Higher Order Derivatives of Analytic Functions
- Lecture 24 - Problem Solving Session II
- Lecture 25 - Introduction to Complex Power Series
- Lecture 26 - Analyticity of Power Series
- Lecture 27 - Taylor's Theorem
- Lecture 28 - Zeroes of Analytic Functions
- Lecture 29 - Counting the Zeroes of Analytic Functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Open mapping theorem - Part-I
- Lecture 31 - Open mapping theorem - Part-II
- Lecture 32 - Properties of Mobius Transformations - Part-I
- Lecture 33 - Properties of Mobius Transformations - Part-II
- Lecture 34 - Problem Solving Session III
- Lecture 35 - Removable Singularities
- Lecture 36 - Poles Classification of Isolated Singularities
- Lecture 37 - Essential Singularity & Introduction to Laurent Series
- Lecture 38 - Laurent's Theorem
- Lecture 39 - Residue Theorem and Applications
- Lecture 40 - Problem Solving Session IV

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Mathematical Finance

Subject Co-ordinator - Prof. Siddhartha Pratim Chakrabarty

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Financial Markets and Bonds
- Lecture 2 - Introduction to Stocks, Futures and Forwards and Swaps
- Lecture 3 - Introduction to Options
- Lecture 4 - Interest Rates and Present Value
- Lecture 5 - Present and Future Values, Annuities, Amortization and Bond Yield
- Lecture 6 - Price Yield Curve and Term Structure of Interest Rates
- Lecture 7 - Markowitz Theory, Return and Risk and Two Asset Portfolio
- Lecture 8 - Minimum Variance Portfolio and Feasible Set
- Lecture 9 - Multi Asset Portfolio, Minimum Variance Portfolio, Efficient Frontier and Minimum Variance Line
- Lecture 10 - Minimum Variance Line (Continued), Market Portfolio
- Lecture 11 - Capital Market Line, Capital Asset Pricing Model
- Lecture 12 - Performance Analysis
- Lecture 13 - No-Arbitrage Principle and Pricing of Forward Contracts
- Lecture 14 - Futures, Options and Put-Call-Parity
- Lecture 15 - Bounds on Options
- Lecture 16 - Derivative Pricing in a Single Period Binomial Model
- Lecture 17 - Derivative Pricing in Multiperiod Binomial Model
- Lecture 18 - Derivative Pricing in Binomial Model and Path Dependent Options
- Lecture 19 - Discrete Probability Spaces
- Lecture 20 - Filtrations and Conditional Expectations
- Lecture 21 - Properties of Conditional Expectations
- Lecture 22 - Examples of Conditional Expectations, Martingales
- Lecture 23 - Risk-Neutral Pricing of European Derivatives in Binomial Model
- Lecture 24 - Actual and Risk-Neutral Probabilities, Markov Process, American Options
- Lecture 25 - General Probability Spaces, Expectations, Change of Measure
- Lecture 26 - Filtrations, Independence, Conditional Expectations
- Lecture 27 - Brownian Motion and its Properties
- Lecture 28 - It $\tilde{A}$ ' Integral and its Properties
- Lecture 29 - It $\tilde{A}$ ' Formula, It $\tilde{A}$ ' Processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multivariable Stochastic Calculus, Stochastic Differential Equations
- Lecture 31 - Black-Scholes-Merton (BSM) Model, BSM Equation, BSM Formula
- Lecture 32 - Greeks, Put-Call Parity, Change of Measure
- Lecture 33 - Girsanov Theorem, Risk-Neutral Pricing of Derivatives, BSM Formula
- Lecture 34 - MRT and Hedging, Multidimensional Girsanov and MRT
- Lecture 35 - Multidimensional BSM Model, Fundamental Theorems of Asset Pricing
- Lecture 36 - BSM Model with Dividend-Paying Stocks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Mathematical Portfolio Theory

Subject Co-ordinator - Prof. Siddhartha Pratim Chakrabarty

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Probability space and their properties, Random variables
- Lecture 2 - Mean, variance, covariance and their properties
- Lecture 3 - Linear regression; Binomial and normal distribution; Central Limit Theorem
- Lecture 4 - Financial markets
- Lecture 5 - Bonds and stocks
- Lecture 6 - Binomial and geometric Brownian motion (gBm) asset pricing models
- Lecture 7 - Expected return, risk and covariance of returns
- Lecture 8 - Expected return and risk of a portfolio; Minimum variance portfolio
- Lecture 9 - Multi-asset portfolio and Efficient frontier
- Lecture 10 - Capital Market Line and Derivation of efficient frontier
- Lecture 11 - Capital Asset Pricing Model and Single index model
- Lecture 12 - Portfolio performance analysis
- Lecture 13 - Utility functions and expected utility
- Lecture 14 - Risk preferences of investors
- Lecture 15 - Absolute Risk Aversion and Relative Risk Aversion
- Lecture 16 - Portfolio theory with utility functions
- Lecture 17 - Geometric Mean Return and Roy's Safety-First Criterion
- Lecture 18 - Kataoka's Safety-First Criterion and Telser's Safety-First Criterion
- Lecture 19 - Semi-variance framework
- Lecture 20 - Stochastic dominance; First order stochastic dominance
- Lecture 21 - Second order stochastic dominance and Third order stochastic dominance
- Lecture 22 - Discrete time model and utility function
- Lecture 23 - Optimal portfolio for single-period discrete time model
- Lecture 24 - Optimal portfolio for multi-period discrete time model; Discrete Dynamic Programming
- Lecture 25 - Continuous time model; Hamilton-Jacobi-Bellman PDE
- Lecture 26 - Hamilton-Jacobi-Bellman PDE; Duality/Martingale Approach
- Lecture 27 - Duality/Martingale Approach in Discrete and Continuous Time
- Lecture 28 - Interest rates and bonds; Duration
- Lecture 29 - Duration; Immunization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Convexity; Hedging and Immunization
- Lecture 31 - Quantiles and their properties
- Lecture 32 - Value-at-Risk and its properties
- Lecture 33 - Average Value-at-Risk and its properties
- Lecture 34 - Asset allocation
- Lecture 35 - Portfolio optimization
- Lecture 36 - Portfolio optimization with constraints, Value-at-Risk

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Discrete-time Markov Chains and Poission Processes

Subject Co-ordinator - Prof. Ayon Ganguly, Prof. Subhamay Saha

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of Basic Probability - I
- Lecture 2 - Review of Basic Probability - II
- Lecture 3 - Review of Basic Probability - III
- Lecture 4 - Stochastic Processes
- Lecture 5 - Definition of Markov Chain and Transition Probabilities
- Lecture 6 - Markov Property and Chapman-Kolmogorov Equations
- Lecture 7 - Chapman-Kolmogorov Equations: Examples
- Lecture 8 - Accessibility and Communication of States
- Lecture 9 - Hitting Time - I
- Lecture 10 - Hitting Time - II
- Lecture 11 - Hitting Time - III
- Lecture 12 - Strong Markov Property
- Lecture 13 - Passage Time and Excursion
- Lecture 14 - Number of Visits
- Lecture 15 - Class Property
- Lecture 16 - Transience and Recurrence of Random Walks
- Lecture 17 - Stationary Distribution - I
- Lecture 18 - Stationary Distribution - II
- Lecture 19 - Stationary Distribution - III
- Lecture 20 - Limit Theorems - I
- Lecture 21 - Limit Theorems - II
- Lecture 22 - Some Problems - I
- Lecture 23 - Some Problems - II
- Lecture 24 - Time Reversibility
- Lecture 25 - Properties of Exponential Distribution
- Lecture 26 - Some Problems
- Lecture 27 - Order Statistics
- Lecture 28 - Poisson Processes
- Lecture 29 - Poisson Thinning - I

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- Lecture 30 - Poisson Thinning - II
- Lecture 31 - Conditional Arrival Times
- Lecture 32 - Independent Poisson Processes
- Lecture 33 - Some Problems
- Lecture 34 - Compound Poisson Processes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Queueing Theory

Subject Co-ordinator - Prof. N. Selvaraju

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Queueing Systems, System Performance Measures
- Lecture 2 - Characteristics of Queueing Systems, Kendall's Notation
- Lecture 3 - Little's Law, General Relationships
- Lecture 4 - Laplace and Laplace-Stieltjes Transforms, Probability Generating Functions
- Lecture 5 - An Overview of Stochastic Processes
- Lecture 6 - Markov Chains: Definition, Transition Probabilities
- Lecture 7 - Classification Properties of Markov Chains
- Lecture 8 - Long-Term Behaviour of Markov Chains
- Lecture 9 - Exponential Distribution and its Properties, Poisson Process
- Lecture 10 - Poisson Process and its Properties, Generalizations
- Lecture 11 - Continuous-Time Markov Chains, Generator Matrix, Kolmogorov Equations
- Lecture 12 - Stationary and Limiting Distributions of CTMC, Balance Equations, Birth-Death Processes
- Lecture 13 - Birth-Death Queues: General Theory, M/M/1 Queues and their Steady State Solution
- Lecture 14 - M/M/1 Queues: Performance Measures, PASTA Property, Waiting Time Distributions
- Lecture 15 - M/M/c Queues, Erlang Delay Formula
- Lecture 16 - M/M/c/K Queues
- Lecture 17 - Erlang's Loss System, Erlang Loss Formula, Infinite-Server Queues
- Lecture 18 - Finite-Source Queues, Engset Loss System, State-Dependent Queues, Queues with Impatience
- Lecture 19 - Transient Solutions: M/M/1/1, Infinite-Server and M/M/1 Queues, Busy Period Analysis
- Lecture 20 - Queues with Bulk Arrivals
- Lecture 21 - Queues with Bulk Service
- Lecture 22 - Erlang and Phase-Type Distributions
- Lecture 23 - Erlangian Queues: Erlangian Arrivals, Erlangian Service Times
- Lecture 24 - Nonpreemptive Priority Queues
- Lecture 25 - Nonpreemptive and Preemptive Priority Queues
- Lecture 26 - M/M/1 Retrial Queues
- Lecture 27 - Discrete-Time Queues: Geo/Geo/1 (EAS), Geo/Geo/1 (LAS)
- Lecture 28 - Introduction to Queueing Networks, Two-Node Network
- Lecture 29 - Burke's Theorem, General Setup, Tandem Networks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Queueing Networks with Blocking, Open Jackson Networks
- Lecture 31 - Waiting Times and Multiple Classes in Open Jackson Networks
- Lecture 32 - Closed Jackson Networks
- Lecture 33 - Closed Jackson Networks, Convolution Algorithm
- Lecture 34 - Mean-Value Analysis Algorithm
- Lecture 35 - Cyclic Queueing Networks, Extensions of Jackson Networks
- Lecture 36 - Renewal Processes
- Lecture 37 - Regenerative Processes, Semi-Markov Processes
- Lecture 38 - M/G/1 Queues, The Pollaczek-Khinchin Mean Formula
- Lecture 39 - M/G/1 Queues, The Pollaczek-Khinchin Transform Formula
- Lecture 40 - M/G/1 Queues: Waiting Times and Busy Period
- Lecture 41 - M/G/1/K Queues, Additional Insights on M/G/1 Queues
- Lecture 42 - M/G/c, M/G/∞ and M/G/c/c Queues
- Lecture 43 - G/M/1 Queues
- Lecture 44 - G/G/1 Queues: Lindley's Integral Equation
- Lecture 45 - G/G/1 Queues: Bounds
- Lecture 46 - Vacation Queues: Introduction, M/M/1 Queues with Vacations
- Lecture 47 - M/G/1 Queues with Vacations

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Applied Multivariate Analysis

Subject Co-ordinator - Dr. Sharmishtha Mitra

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Prologue
- Lecture 2 - Basic concepts on multivariate distribution
- Lecture 3 - Basic concepts on multivariate distribution
- Lecture 4 - Multivariate normal distribution - I
- Lecture 5 - Multivariate normal distribution - II
- Lecture 6 - Multivariate normal distribution - III
- Lecture 7 - Some problems on multivariate distributions - I
- Lecture 8 - Some problems on multivariate distributions - II
- Lecture 9 - Random sampling from multivariate normal distribution and Wishart distribution - I
- Lecture 10 - Random sampling from multivariate normal distribution and Wishart distribution - II
- Lecture 11 - Random sampling from multivariate normal distribution and Wishart distribution - III
- Lecture 12 - Wishart distribution and its properties - I
- Lecture 13 - Wishart distribution and its properties - II
- Lecture 14 - Hotelling's  $T^2$  distribution and its applications
- Lecture 15 - Hotelling's  $T^2$  distribution and various confidence intervals and regions
- Lecture 16 - Hotelling's  $T^2$  distribution and Profile analysis
- Lecture 17 - Profile analysis - I
- Lecture 18 - Profile analysis - II
- Lecture 19 - MANOVA - I
- Lecture 20 - MANOVA - II
- Lecture 21 - MANOVA - III
- Lecture 22 - MANOVA & Multiple Correlation Coefficient
- Lecture 23 - Multiple Correlation Coefficient
- Lecture 24 - Principal Component Analysis
- Lecture 25 - Principal Component Analysis
- Lecture 26 - Principal Component Analysis
- Lecture 27 - Cluster Analysis
- Lecture 28 - Cluster Analysis
- Lecture 29 - Cluster Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cluster Analysis
- Lecture 31 - Discriminant Analysis and Classification
- Lecture 32 - Discriminant Analysis and Classification
- Lecture 33 - Discriminant Analysis and Classification
- Lecture 34 - Discriminant Analysis and Classification
- Lecture 35 - Discriminant Analysis and Classification
- Lecture 36 - Discriminant Analysis and Classification
- Lecture 37 - Discriminant Analysis and Classification
- Lecture 38 - Factor\_Analysis
- Lecture 39 - Factor\_Analysis
- Lecture 40 - Factor\_Analysis
- Lecture 41 - Cannonical Correlation Analysis
- Lecture 42 - Cannonical Correlation Analysis
- Lecture 43 - Cannonical Correlation Analysis
- Lecture 44 - Cannonical Correlation Analysis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Calculus of Variations and Integral Equations

Subject Co-ordinator - Dr. Malay Banerjee, Prof. D. Bahuguna

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Calculus of Variations and Integral Equations  
Lecture 2 - Calculus of Variations and Integral Equations  
Lecture 3 - Calculus of Variations and Integral Equations  
Lecture 4 - Calculus of Variations and Integral Equations  
Lecture 5 - Calculus of Variations and Integral Equations  
Lecture 6 - Calculus of Variations and Integral Equations  
Lecture 7 - Calculus of Variations and Integral Equations  
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Lecture 12 - Calculus of Variations and Integral Equations  
Lecture 13 - Calculus of Variations and Integral Equations  
Lecture 14 - Calculus of Variations and Integral Equations  
Lecture 15 - Calculus of Variations and Integral Equations  
Lecture 16 - Calculus of Variations and Integral Equations  
Lecture 17 - Calculus of Variations and Integral Equations  
Lecture 18 - Calculus of Variations and Integral Equations  
Lecture 19 - Calculus of Variations and Integral Equations  
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Lecture 24 - Calculus of Variations and Integral Equations  
Lecture 25 - Calculus of Variations and Integral Equations  
Lecture 26 - Calculus of Variations and Integral Equations  
Lecture 27 - Calculus of Variations and Integral Equations  
Lecture 28 - Calculus of Variations and Integral Equations  
Lecture 29 - Calculus of Variations and Integral Equations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Calculus of Variations and Integral Equations
- Lecture 31 - Calculus of Variations and Integral Equations
- Lecture 32 - Calculus of Variations and Integral Equations
- Lecture 33 - Calculus of Variations and Integral Equations
- Lecture 34 - Calculus of Variations and Integral Equations
- Lecture 35 - Calculus of Variations and Integral Equations
- Lecture 36 - Calculus of Variations and Integral Equations
- Lecture 37 - Calculus of Variations and Integral Equations
- Lecture 38 - Calculus of Variations and Integral Equations
- Lecture 39 - Calculus of Variations and Integral Equations
- Lecture 40 - Calculus of Variations and Integral Equations

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Linear programming and Extensions

Subject Co-ordinator - Prof. Prabha Sharma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Linear Programming Problems

Lecture 2 - Vector space, Linear independence and dependence, basis

Lecture 3 - Moving from one basic feasible solution to another, optimality criteria

Lecture 4 - Basic feasible solutions, existence & derivation

Lecture 5 - Convex sets, dimension of a polyhedron, Faces, Example of a polytope

Lecture 6 - Direction of a polyhedron, correspondence between bfs and extreme points

Lecture 7 - Representation theorem, LPP solution is a bfs, Assignment 1

Lecture 8 - Development of the Simplex Algorithm, Unboundedness, Simplex Tableau

Lecture 9 - Simplex Tableau & algorithm, Cycling, Bland's anti-cycling rules, Phase I & Phase II

Lecture 10 - Big-M method, Graphical solutions, adjacent extreme pts and adjacent bfs

Lecture 11 - Assignment 2, progress of Simplex algorithm on a polytope, bounded variable LPP

Lecture 12 - LPP Bounded variable, Revised Simplex algorithm, Duality theory, weak duality theorem

Lecture 13 - Weak duality theorem, economic interpretation of dual variables, Fundamental theorem of duality

Lecture 14 - Examples of writing the dual, complementary slackness theorem

Lecture 15 - Complementary slackness conditions, Dual Simplex algorithm, Assignment 3

Lecture 16 - Primal-dual algorithm

Lecture 17 - Problem in lecture 16, starting dual feasible solution, Shortest Path Problem

Lecture 18 - Shortest Path Problem, Primal-dual method, example

Lecture 19 - Shortest Path Problem-complexity, interpretation of dual variables, post-optimality analysis-changes in  $\{a_{ij}\}$

Lecture 20 - Assignment 4, postoptimality analysis, changes in  $b$ , adding a new constraint, changes in  $\{a_{ij}\}$

Lecture 21 - Parametric LPP-Right hand side vector

Lecture 22 - Parametric cost vector LPP

Lecture 23 - Parametric cost vector LPP, Introduction to Min-cost flow problem

Lecture 24 - Mini-cost flow problem-Transportation problem

Lecture 25 - Transportation problem degeneracy, cycling

Lecture 26 - Sensitivity analysis

Lecture 27 - Sensitivity analysis

Lecture 28 - Bounded variable transportation problem, min-cost flow problem

Lecture 29 - Min-cost flow problem

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Starting feasible solution, Lexicographic method for preventing cycling ,strongly feasible solution
- Lecture 31 - Assignment 6, Shortest path problem, Shortest Path between any two nodes, Detection of negative cycle
- Lecture 32 - Min-cost-flow Sensitivity analysis Shortest path problem sensitivity analysis
- Lecture 33 - Min-cost flow changes in arc capacities , Max-flow problem, assignment 7
- Lecture 34 - Problem 3 (assignment 7), Min-cut Max-flow theorem, Labelling algorithm
- Lecture 35 - Max-flow - Critical capacity of an arc, starting solution for min-cost flow problem
- Lecture 36 - Improved Max-flow algorithm
- Lecture 37 - Critical Path Method (CPM)
- Lecture 38 - Programme Evaluation and Review Technique (PERT)
- Lecture 39 - Simplex Algorithm is not polynomial time- An example
- Lecture 40 - Interior Point Methods

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Convex Optimization

Subject Co-ordinator - Dr. Joydeep Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Convex Optimization  
Lecture 2 - Convex Optimization  
Lecture 3 - Convex Optimization  
Lecture 4 - Convex Optimization  
Lecture 5 - Convex Optimization  
Lecture 6 - Convex Optimization  
Lecture 7 - Convex Optimization  
Lecture 8 - Convex Optimization  
Lecture 9 - Convex Optimization  
Lecture 10 - Convex Optimization  
Lecture 11 - Convex Optimization  
Lecture 12 - Convex Optimization  
Lecture 13 - Convex Optimization  
Lecture 14 - Convex Optimization  
Lecture 15 - Convex Optimization  
Lecture 16 - Convex Optimization  
Lecture 17 - Convex Optimization  
Lecture 18 - Convex Optimization  
Lecture 19 - Convex Optimization  
Lecture 20 - Convex Optimization  
Lecture 21 - Convex Optimization  
Lecture 22 - Convex Optimization  
Lecture 23 - Convex Optimization  
Lecture 24 - Convex Optimization  
Lecture 25 - Convex Optimization  
Lecture 26 - Convex Optimization  
Lecture 27 - Convex Optimization  
Lecture 28 - Convex Optimization  
Lecture 29 - Convex Optimization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Convex Optimization  
Lecture 31 - Convex Optimization  
Lecture 32 - Convex Optimization  
Lecture 33 - Convex Optimization  
Lecture 34 - Convex Optimization  
Lecture 35 - Convex Optimization  
Lecture 36 - Convex Optimization  
Lecture 37 - Convex Optimization  
Lecture 38 - Convex Optimization  
Lecture 39 - Convex Optimization  
Lecture 40 - Convex Optimization  
Lecture 41 - Convex Optimization  
Lecture 42 - Convex Optimization

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Foundations of Optimization

Subject Co-ordinator - Dr. Joydeep Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Optimization  
Lecture 2 - Optimization  
Lecture 3 - Optimization  
Lecture 4 - Optimization  
Lecture 5 - Optimization  
Lecture 6 - Optimization  
Lecture 7 - Optimization  
Lecture 8 - Optimization  
Lecture 9 - Optimization  
Lecture 10 - Optimization  
Lecture 11 - Optimization  
Lecture 12 - Optimization  
Lecture 13 - Optimization  
Lecture 14 - Optimization  
Lecture 15 - Optimization  
Lecture 16 - Optimization  
Lecture 17 - Optimization  
Lecture 18 - Optimization  
Lecture 19 - Optimization  
Lecture 20 - Optimization  
Lecture 21 - Optimization  
Lecture 22 - Optimization  
Lecture 23 - Optimization  
Lecture 24 - Optimization  
Lecture 25 - Optimization  
Lecture 26 - Optimization  
Lecture 27 - Optimization  
Lecture 28 - Optimization  
Lecture 29 - Optimization

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Lecture 30 - Optimization  
Lecture 31 - Optimization  
Lecture 32 - Optimization  
Lecture 33 - Optimization  
Lecture 34 - Optimization  
Lecture 35 - Optimization  
Lecture 36 - Optimization  
Lecture 37 - Optimization  
Lecture 38 - Optimization

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Probability Theory and Applications

Subject Co-ordinator - Prof. Prabha Sharma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic principles of counting
- Lecture 2 - Sample space, events, axioms of probability
- Lecture 3 - Conditional probability, Independence of events
- Lecture 4 - Random variables, cumulative density function, expected value
- Lecture 5 - Discrete random variables and their distributions
- Lecture 6 - Discrete random variables and their distributions
- Lecture 7 - Discrete random variables and their distributions
- Lecture 8 - Continuous random variables and their distributions
- Lecture 9 - Continuous random variables and their distributions
- Lecture 10 - Continuous random variables and their distributions
- Lecture 11 - Function of random variables, Moment generating function
- Lecture 12 - Jointly distributed random variables, Independent r. v. and their sums
- Lecture 13 - Independent r. v. and their sums
- Lecture 14 - Chi square r. v., sums of independent normal r. v., Conditional distr
- Lecture 15 - Conditional distri, Joint distr. of functions of r. v., Order statistics
- Lecture 16 - Order statistics, Covariance and correlation
- Lecture 17 - Covariance, Correlation, Cauchy-Schwarz inequalities, Conditional expectation
- Lecture 18 - Conditional expectation, Best linear predictor
- Lecture 19 - Inequalities and bounds
- Lecture 20 - Convergence and limit theorems
- Lecture 21 - Central limit theorem
- Lecture 22 - Applications of central limit theorem
- Lecture 23 - Strong law of large numbers, Joint mgf
- Lecture 24 - Convolutions
- Lecture 25 - Stochastic processes
- Lecture 26 - Transition and state probabilities
- Lecture 27 - State prob., First passage and First return prob
- Lecture 28 - First passage and First return prob. Classification of states
- Lecture 29 - Random walk, periodic and null states

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- Lecture 30 - Reducible Markov chains
- Lecture 31 - Time reversible Markov chains
- Lecture 32 - Poisson Processes
- Lecture 33 - Inter-arrival times, Properties of Poisson processes
- Lecture 34 - Queuing Models
- Lecture 35 - Analysis of  $L$ ,  $L_q$ ,  $W$  and  $W_q$ , M/M/S model
- Lecture 36 - M/M/S, M/M/I/K models
- Lecture 37 - M/M/I/K and M/M/S/K models
- Lecture 38 - Application to reliability theory failure law
- Lecture 39 - Exponential failure law, Weibull law
- Lecture 40 - Reliability of systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Basic Calculus for Engineers, Scientists and Economists

Subject Co-ordinator - Dr. Joydeep Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Numbers  
Lecture 2 - Functions-1  
Lecture 3 - Sequence-1  
Lecture 4 - Sequence-2  
Lecture 5 - Limits and Continuity-1  
Lecture 6 - Limits and Continuity-2  
Lecture 7 - Limits And Continuity-3  
Lecture 8 - Derivative-1  
Lecture 9 - Derivative-2  
Lecture 10 - Maxima And Minima  
Lecture 11 - Mean-Value Theorem And Taylors Expansion-1  
Lecture 12 - Mean-Value Theorem And Taylors Expansion-2  
Lecture 13 - Integration-1  
Lecture 14 - Integration-2  
Lecture 15 - Integration By Parts  
Lecture 16 - Definite Integral  
Lecture 17 - Riemann Integration-1  
Lecture 18 - Riemann Integration-2  
Lecture 19 - Functions Of Two Or More Variables  
Lecture 20 - Limits And Continuity Of Functions Of Two Variable  
Lecture 21 - Differentiation Of Functions Of Two Variables-1  
Lecture 22 - Differentiation Of Functions Of Two Variables-2  
Lecture 23 - Unconstrained Minimization Of Funtions Of Two Variables  
Lecture 24 - Constrained Minimization And Lagrange Multiplier Rules  
Lecture 25 - Infinite Series-1  
Lecture 26 - Infinite Series-2  
Lecture 27 - Infinite Series-3  
Lecture 28 - Multiple Integrals-1  
Lecture 29 - Multiple Integrals-2

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Lecture 30 - Multiple Integrals-3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Probability and Stochastics for finance

Subject Co-ordinator - Dr. Joydeep Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Probability

Lecture 2 - Interesting Problems In Probability

Lecture 3 - Random variables, distribution function and independence

Lecture 4 - Chebyshev inequality, Borel-Cantelli Lemmas and related issues

Lecture 5 - Law of Large Number and Central Limit Theorem

Lecture 6 - Conditional Expectation - I

Lecture 7 - Conditional Expectation - II

Lecture 8 - Martingales

Lecture 9 - Brownian Motion - I

Lecture 10 - Brownian Motion - II

Lecture 11 - Brownian Motion - III

Lecture 12 - Ito Integral - I

Lecture 13 - Ito Integral - II

Lecture 14 - Ito Calculus - I

Lecture 15 - Ito Calculus - II

Lecture 16 - Ito Integral In Higher Dimension

Lecture 17 - Application to Ito Integral - I

Lecture 18 - Application to Ito Integral - II

Lecture 19 - Black Scholes Formula - I

Lecture 20 - Black Scholes Formula - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Differential Calculus in Several Variables

Subject Co-ordinator - Prof. Sudipta Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Several Variables and Notion Of distance in  $R^n$
- Lecture 2 - Countinuity And Compactness
- Lecture 3 - Countinuity And Connectdness
- Lecture 4 - Derivatives
- Lecture 5 - Matrix Of Linear Transformation
- Lecture 6 - Examples for Differentiable function
- Lecture 7 - Sufficient condition of differentiability
- Lecture 8 - Chain Rule
- Lecture 9 - Mean Value Theorem
- Lecture 10 - Higher Order Derivatives
- Lecture 11 - Taylor's Formula
- Lecture 12 - Maximum And Minimum
- Lecture 13 - Second derivative test for maximum, minimum and saddle point
- Lecture 14 - We formalise the second derivative test discussed in Lecture 2 and do examples
- Lecture 15 - Specialisation to functions of two variables
- Lecture 16 - Implicit Function Theorem
- Lecture 17 - Implicit Function Theorem -a
- Lecture 18 - Application of IFT
- Lecture 19 - Application of IFT
- Lecture 20 - Application of IFT
- Lecture 21 - Application of IFT

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Curves and Surfaces

Subject Co-ordinator - Prof. Sudipta Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Level curves and locus, definition of parametric curves, tangent, arc length, arc length parameter
- Lecture 2 - How much a curve is  $\hat{A}$  curved $\hat{A}$ , signed unit normal and signed curvature, rigid motions, constant
- Lecture 3 - Curves in  $R^3$ , principal normal and binormal, torsion
- Lecture 4 - Frenet-Serret formula
- Lecture 5 - Simple closed curve and isoperimetric inequality
- Lecture 6 - Surfaces and parametric surfaces, examples, regular surface and non-example of regular surface, t
- Lecture 7 - Transition maps of smooth surfaces, smooth function between surfaces, diffeomorphism
- Lecture 8 - Reparameterization
- Lecture 9 - Tangent, Normal
- Lecture 10 - Orientable surfaces
- Lecture 11 - Examples of Surfaces
- Lecture 12 - First Fundamental Form
- Lecture 13 - Conformal Mapping
- Lecture 14 - Curvature of Surfaces
- Lecture 15 - Euler's Theorem
- Lecture 16 - Regular Surfaces locally as Quadratic Surfaces
- Lecture 17 - Geodesics
- Lecture 18 - Existence of Geodesics, Geodesics on Surfaces of revolution
- Lecture 19 - Geodesics on surfaces of revolution; Clairaut's Theorem
- Lecture 20 - Pseudosphere
- Lecture 21 - Classification of Quadratic Surface
- Lecture 22 - Surface Area and Equiareal Map

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Linear Regression Analysis and Forecasting

Subject Co-ordinator - Prof. Shalabh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Fundamental Concepts Of Modelling

Lecture 2 - Regression Model - A Statistical Tool

Lecture 3 - Simple Linear Regression Analysis

Lecture 4 - Estimation Of Parameters In Simple Linear Regression Model

Lecture 5 - Estimation Of Parameters In Simple Linear Regression Model (Continued...)

Lecture 6 - Estimation Of Parameters In Simple Linear Regression Model (Continued...)

Lecture 7 - Maximum Likelihood Estimation of Parameters in Simple Linear Regression Model

Lecture 8 - Testing of Hypothesis and Confidence Interval Estimation in Simple Linear Regression Model

Lecture 9 - Testing of Hypothesis and Confidence Interval Estimation in Simple Linear Regression Model (Continued...)

Lecture 10 - Software Implementation in Simple Linear Regression Model using MINITAB

Lecture 11 - Multiple Linear Regression Model

Lecture 12 - Estimation of Model Parameters in Multiple Linear Regression Model

Lecture 13 - Estimation of Model Parameters in Multiple Linear Regression Model (Continued...)

Lecture 14 - Standardized Regression Coefficients and Testing of Hypothesis

Lecture 15 - Testing of Hypothesis (Continued...) and Goodness of Fit of the Model

Lecture 16 - Diagnostics in Multiple Linear Regression Model

Lecture 17 - Diagnostics in Multiple Linear Regression Model (Continued...)

Lecture 18 - Diagnostics in Multiple Linear Regression Model (Continued...)

Lecture 19 - Software Implementation of Multiple Linear Regression Model using MINITAB

Lecture 20 - Software Implementation of Multiple Linear Regression Model using MINITAB (Continued...)

Lecture 21 - Forecasting in Multiple Linear Regression Model

Lecture 22 - Within Sample Forecasting

Lecture 23 - Outside Sample Forecasting

Lecture 24 - Software Implementation of Forecasting using MINITAB

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to R Software

Subject Co-ordinator - Prof. Shalabh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - How to Learn and Follow the Course

Lecture 2 - Why R and Installation Procedure

Lecture 3 - Introduction \_Help\_ Demo examples\_ packages\_ libraries

Lecture 4 - Introduction \_Command line\_ Data editor \_ Rstudio

Lecture 5 - Basics in Calculations

Lecture 6 - Basics of Calculations \_ Calculator \_Built in Functions Assignments

Lecture 7 - Basics of Calculations \_Functions \_Matrices

Lecture 8 - Basics Calculations

Lecture 9 - Basics Calculations

Lecture 10 - Basics Calculations

Lecture 11 - Basics Calculations

Lecture 12 - Basics Calculations

Lecture 13 - Basics Calculations

Lecture 14 - Basics Calculations

Lecture 15 - Data management - Sequences

Lecture 16 - Data management - sequences

Lecture 17 - Data management - Repeats

Lecture 18 - Data management - Sorting and Ordering

Lecture 19 - Data management - Lists

Lecture 20 - Data management - Lists (Continued...)

Lecture 21 - Data management - Vector indexing

Lecture 22 - Data management - Vector Indexing (Continued...)

Lecture 23 - Data management - Factors

Lecture 24 - Data management - factors (Continued...)

Lecture 25 - Strings - Display and Formatting, Print and Format Functions

Lecture 26 - Strings - Display and Formatting, Print and Format with Concatenate

Lecture 27 - Strings - Display and Formatting, Paste Function

Lecture 28 - Strings - Display and Formatting, Splitting

Lecture 29 - Strings - Display and Formatting, Replacement\_ Manipulations \_Alphabets

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strings - Display and Formatting, Replacement and Evaluation of Strings
- Lecture 31 - Data frames
- Lecture 32 - Data frames (Continued...)
- Lecture 33 - Data frames (Continued...)
- Lecture 34 - Data Handling - Importing CSV and Tabular Data Files
- Lecture 35 - Data Handling - Importing Data Files from Other Software
- Lecture 36 - Statistical Functions - Frequency and Partition values
- Lecture 37 - Statistical Functions - Graphics and Plots
- Lecture 38 - Statistical Functions - Central Tendency and Variation
- Lecture 39 - Statistical Functions - Boxplots, Skewness and Kurtosis
- Lecture 40 - Statistical Functions - Bivariate three dimensional plot
- Lecture 41 - Statistical Functions - Correlation and Examples of Programming
- Lecture 42 - Examples of Programming
- Lecture 43 - Examples of More Programming

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Descriptive Statistics with R Software

Subject Co-ordinator - Prof. Shalabh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to R Software
- Lecture 2 - Basics and R as a Calculator
- Lecture 3 - Calculations with Data Vectors
- Lecture 4 - Built-in Commands and Missing Data Handling
- Lecture 5 - Operations with Matrices
- Lecture 6 - Objectives, Steps and Basic Definitions
- Lecture 7 - Variables and Types of Data
- Lecture 8 - Absolute Frequency, Relative Frequency and Frequency Distribution
- Lecture 9 - Frequency Distribution and Cumulative Distribution Function
- Lecture 10 - Bar Diagrams
- Lecture 11 - Subdivided Bar Plots and Pie Diagrams
- Lecture 12 - 3D Pie Diagram and Histogram
- Lecture 13 - Kernel Density and Stem - Leaf Plots
- Lecture 14 - Arithmetic Mean
- Lecture 15 - Median
- Lecture 16 - Quantiles
- Lecture 17 - Mode, Geometric Mean and Harmonic Mean
- Lecture 18 - Range, Interquartile Range and Quartile Deviation
- Lecture 19 - Absolute Deviation and Absolute Mean Deviation
- Lecture 20 - Mean Squared Error, Variance and Standard Deviation
- Lecture 21 - Coefficient of Variation and Boxplots
- Lecture 22 - Raw and Central Moments
- Lecture 23 - Sheppard's Correction, Absolute Moments and Computation of Moments
- Lecture 24 - Skewness and Kurtosis
- Lecture 25 - Univariate and Bivariate Scatter Plots
- Lecture 26 - Smooth Scatter Plots
- Lecture 27 - Quantile-Quantile and Three Dimensional Plots
- Lecture 28 - Correlation Coefficient
- Lecture 29 - Correlation Coefficient Using R Software

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Rank Correlation Coefficient
- Lecture 31 - Measures of Association for Discrete and Counting Variables - Part 1
- Lecture 32 - Measures of Association for Discrete and Counting Variables - Part 2
- Lecture 33 - Least Squares Method - One Variable
- Lecture 34 - Least Squares Method - R Commands and More than One Variables

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Calculus of Several Real Variables

Subject Co-ordinator - Dr. Joydeep Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Vectors in plane and space
- Lecture 2 - Inner product and distance
- Lecture 3 - Application to real world problems
- Lecture 4 - Matrices and determinants
- Lecture 5 - Cross product of two vectors
- Lecture 6 - Higher dimensional Euclidean space
- Lecture 7 - Functions of more than one real-variable
- Lecture 8 - Partial derivatives and Continuity
- Lecture 9 - Vector-valued maps and Jacobian matrix
- Lecture 10 - Chain rule for partial derivatives
- Lecture 11 - The Gradient Vector and Directional Derivative
- Lecture 12 - The Implicit Function Theorem
- Lecture 13 - Higher Order Partial Derivatives
- Lecture 14 - Taylor's Theorem in Higher Dimension
- Lecture 15 - Maxima and Minima for Several Variables
- Lecture 16 - Second Derivative Test for Maximum and Minimum
- Lecture 17 - Constrained Optimization and The Lagrange Multiplier Rule
- Lecture 18 - Vector Valued Function and Classical Mechanics
- Lecture 19 - Arc Length
- Lecture 20 - Vector Fields
- Lecture 21 - Multiple Integral - I
- Lecture 22 - Multiple Integral - II
- Lecture 23 - Multiple Integral - III
- Lecture 24 - Multiple Integral - IV
- Lecture 25 - Cylindrical and Spherical Coordinates
- Lecture 26 - Multiple Integrals and Mechanics
- Lecture 27 - Line Integral - I
- Lecture 28 - Line Integral - II
- Lecture 29 - Parametrized Surfaces

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- Lecture 30 - Area of a surface Integral
- Lecture 31 - Area of parametrized surface
- Lecture 32 - Surface Integrals
- Lecture 33 - Green's Theorem
- Lecture 34 - Stoke's Theorem
- Lecture 35 - Examples of Stoke's Theorem
- Lecture 36 - Gauss Divergence Theorem
- Lecture 37 - Facts about vector fields

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Linear Algebra (Prof. A.K. Lal)

Subject Co-ordinator - Prof. A.K. Lal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Notations, Motivation and Definition
- Lecture 2 - Matrix: Examples, Transpose and Addition
- Lecture 3 - Matrix Multiplication
- Lecture 4 - Matrix Product Recalled
- Lecture 5 - Matrix Product (Continued...)
- Lecture 6 - Inverse of a Matrix
- Lecture 7 - Introduction to System of Linear Equations
- Lecture 8 - Some Initial Results on Linear Systems
- Lecture 9 - Row Echelon Form (REF)
- Lecture 10 - LU Decomposition - Simplest Form
- Lecture 11 - Elementary Matrices
- Lecture 12 - Row Reduced Echelon Form (RREF)
- Lecture 13 - Row Reduced Echelon Form (RREF) (Continued...)
- Lecture 14 - RREF and Inverse
- Lecture 15 - Rank of a matrix
- Lecture 16 - Solution Set of a System of Linear Equations
- Lecture 17 - System of n Linear Equations in n Unknowns
- Lecture 18 - Determinant
- Lecture 19 - Permutations and the Inverse of a Matrix
- Lecture 20 - Inverse and the Cramer's Rule
- Lecture 21 - Vector Spaces
- Lecture 22 - Vector Subspaces and Linear Span
- Lecture 23 - Linear Combination, Linear Independence and Dependence
- Lecture 24 - Basic Results on Linear Independence
- Lecture 25 - Results on Linear Independence (Continued...)
- Lecture 26 - Basis of a Finite Dimensional Vector Space
- Lecture 27 - Fundamental Spaces associated with a Matrix
- Lecture 28 - Rank - Nullity Theorem
- Lecture 29 - Fundamental Theorem of Linear Algebra

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Definition and Examples of Linear Transformations
- Lecture 31 - Results on Linear Transformations
- Lecture 32 - Rank-Nullity Theorem and Applications
- Lecture 33 - Isomorphism of Vector Spaces
- Lecture 34 - Ordered Basis of a Finite Dimensional Vector Space
- Lecture 35 - Ordered Basis (Continued...)
- Lecture 36 - Matrix of a Linear Transformation
- Lecture 37 - Matrix of a Linear Transformation (Continued...)
- Lecture 38 - Matrix of a Linear Transformation (Continued...)
- Lecture 39 - Similarity of Matrices
- Lecture 40 - Inner Product Space
- Lecture 41 - Inner Product (Continued...)
- Lecture 42 - Cauchy Schwartz Inequality
- Lecture 43 - Projection on a Vector
- Lecture 44 - Results on Orthogonality
- Lecture 45 - Results on Orthogonality (Continued...)
- Lecture 46 - Gram-Schmidt Orthonormalization Process
- Lecture 47 - Orthogonal Projections
- Lecture 48 - Gram-Schmidt Process: Applications
- Lecture 49 - Examples and Applications on QR-decomposition
- Lecture 50 - Recapitulate ideas on Inner Product Spaces
- Lecture 51 - Motivation on Eigenvalues and Eigenvectors
- Lecture 52 - Examples and Introduction to Eigenvalues and Eigenvectors
- Lecture 53 - Results on Eigenvalues and Eigenvectors
- Lecture 54 - Results on Eigenvalues and Eigenvectors (Continued...)
- Lecture 55 - Results on Eigenvalues and Eigenvectors (Continued...)
- Lecture 56 - Diagonalizability
- Lecture 57 - Diagonalizability (Continued...)
- Lecture 58 - Schur's Unitary Triangularization (SUT)
- Lecture 59 - Applications of Schur's Unitary Triangularization
- Lecture 60 - Spectral Theorem for Hermitian Matrices
- Lecture 61 - Cayley Hamilton Theorem
- Lecture 62 - Quadratic Forms
- Lecture 63 - Sylvester's Law of Inertia
- Lecture 64 - Applications of Quadratic Forms to Analytic Geometry
- Lecture 65 - Examples of Conics and Quartics
- Lecture 66 - Singular Value Decomposition (SVD)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Computational Number Theory and Algebra

Subject Co-ordinator - Prof. Nitin Saxena

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Background
- Lecture 3 - GCD algorithm and Chinese Remainder Theorem
- Lecture 4 - Fast polynomial multiplication
- Lecture 5 - Fast polynomial multiplication (Continued...)
- Lecture 6 - Fast integer multiplication and division
- Lecture 7 - Fast integer arithmetic and matrix multiplication
- Lecture 8 - Matrix Multiplication Tensor
- Lecture 9 - Polynomial factoring over finite fields
- Lecture 10 - Equi-degree factorization and idea of Berlekamp's algorithm
- Lecture 11 - Berlekamp's algorithm as a reduction method
- Lecture 12 - Factoring over finite fields
- Lecture 13 - Reed Solomon Error Correcting Codes
- Lecture 14 - List Decoding
- Lecture 15 - Bivariate Factorization - Hensel Lifting
- Lecture 16 - Bivariate polynomial factoring (Continued...)
- Lecture 17 - Multivariate Polynomial Factorization
- Lecture 18 - Multivariate Factoring - Hilbert's Irreducibility Theorem
- Lecture 19 - Multivariate factoring (Continued...)
- Lecture 20 - Analysis of LLL algorithm
- Lecture 21 - Analysis of LLL algorithm (Continued...)
- Lecture 22 - Analysis of LLL-reduced basis algorithm and Introduction to NTRU cryptosystem
- Lecture 23 - NTRU cryptosystem (Continued...) and Introduction to Primality testing
- Lecture 24 - Randomized Primality testing
- Lecture 25 - Deterministic primality test (AKS) and RSA cryptosystem
- Lecture 26 - Integer factoring
- Lecture 27 - Pollard's  $p-1$ , Fermat, Morrison-Brillhart, Quadratic and Number field sieve methods

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Basic Calculus 1 and 2

Subject Co-ordinator - Prof. Parasar Mohanty

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Real numbers and Archimedean property
- Lecture 2 - Supremum and Decimal representation of Reals
- Lecture 3 - Functions
- Lecture 4 - Functions continued and Limits
- Lecture 5 - Limits (Continued...)
- Lecture 6 - Limits (Continued...) and Continuity
- Lecture 7 - Continuity and Intermediate Value Property
- Lecture 8 - Differentiation
- Lecture 9 - Chain Rule
- Lecture 10 - Nth derivative of a function
- Lecture 11 - Local extrema and Rolle's theorem
- Lecture 12 - Mean value theorem and Monotone functions
- Lecture 13 - Local extremum tests
- Lecture 14 - Concavity and points of inflection
- Lecture 15 - Asymptotes and plotting graph of functions
- Lecture 16 - Optimization and L'Hospital Rule
- Lecture 17 - L'Hospital Rule continued and Cauchy Mean value theorem
- Lecture 18 - Approximation of Roots
- Lecture 19 - Antiderivative and Riemann Integration
- Lecture 20 - Riemann's criterion for Integrability
- Lecture 21 - Integration and its properties
- Lecture 22 - Area and Mean value theorem for integrals
- Lecture 23 - Fundamental theorem of Calculus
- Lecture 24 - Integration by parts and Trapezoidal rule
- Lecture 25 - Simpson's rule and Substitution in integrals
- Lecture 26 - Area between curves
- Lecture 27 - Arc Length and Parametric curves
- Lecture 28 - Polar Co-ordinates
- Lecture 29 - Area of curves in polar coordinates

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- Lecture 30 - Volume of solids
- Lecture 31 - Improper Integrals
- Lecture 32 - Sequences
- Lecture 33 - Algebra of sequences and Sandwich theorem
- Lecture 34 - Subsequences
- Lecture 35 - Series
- Lecture 36 - Comparison tests for Series
- Lecture 37 - Ratio and Root test for series
- Lecture 38 - Integral test and Leibniz test for series
- Lecture 39 - Revision - I
- Lecture 40 - Revision - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Advanced Partial Differential Equations

Subject Co-ordinator - Prof. Kaushik Bal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Essentials of Data Science With R Software 1: Probability and Statistics

Subject Co-ordinator - Prof. Shalabh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Data Science - Why, What, and How?

Lecture 2 - Installation and Working with R

Lecture 3 - Installation and Working with R Studio

Lecture 4 - Calculations with R as a Calculator

Lecture 5 - Calculations with Data Vectors

Lecture 6 - Built-in Commands and Bivariate Plots

Lecture 7 - Logical Operators and Selection of Sample

Lecture 8 - Introduction to Probability

Lecture 9 - Sample Space and Events

Lecture 10 - Set Theory and Events using Venn Diagrams

Lecture 11 - Relative Frequency and Probability

Lecture 12 - Probability and Relative Frequency - An Example

Lecture 13 - Axiomatic Definition of Probability

Lecture 14 - Some Rules of Probability

Lecture 15 - Basic Principles of Counting - Ordered Set, Unordered Set, and Permutations

Lecture 16 - Basic Principles of Counting - Combination

Lecture 17 - Conditional Probability

Lecture 18 - Multiplication Theorem of Probability

Lecture 19 - Bayes' Theorem

Lecture 20 - Independent Events

Lecture 21 - Computation of Probability using R

Lecture 22 - Random Variables - Discrete and Continuous

Lecture 23 - Cumulative Distribution and Probability Density Function

Lecture 24 - Discrete Random Variables, Probability Mass Function and Cumulative Distribution Function

Lecture 25 - Expectation of Variables

Lecture 26 - Moments and Variance

Lecture 27 - Data Based Moments and Variance in R Software

Lecture 28 - Skewness and Kurtosis

Lecture 29 - Quantiles and Tschebyschev's Inequality

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- Lecture 30 - Degenerate and Discrete Uniform Distributions
- Lecture 31 - Discrete Uniform Distribution in R
- Lecture 32 - Bernoulli and Binomial Distribution
- Lecture 33 - Binomial Distribution in R
- Lecture 34 - Poisson Distribution
- Lecture 35 - Poisson Distribution in R
- Lecture 36 - Geometric Distribution
- Lecture 37 - Geometric Distribution in R
- Lecture 38 - Continuous Random Variables and Uniform Distribution
- Lecture 39 - Normal Distribution
- Lecture 40 - Normal Distribution in R
- Lecture 41 - Normal Distribution - More Results
- Lecture 42 - Exponential Distribution
- Lecture 43 - Bivariate Probability Distribution for Discrete Random Variables
- Lecture 44 - Bivariate Probability Distribution in R Software
- Lecture 45 - Bivariate Probability Distribution for Continuous Random Variables
- Lecture 46 - Examples in Bivariate Probability Distribution Functions
- Lecture 47 - Covariance and Correlation
- Lecture 48 - Covariance and Correlation  $\hat{a}$  • Examples and R Software
- Lecture 49 - Bivariate Normal Distribution
- Lecture 50 - Chi square Distribution
- Lecture 51 - t-Distribution
- Lecture 52 - F-Distribution
- Lecture 53 - Distribution of Sample Mean, Convergence in Probability and Weak Law of Large Numbers
- Lecture 54 - Central Limit Theorem
- Lecture 55 - Needs for Drawing Statistical Inferences
- Lecture 56 - Unbiased Estimators
- Lecture 57 - Efficiency of Estimators
- Lecture 58 - Cram r Rao Lower Bound and Efficiency of Estimators
- Lecture 59 - Consistency and Sufficiency of Estimators
- Lecture 60 - Method of Moments
- Lecture 61 - Method of Maximum Likelihood and Rao Blackwell Theorem
- Lecture 62 - Basic Concepts of Confidence Interval Estimation
- Lecture 63 - Confidence Interval for Mean in One Sample with Known Variance
- Lecture 64 - Confidence Interval for Mean and Variance
- Lecture 65 - Basics of Tests of Hypothesis and Decision Rules
- Lecture 66 - Test Procedures for One Sample Test for Mean with Known Variance
- Lecture 67 - One Sample Test for Mean with Unknown Variance
- Lecture 68 - Two Sample Test for Mean with Known and Unknown Variances

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Test of Hypothesis for Variance in One and Two Samples

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Essentials of Data Science With R Software 2: Sampling Theory and Line

Subject Co-ordinator - Prof. Shalabh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is Data Science ?

Lecture 2 - Installation and Working with R

Lecture 3 - Calculations with R as a Calculator

Lecture 4 - Calculations with Data Vectors

Lecture 5 - Built-in Commands and Missing Data Handling

Lecture 6 - Operations with Matrices

Lecture 7 - Data Handling

Lecture 8 - Graphics and Plots

Lecture 9 - Sampling, Sampling Unit, Population and Sample

Lecture 10 - Terminologies and Concepts

Lecture 11 - Ensuring Representativeness and Type of Surveys

Lecture 12 - Conducting Surveys and Ensuring Representativeness

Lecture 13 - SRSWOR, SRSWR, and Selection of Unit - 1

Lecture 14 - SRSWOR, SRSWR, and Selection of Unit - 2

Lecture 15 - Probabilities of Selection of Samples

Lecture 16 - SRSWOR and SRSWR with R with sample Package

Lecture 17 - Examples of SRS with R using sample Package

Lecture 18 - Simple Random Sampling : SRS with R using sampling and sample Packages

Lecture 19 - Simple Random Sampling : Estimation of Population Mean

Lecture 20 - Simple Random Sampling : Estimation of Population Variance

Lecture 21 - Simple Random Sampling : Estimation of Population Variance

Lecture 22 - SRS: Confidence Interval Estimation of Population Mean

Lecture 23 - SRS: Estimation of Mean, Variance and Confidence Interval in SRSWOR using R

Lecture 24 - SRS: Estimation of Mean, Variance and Confidence Interval in SRSWR using R

Lecture 25 - Sampling for Proportions and Percentages : Basic Concepts

Lecture 26 - Sampling for Proportions and Percentages : Mean and Variance of Sample Proportion

Lecture 27 - Sampling for Proportions and Percentages : Sampling for Proportions with R

Lecture 28 - Stratified Random Sampling : Drawing the Sample and Sampling Procedure

Lecture 29 - Stratified Random Sampling : Estimation of Population Mean, Population Variance and Confidence Interval

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- Lecture 30 - Stratified Random Sampling : Sample Allocation and Variances Under Allocation
- Lecture 31 - Stratified Random Sampling : Drawing of Sample Using sampling and strata Packages in R
- Lecture 32 - Stratified Random Sampling : Drawing of Sample Using survey Package in R
- Lecture 33 - Bootstrap Methodology : What is Bootstrap and Methodology
- Lecture 34 - Bootstrap Methodology : EDF, Bootstrap Bias and Bootstrap Standard Errors
- Lecture 35 - Bootstrap Methodology : Bootstrap Analysis Using boot Package in R
- Lecture 36 - Bootstrap Methodology : Bootstrap Confidence Interval
- Lecture 37 - Bootstrap Methodology : Bootstrap Confidence Interval Using boot and bootstrap Packages in R
- Lecture 38 - Bootstrap Methodology : Example of Bootstrap Analysis Using boot Package
- Lecture 39 - Introduction to Linear Models and Regression : Introduction and Basic Concepts
- Lecture 40 - Simple Linear Regression Analysis : Basic Concepts and Least Squares Estimation
- Lecture 41 - Simple Linear Regression Analysis : Fitting Linear Model With R Software
- Lecture 42 - Simple Linear Regression Analysis : Properties of Least Squares Estimators
- Lecture 43 - Simple Linear Regression Analysis : Maximum Likelihood and Confidence Interval Estimation
- Lecture 44 - Simple Linear Regression Analysis : Test of Hypothesis and Confidence Interval Estimation With R
- Lecture 45 - Multiple Linear Regression Analysis : Basic Concepts
- Lecture 46 - Multiple Linear Regression Analysis : OLSE, Fitted Model and Residuals
- Lecture 47 - Multiple Linear Regression Analysis : Model Fitting With R Software
- Lecture 48 - Multiple Linear Regression Analysis : Properties of OLSE and Maximum Likelihood Estimation
- Lecture 49 - Multiple Linear Regression Analysis : Test of Hypothesis and Confidence Interval Estimation on I
- Lecture 50 - Analysis of Variance and Implementation in R Software
- Lecture 51 - Goodness of Fit and Implementation in R Software
- Lecture 52 - Variable Selection using LASSO Regression : Introduction and Basic Concepts
- Lecture 53 - Variable Selection using LASSO Regression : LASSO with R

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Measure Theoretic Probability 1

Subject Co-ordinator - Prof. Suprio Bhar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the course Measure Theoretic Probability 1

Lecture 2 - Sigma-fields and Measurable spaces

Lecture 3 - Fields and Generating sets for Sigma-fields

Lecture 4 - Borel Sigma-field on  $\mathbb{R}$  and other sets

Lecture 5 - Limits of sequences of sets and Monotone classes

Lecture 6 - Measures and Measure spaces

Lecture 7 - Probability Measures

Lecture 8 - Properties of Measures - I

Lecture 9 - Properties of Measures - II

Lecture 10 - Properties of Measures - III

Lecture 11 - Measurable functions

Lecture 12 - Borel Measurable functions

Lecture 13 - Algebraic properties of Measurable functions

Lecture 14 - Limiting behaviour of measurable functions

Lecture 15 - Random Variables and Random Vectors

Lecture 16 - Law or Distribution of an RV

Lecture 17 - Distribution Function of an RV

Lecture 18 - Decomposition of Distribution functions

Lecture 19 - Construction of RVs with a specified law

Lecture 20 - Caratheodery Extension Theorem

Lecture 21 - From Distribution Functions to Probability Measures - I

Lecture 22 - From Distribution Functions to Probability Measures - II

Lecture 23 - Lebesgue-Stieltjes Measures

Lecture 24 - Properties of Lebesgue Measure on  $\mathbb{R}$

Lecture 25 - Distribution Functions and Probability Measures in higher dimensions

Lecture 26 - Integration of measurable functions

Lecture 27 - Properties of Measure Theoretic Integration - I

Lecture 28 - Properties of Measure Theoretic Integration - II

Lecture 29 - Monotone Convergence Theorem

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Computation of Expectation for Discrete RVs
- Lecture 31 - MCT and the Linearity of Measure Theoretic Integration
- Lecture 32 - Sets of measure zero and Measure Theoretic Integration
- Lecture 33 - Fatou's Lemma and Dominated Convergence Theorem
- Lecture 34 - Riemann and Lebesgue integration
- Lecture 35 - Computations involving Lebesgue Integration
- Lecture 36 - Decomposition of Measures
- Lecture 37 - Absolutely Continuous RVs
- Lecture 38 - Expectation of Absolutely Continuous RVs
- Lecture 39 - Inequalities involving moments of RVs
- Lecture 40 - Conclusion to the course Measure Theoretic Probability 1

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Foundations of R Software

Subject Co-ordinator - Prof. Shalabh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

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Lecture 53

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Foundations of R Software (In Hindi)

Subject Co-ordinator - Prof. Shalabh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:An Introduction to Hyperbolic Geometry

Subject Co-ordinator - Prof. Abhijit Pal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:A Primer to Mathematical Optimization

Subject Co-ordinator - Prof. Debdas Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and History of Optimization
- Lecture 2 - Basics of Linear Algebra
- Lecture 3 - Definiteness of Matrices
- Lecture 4 - Sets in  $\mathbb{R}^n$
- Lecture 5 - Limit Superior and Limit Inferior
- Lecture 6 - Order of Convergence
- Lecture 7 - Lipschitz and Uniform Continuity
- Lecture 8 - Partial and Directional Derivatives and Differentiability (8,9)
- Lecture 9 - Taylor's Theorem
- Lecture 10 - Convex Sets and Convexity Preserving Operations
- Lecture 11 - Separation Results
- Lecture 12 - Theorems of Alternatives (13 and 14)
- Lecture 13 - Convex Functions
- Lecture 14 - Properties and Zeroth Order Characterization of Convex Function
- Lecture 15 - First-Order and Second-Order Characterization of Convex Functions
- Lecture 16 - Convexity Preserving Operations
- Lecture 17 - Optimality and Coerciveness
- Lecture 18 - First-Order Optimality Condition (20 Part 1)
- Lecture 19 - Second-Order Optimality Condition (20 Part 2)
- Lecture 20 - General Structure of Unconstrained Optimization Algorithms
- Lecture 21 - Inexact Line Search
- Lecture 22 - Global Convergence of Descent Methods (23,24)
- Lecture 23 - Where Do Descent Methods Converge?
- Lecture 24 - Scaling of Variables
- Lecture 25 - Practical Stopping Criteria
- Lecture 26 - Steepest Descent Method (28,29)
- Lecture 27 - Newton's Method (30,31,32)
- Lecture 28 - Quasi Newton Methods (33,34,35)
- Lecture 29 - Conjugate Direction Methods (36,37)

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- Lecture 30 - Trust Region Methods - Part I
- Lecture 31 - Trust Region Methods - Part II
- Lecture 32 - A Revisit to Lagrange Multipliers Method
- Lecture 33 - Special Cones for Constrained Optimization
- Lecture 34 - Tangent Cone
- Lecture 35 - First-Order KKT Optimality Conditions (42,43)
- Lecture 36 - Second-Order KKT Optimality Conditions
- Lecture 37 - Constraint Qualifications
- Lecture 38 - Lagrangian Duality Theory (46 to 50)
- Lecture 39 - Methods for Linearly Constrained Problems (51,52,53)
- Lecture 40 - Interior-Point Method for QPP
- Lecture 41 - Penalty Methods
- Lecture 42 - Sequential Quadratic Programming Method

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Measure Theoretic Probability 2

Subject Co-ordinator - Prof. Suprio Bhar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

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Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Set Theory and Mathematical Logic

Subject Co-ordinator - Prof. Amit Kuber

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Set Theory
- Lecture 2 - Operations on Sets, and Functions
- Lecture 3 - Bijective Functions
- Lecture 4 - Equivalence Relations and Partitions
- Lecture 5 - Cantor-Schroder-Bernstein Theorem
- Lecture 6 - Natural Numbers in ZF Set Theory
- Lecture 7 - Standard Number Systems in ZF Set Theory
- Lecture 8 - (Finitary) Power Sets and Countability
- Lecture 9 - Bijections of the set of real numbers: Dedekind cut and Cantor's middle-third set
- Lecture 10 - Bijections of the real numbers: Continued Fractions
- Lecture 11 - Principles of Mathematical Induction
- Lecture 12 - Ordinal Numbers
- Lecture 13 - Ordinal Arithmetic
- Lecture 14 - Cardinal Numbers and Cardinal Arithmetic
- Lecture 15 - Tutorial - Week 4
- Lecture 16 - Partial Orders
- Lecture 17 - Lattices
- Lecture 18 - Equivalentents of the Axiom of Choice (AC): Zorn's Lemma (ZL) and Well-ordering theorem (WOT)
- Lecture 19 - Tutorial - Week 5
- Lecture 20 - Boolean Algebras
- Lecture 21 - Stone's Representation Theorems for Boolean Algebras
- Lecture 22 - Some Exercises on Boolean Algebras
- Lecture 23 - Ultrafilters in Boolean Algebras
- Lecture 24 - Introduction to Mathematical Logic
- Lecture 25 - Propositional Logic: Language, Formulas and Valuations
- Lecture 26 - Propositional Logic: Logical Equivalence and Lindenbaum-Tarski Algebra
- Lecture 27 - Tutorial - Week 7
- Lecture 28 - Propositional Logic: Normal Forms of Formulas and Adequacy of Connectives
- Lecture 29 - Propositional Logic: Semantic Consequence Relation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Propositional Logic: Syntactic Consequence Relation
- Lecture 31 - Deduction Theorem (Continued...)
- Lecture 32 - Tutorial - Week 8
- Lecture 33 - Propositional Logic: Consistency and Soundness Theorem
- Lecture 34 - Propositional Logic: Completeness Theorem - Part I
- Lecture 35 - Propositional Logic: Completeness Theorem - Part II
- Lecture 36 - Compactness Theorem and Konig's Lemma
- Lecture 37 - Tutorial - Week 9
- Lecture 38 - Introduction to First-Order Predicate Logic
- Lecture 39 - Predicate Logic: Terms and Formulas
- Lecture 40 - Predicate Logic: Validity of Formulas
- Lecture 41 - Tutorial - Week 10
- Lecture 42 - Predicate Logic Substructures, Semantic Consequence Relation, and Models of Theories
- Lecture 43 - Predicate Logic: Standard Logical Equivalences, Normal Forms, and Definable Sets
- Lecture 44 - Tutorial - Week 11
- Lecture 45 - Hyperreal Numbers
- Lecture 46 - Predicate Logic: Ultraproduct of Structures and Los's Theorem
- Lecture 47 - Predicate Logic: Compactness Theorem
- Lecture 48 - Tutorial - Week 12
- Lecture 49 - Predicate Logic: Lowenheim-Skolem Theorems
- Lecture 50 - Predicate Logic: Reduced Products, Categoricity
- Lecture 51 - Predicate Logic: Categoricity (Continued...) and Quantifier Elimination
- Lecture 52 - Godel's Incompleteness Theorems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Advanced Engineering Mathematics

Subject Co-ordinator - Dr. P. Panigrahi, Prof. J. Kumar, Prof. P.D. Srivastava, Prof. Somesh Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review Groups, Fields and Matrices
- Lecture 2 - Vector Spaces, Subspaces, Linearly Dependent/Independent of Vectors
- Lecture 3 - Basis, Dimension, Rank and Matrix Inverse
- Lecture 4 - Linear Transformation, Isomorphism and Matrix Representation
- Lecture 5 - System of Linear Equations, Eigenvalues and Eigenvectors
- Lecture 6 - Method to Find Eigenvalues and Eigenvectors, Diagonalization of Matrices
- Lecture 7 - Jordan Canonical Form, Cayley Hamilton Theorem
- Lecture 8 - Inner Product Spaces, Cauchy-Schwarz Inequality
- Lecture 9 - Orthogonality, Gram-Schmidt Orthogonalization Process
- Lecture 10 - Spectrum of special matrices, positive/negative definite matrices
- Lecture 11 - Concept of Domain, Limit, Continuity and Differentiability
- Lecture 12 - Analytic Functions, C-R Equations
- Lecture 13 - Harmonic Functions
- Lecture 14 - Line Integral in the Complex
- Lecture 15 - Cauchy Integral Theorem
- Lecture 16 - Cauchy Integral Theorem (Continued.)
- Lecture 17 - Cauchy Integral Formula
- Lecture 18 - Power and Taylor's Series of Complex Numbers
- Lecture 19 - Power and Taylor's Series of Complex Numbers (Continued.)
- Lecture 20 - Taylor's, Laurent Series of  $f(z)$  and Singularities
- Lecture 21 - Classification of Singularities, Residue and Residue Theorem
- Lecture 22 - Laplace Transform and its Existence
- Lecture 23 - Properties of Laplace Transform
- Lecture 24 - Evaluation of Laplace and Inverse Laplace Transform
- Lecture 25 - Applications of Laplace Transform to Integral Equations and ODEs
- Lecture 26 - Applications of Laplace Transform to PDEs
- Lecture 27 - Fourier Series
- Lecture 28 - Fourier Series (Continued.)
- Lecture 29 - Fourier Integral Representation of a Function

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Fourier Transform
- Lecture 31 - Applications of Fourier Transform to PDEs
- Lecture 32 - Laws of Probability - I
- Lecture 33 - Laws of Probability - II
- Lecture 34 - Problems in Probability
- Lecture 35 - Random Variables
- Lecture 36 - Special Discrete Distributions
- Lecture 37 - Special Continuous Distributions
- Lecture 38 - Joint Distributions and Sampling Distributions
- Lecture 39 - Point Estimation
- Lecture 40 - Interval Estimation
- Lecture 41 - Basic Concepts of Testing of Hypothesis
- Lecture 42 - Tests for Normal Populations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Functional Analysis

Subject Co-ordinator - Prof. P.D. Srivastava

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Metric Spaces with Examples
- Lecture 2 - Holder Inequality and Minkowski Inequality
- Lecture 3 - Various Concepts in a Metric Space
- Lecture 4 - Separable Metrics Spaces with Examples
- Lecture 5 - Convergence, Cauchy Sequence, Completeness
- Lecture 6 - Examples of Complete and Incomplete Metric Spaces
- Lecture 7 - Completion of Metric Spaces + Tutorial
- Lecture 8 - Vector Spaces with Examples
- Lecture 9 - Normed Spaces with Examples
- Lecture 10 - Banach Spaces and Schauder Basis
- Lecture 11 - Finite Dimensional Normed Spaces and Subspaces
- Lecture 12 - Compactness of Metric/Normed Spaces
- Lecture 13 - Linear Operators-definition and Examples
- Lecture 14 - Bounded Linear Operators in a Normed Space
- Lecture 15 - Bounded Linear Functionals in a Normed Space
- Lecture 16 - Concept of Algebraic Dual and Reflexive Space
- Lecture 17 - Dual Basis & Algebraic Reflexive Space
- Lecture 18 - Dual Spaces with Examples
- Lecture 19 - Tutorial - I
- Lecture 20 - Tutorial - II
- Lecture 21 - Inner Product & Hilbert Space
- Lecture 22 - Further Properties of Inner Product Spaces
- Lecture 23 - Projection Theorem, Orthonormal Sets and Sequences
- Lecture 24 - Representation of Functionals on a Hilbert Spaces
- Lecture 25 - Hilbert Adjoint Operator
- Lecture 26 - Self Adjoint, Unitary & Normal Operators
- Lecture 27 - Tutorial - III
- Lecture 28 - Annihilator in an IPS
- Lecture 29 - Total Orthonormal Sets And Sequences

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Partially Ordered Set and Zorns Lemma
- Lecture 31 - Hahn Banach Theorem for Real Vector Spaces
- Lecture 32 - Hahn Banach Theorem for Complex V.S. & Normed Spaces
- Lecture 33 - Baires Category & Uniform Boundedness Theorems
- Lecture 34 - Open Mapping Theorem
- Lecture 35 - Closed Graph Theorem
- Lecture 36 - Adjoint Operator
- Lecture 37 - Strong and Weak Convergence
- Lecture 38 - Convergence of Sequence of Operators and Functionals
- Lecture 39 - LP - Space
- Lecture 40 - LP - Space (Continued.)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Numerical methods of Ordinary and Partial Differential Equations

Subject Co-ordinator - Dr. G.P. Raja Sekhar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation with few Examples
- Lecture 2 - Single - Step Methods for IVPs
- Lecture 3 - Analysis of Single Step Methods
- Lecture 4 - Runge - Kutta Methods for IVPs
- Lecture 5 - Higher Order Methods/Equations
- Lecture 6 - Error - Stability - Convergence of Single Step Methods
- Lecture 7 - Tutorial - I
- Lecture 8 - Tutorial - II
- Lecture 9 - Multi-Step Methods (Explicit)
- Lecture 10 - Multi-Step Methods (Implicit)
- Lecture 11 - Convergence and Stability of multi step methods
- Lecture 12 - General methods for absolute stability
- Lecture 13 - Stability Analysis of Multi Step Methods
- Lecture 14 - Predictor - Corrector Methods
- Lecture 15 - Some Comments on Multi - Step Methods
- Lecture 16 - Finite Difference Methods - Linear BVPs
- Lecture 17 - Linear/Non - Linear Second Order BVPs
- Lecture 18 - BVPS - Derivative Boundary Conditions
- Lecture 19 - Higher Order BVPs
- Lecture 20 - Shooting Method BVPs
- Lecture 21 - Tutorial - III
- Lecture 22 - Introduction to First Order PDE
- Lecture 23 - Introduction to Second Order PDE
- Lecture 24 - Finite Difference Approximations to Parabolic PDEs
- Lecture 25 - Implicit Methods for Parabolic PDEs
- Lecture 26 - Consistency, Stability and Convergence
- Lecture 27 - Other Numerical Methods for Parabolic PDEs
- Lecture 28 - Tutorial - IV
- Lecture 29 - Matrix Stability Analysis of Finite Difference Scheme

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fourier Series Stability Analysis of Finite Difference Scheme
- Lecture 31 - Finite Difference Approximations to Elliptic PDEs - I
- Lecture 32 - Finite Difference Approximations to Elliptic PDEs - II
- Lecture 33 - Finite Difference Approximations to Elliptic PDEs - III
- Lecture 34 - Finite Difference Approximations to Elliptic PDEs - IV
- Lecture 35 - Finite Difference Approximations to Hyperbolic PDEs - I
- Lecture 36 - Finite Difference Approximations to Hyperbolic PDEs - II
- Lecture 37 - Method of characteristics for Hyperbolic PDEs - I
- Lecture 38 - Method of characteristics for Hyperbolic PDEs - II
- Lecture 39 - Finite Difference Approximations to 1st order Hyperbolic PDEs
- Lecture 40 - Summary, Appendices, Remarks

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Optimization

Subject Co-ordinator - Prof. A. Goswami, Dr. Debjani Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Optimization - Introduction

Lecture 2 - Formulation of LPP

Lecture 3 - Geometry of LPP and Graphical Solution of LPP

Lecture 4 - Solution of LPP

Lecture 5 - Big - M Method

Lecture 6 - Two - Phase Method

Lecture 7 - Special Cases in Simple Applications

Lecture 8 - Introduction to Duality Theory

Lecture 9 - Dual Simplex Method

Lecture 10 - Post Optimality Analysis

Lecture 11 - Integer Programming - I

Lecture 12 - Integer Programming - II

Lecture 13 - Introduction to Transportation Problems

Lecture 14 - Solving Various types of Transportation Problems

Lecture 15 - Assignment Problems

Lecture 16 - Project Management

Lecture 17 - Critical Path Analysis

Lecture 18 - PERT

Lecture 19 - Shortest Path Algorithm

Lecture 20 - Travelling Salesman Problem

Lecture 21 - Classical optimization techniques

Lecture 22 - Unconstrained multivariable optimization

Lecture 23 - Nonlinear programming with equality constraint

Lecture 24 - Nonlinear programming KKT conditions

Lecture 25 - Numerical optimization

Lecture 26 - Numerical optimization

Lecture 27 - Fibonacci Method

Lecture 28 - Golden Section Methods

Lecture 29 - Interpolation Methods

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Unconstrained optimization techniques
- Lecture 31 - Unconstrained optimization techniques
- Lecture 32 - Nonlinear programming
- Lecture 33 - Interior and Exterior penalty Function Method
- Lecture 34 - Separable Programming Problem
- Lecture 35 - Introduction to Geometric Programming
- Lecture 36 - Constrained Geometric Programming Problem
- Lecture 37 - Dynamic Programming Problem
- Lecture 38 - Dynamic Programming Problem (Continued.)
- Lecture 39 - Multi Objective Decision Making
- Lecture 40 - Multi attribute decision making

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Probability and Statistics

Subject Co-ordinator - Prof. Somesh Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Algebra of Sets - I  
Lecture 2 - Algebra of Sets - II  
Lecture 3 - Introduction to Probability  
Lecture 4 - Laws of Probability - I  
Lecture 5 - Laws of Probability - II  
Lecture 6 - Problems in Probability  
Lecture 7 - Random Variables  
Lecture 8 - Probability Distributions  
Lecture 9 - Characteristics of Distribution  
Lecture 10 - Special Distributions - I  
Lecture 11 - Special Distributions - II  
Lecture 12 - Special Distributions - III  
Lecture 13 - Special Distributions - IV  
Lecture 14 - Special Distributions - V  
Lecture 15 - Special Distributions - VI  
Lecture 16 - Special Distributions - VII  
Lecture 17 - Functions of a Random Variable  
Lecture 18 - Joint Distributions - I  
Lecture 19 - Joint Distributions - II  
Lecture 20 - Joint Distributions - III  
Lecture 21 - Joint Distributions - IV  
Lecture 22 - Transformations of Random Vectors  
Lecture 23 - Sampling Distributions - I  
Lecture 24 - Sampling Distributions - II  
Lecture 25 - Descriptive Statistics - I  
Lecture 26 - Descriptive Statistics - II  
Lecture 27 - Estimation - I  
Lecture 28 - Estimation - II  
Lecture 29 - Estimation - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Estimation - IV
- Lecture 31 - Estimation - V
- Lecture 32 - Estimation - VI
- Lecture 33 - Testing of Hypothesis - I
- Lecture 34 - Testing of Hypothesis - II
- Lecture 35 - Testing of Hypothesis - III
- Lecture 36 - Testing of Hypothesis - IV
- Lecture 37 - Testing of Hypothesis - V
- Lecture 38 - Testing of Hypothesis - VI
- Lecture 39 - Testing of Hypothesis - VII
- Lecture 40 - Testing of Hypothesis - VIII

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Regression Analysis

Subject Co-ordinator - Dr. Soumen Maity

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Simple Linear Regression
- Lecture 2 - Simple Linear Regression (Continued...1)
- Lecture 3 - Simple Linear Regression (Continued...2)
- Lecture 4 - Simple Linear Regression (Continued...3)
- Lecture 5 - Simple Linear Regression (Continued...4)
- Lecture 6 - Multiple Linear Regression
- Lecture 7 - Multiple Linear Regression (Continued...1)
- Lecture 8 - Multiple Linear Regression (Continued...2)
- Lecture 9 - Multiple Linear Regression (Continued...3)
- Lecture 10 - Selecting the BEST Regression model
- Lecture 11 - Selecting the BEST Regression model (Continued...1)
- Lecture 12 - Selecting the BEST Regression model (Continued...2)
- Lecture 13 - Selecting the BEST Regression model (Continued...3)
- Lecture 14 - Multicollinearity
- Lecture 15 - Multicollinearity (Continued...1)
- Lecture 16 - Multicollinearity (Continued...2)
- Lecture 17 - Model Adequacy Checking
- Lecture 18 - Model Adequacy Checking (Continued...1)
- Lecture 19 - Model Adequacy Checking (Continued...2)
- Lecture 20 - Test for Influential Observations
- Lecture 21 - Transformations and Weighting to correct model inadequacies
- Lecture 22 - Transformations and Weighting to correct model inadequacies (Continued...1)
- Lecture 23 - Transformations and Weighting to correct model inadequacies (Continued...2)
- Lecture 24 - Dummy Variables
- Lecture 25 - Dummy Variables (Continued...1)
- Lecture 26 - Dummy Variables (Continued...2)
- Lecture 27 - Polynomial Regression Models
- Lecture 28 - Polynomial Regression Models (Continued...1)
- Lecture 29 - Polynomial Regression Models (Continued...2)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Generalized Linear Models
- Lecture 31 - Generalized Linear Models (Continued.)
- Lecture 32 - Non-Linear Estimation
- Lecture 33 - Regression Models with Autocorrelated Errors
- Lecture 34 - Regression Models with Autocorrelated Errors (Continued.)
- Lecture 35 - Measurement Errors & Calibration Problem
- Lecture 36 - Tutorial - I
- Lecture 37 - Tutorial - II
- Lecture 38 - Tutorial - III
- Lecture 39 - Tutorial - IV
- Lecture 40 - Tutorial - V

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Statistical Inference

Subject Co-ordinator - Prof. Somesh Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Motivation
- Lecture 2 - Basic Concepts of Point Estimations - I
- Lecture 3 - Basic Concepts of Point Estimations - II
- Lecture 4 - Finding Estimators - I
- Lecture 5 - Finding Estimators - II
- Lecture 6 - Finding Estimators - III
- Lecture 7 - Properties of MLEs
- Lecture 8 - Lower Bounds for Variance - I
- Lecture 9 - Lower Bounds for Variance - II
- Lecture 10 - Lower Bounds for Variance - III
- Lecture 11 - Lower Bounds for Variance - IV
- Lecture 12 - Sufficiency
- Lecture 13 - Sufficiency and Information
- Lecture 14 - Minimal Sufficiency, Completeness
- Lecture 15 - UMVU Estimation, Ancillarity
- Lecture 16 - Invariance - I
- Lecture 17 - Invariance - II
- Lecture 18 - Bayes and Minimax Estimation - I
- Lecture 19 - Bayes and Minimax Estimation - II
- Lecture 20 - Bayes and Minimax Estimation - III
- Lecture 21 - Testing of Hypotheses
- Lecture 22 - Neyman Pearson Fundamental Lemma
- Lecture 23 - Applications of NP lemma
- Lecture 24 - UMP Tests
- Lecture 25 - UMP Tests (Continued.)
- Lecture 26 - UMP Unbiased Tests
- Lecture 27 - UMP Unbiased Tests (Continued.)
- Lecture 28 - UMP Unbiased Tests
- Lecture 29 - Unbiased Tests for Normal Populations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Unbiased Tests for Normal Populations (Continued.)
- Lecture 31 - Likelihood Ratio Tests - I
- Lecture 32 - Likelihood Ratio Tests - II
- Lecture 33 - Likelihood Ratio Tests - III
- Lecture 34 - Likelihood Ratio Tests - IV
- Lecture 35 - Invariant Tests
- Lecture 36 - Test for Goodness of Fit
- Lecture 37 - Sequential Procedure
- Lecture 38 - Sequential Procedure (Continued.)
- Lecture 39 - Confidence Intervals
- Lecture 40 - Confidence Intervals (Continued.)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - A Basic Course in Real Analysis

Subject Co-ordinator - Prof. P.D. Srivastava

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Rational Numbers and Rational Cuts

Lecture 2 - Irrational numbers, Dedekind's Theorem

Lecture 3 - Continuum and Exercises

Lecture 4 - Continuum and Exercises (Continued.)

Lecture 5 - Cantor's Theory of Irrational Numbers

Lecture 6 - Cantor's Theory of Irrational Numbers (Continued.)

Lecture 7 - Equivalence of Dedekind and Cantor's Theory

Lecture 8 - Finite, Infinite, Countable and Uncountable Sets of Real Numbers

Lecture 9 - Types of Sets with Examples, Metric Space

Lecture 10 - Various properties of open set, closure of a set

Lecture 11 - Ordered set, Least upper bound, greatest lower bound of a set

Lecture 12 - Compact Sets and its properties

Lecture 13 - Weiersstrass Theorem, Heine Borel Theorem, Connected set

Lecture 14 - Tutorial - II

Lecture 15 - Concept of limit of a sequence

Lecture 16 - Some Important limits, Ratio tests for sequences of Real Numbers

Lecture 17 - Cauchy theorems on limit of sequences with examples

Lecture 18 - Fundamental theorems on limits, Bolzano-Weiersstrass Theorem

Lecture 19 - Theorems on Convergent and divergent sequences

Lecture 20 - Cauchy sequence and its properties

Lecture 21 - Infinite series of real numbers

Lecture 22 - Comparison tests for series, Absolutely convergent and Conditional convergent series

Lecture 23 - Tests for absolutely convergent series

Lecture 24 - Raabe's test, limit of functions, Cluster point

Lecture 25 - Some results on limit of functions

Lecture 26 - Limit Theorems for functions

Lecture 27 - Extension of limit concept (one sided limits)

Lecture 28 - Continuity of Functions

Lecture 29 - Properties of Continuous Functions

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- Lecture 30 - Boundedness Theorem, Max-Min Theorem and Bolzano's theorem
- Lecture 31 - Uniform Continuity and Absolute Continuity
- Lecture 32 - Types of Discontinuities, Continuity and Compactness
- Lecture 33 - Continuity and Compactness (Continued.), Connectedness
- Lecture 34 - Differentiability of real valued function, Mean Value Theorem
- Lecture 35 - Mean Value Theorem (Continued.)
- Lecture 36 - Application of MVT , Darboux Theorem, L Hospital Rule
- Lecture 37 - L'Hospital Rule and Taylor's Theorem
- Lecture 38 - Tutorial - III
- Lecture 39 - Riemann/Riemann Stieltjes Integral
- Lecture 40 - Existence of Reimann Stieltjes Integral
- Lecture 41 - Properties of Reimann Stieltjes Integral
- Lecture 42 - Properties of Reimann Stieltjes Integral (Continued.)
- Lecture 43 - Definite and Indefinite Integral
- Lecture 44 - Fundamental Theorems of Integral Calculus
- Lecture 45 - Improper Integrals
- Lecture 46 - Convergence Test for Improper Integrals

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Statistical Methods for Scientists and Engineers

Subject Co-ordinator - Prof. Somesh Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Foundations of Probability
- Lecture 2 - Laws of Probability
- Lecture 3 - Random Variables
- Lecture 4 - Moments and Special Distributions
- Lecture 5 - Moments and Special Distributions (Continued...)
- Lecture 6 - Special Distributions (Continued...)
- Lecture 7 - Special Distributions (Continued...)
- Lecture 8 - Sampling Distributions
- Lecture 9 - Parametric Methods - I
- Lecture 10 - Parametric Methods - II
- Lecture 11 - Parametric Methods - III
- Lecture 12 - Parametric Methods - IV
- Lecture 13 - Parametric Methods - V
- Lecture 14 - Parametric Methods - VI
- Lecture 15 - Parametric Methods - VII
- Lecture 16 - Multivariate Analysis - I
- Lecture 17 - Multivariate Analysis - II
- Lecture 18 - Multivariate Analysis - III
- Lecture 19 - Multivariate Analysis - IV
- Lecture 20 - Multivariate Analysis - V
- Lecture 21 - Multivariate Analysis - VI
- Lecture 22 - Multivariate Analysis - VII
- Lecture 23 - Multivariate Analysis - VIII
- Lecture 24 - Multivariate Analysis - IX
- Lecture 25 - Multivariate Analysis - X
- Lecture 26 - Multivariate Analysis - XI
- Lecture 27 - Multivariate Analysis - XII
- Lecture 28 - Non parametric Methods - I
- Lecture 29 - Non parametric Methods - II

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- Lecture 30 - Non parametric Methods - III
- Lecture 31 - Non parametric Methods - IV
- Lecture 32 - Nonparametric Methods - V
- Lecture 33 - Nonparametric Methods - VI
- Lecture 34 - Nonparametric Methods - VII
- Lecture 35 - Nonparametric Methods - VIII
- Lecture 36 - Nonparametric Methods - IX
- Lecture 37 - Nonparametric Methods - X
- Lecture 38 - Nonparametric Methods - XI
- Lecture 39 - Nonparametric Methods - XII
- Lecture 40 - Nonparametric Methods - XIII

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Probability and Statistics

Subject Co-ordinator - Prof. Somesh Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Sets, Classes, Collection  
Lecture 2 - Sequence of Sets  
Lecture 3 - Ring, Field (Algebra)  
Lecture 4 - Sigma-Ring, Sigma-Field, Monotone Class  
Lecture 5 - Random Experiment, Events  
Lecture 6 - Definitions of Probability  
Lecture 7 - Properties of Probability Function - I  
Lecture 8 - Properties of Probability Function - II  
Lecture 9 - Conditional Probability  
Lecture 10 - Independence of Events  
Lecture 11 - Problems in Probability - I  
Lecture 12 - Problems in Probability - II  
Lecture 13 - Random Variables  
Lecture 14 - Probability Distribution of a Random Variable - I  
Lecture 15 - Probability Distribution of a Random Variable - II  
Lecture 16 - Moments  
Lecture 17 - Characteristics of Distributions - I  
Lecture 18 - Characteristics of Distributions - II  
Lecture 19 - Special Discrete Distributions - I  
Lecture 20 - Special Discrete Distributions - II  
Lecture 21 - Special Discrete Distributions - III  
Lecture 22 - Poisson Process - I  
Lecture 23 - Poisson Process - II  
Lecture 24 - Special Continuous Distributions - I  
Lecture 25 - Special Continuous Distributions - II  
Lecture 26 - Special Continuous Distributions - III  
Lecture 27 - Special Continuous Distributions - IV  
Lecture 28 - Special Continuous Distributions - V  
Lecture 29 - Normal Distribution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problems on Normal Distribution
- Lecture 31 - Problems on Special Distributions - I
- Lecture 32 - Problems on Special Distributions - II
- Lecture 33 - Function of a random variable - I
- Lecture 34 - Function of a random variable - II
- Lecture 35 - Joint Distributions - I
- Lecture 36 - Joint Distributions - II
- Lecture 37 - Independence, Product Moments
- Lecture 38 - Linearity Property of Correlation and Examples
- Lecture 39 - Bivariate Normal Distribution - I
- Lecture 40 - Bivariate Normal Distribution - II
- Lecture 41 - Additive Properties of Distributions - I
- Lecture 42 - Additive Properties of Distributions - II
- Lecture 43 - Transformation of Random Variables
- Lecture 44 - Distribution of Order Statistics
- Lecture 45 - Basic Concepts
- Lecture 46 - Chi-Square Distribution
- Lecture 47 - Chi-Square Distribution (Continued...), t-Distribution
- Lecture 48 - F-Distribution
- Lecture 49 - Descriptive Statistics - I
- Lecture 50 - Descriptive Statistics - II
- Lecture 51 - Descriptive Statistics - III
- Lecture 52 - Descriptive Statistics - IV
- Lecture 53 - Introduction to Estimation
- Lecture 54 - Unbiased and Consistent Estimators
- Lecture 55 - LSE, MME
- Lecture 56 - Examples on MME, MLE
- Lecture 57 - Examples on MLE - I
- Lecture 58 - Examples on MLE - II, MSE
- Lecture 59 - UMVUE, Sufficiency, Completeness
- Lecture 60 - Rao - Blackwell Theorem and Its Applications
- Lecture 61 - Confidence Intervals - I
- Lecture 62 - Confidence Intervals - II
- Lecture 63 - Confidence Intervals - III
- Lecture 64 - Confidence Intervals - IV
- Lecture 65 - Basic Definitions
- Lecture 66 - Two Types of Errors
- Lecture 67 - Neyman-Pearson Fundamental Lemma
- Lecture 68 - Applications of N-P Lemma - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Applications of N-P Lemma - II
- Lecture 70 - Testing for Normal Mean
- Lecture 71 - Testing for Normal Variance
- Lecture 72 - Large Sample Test for Variance and Two Sample Problem
- Lecture 73 - Paired t-Test
- Lecture 74 - Examples
- Lecture 75 - Testing Equality of Proportions
- Lecture 76 - Chi-Square Test for Goodness Fit - I
- Lecture 77 - Chi-Square Test for Goodness Fit - II
- Lecture 78 - Testing for Independence in rxc Contingency Table - I
- Lecture 79 - Testing for Independence in rxc Contingency Table - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Applied Multivariate Statistical Modeling

Subject Co-ordinator - Dr J Maiti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Multivariate Statistical Modeling
- Lecture 2 - Introduction to Multivariate Statistical Modeling: Data types, models, and modeling
- Lecture 3 - Statistical approaches to model building
- Lecture 4 - Statistical approaches to model building (Continued...)
- Lecture 5 - Univariate Descriptive Statistics
- Lecture 6 - Univariate Descriptive Statistics (Continued...)
- Lecture 7 - Normal Distribution and Chi-squared Distribution
- Lecture 8 - t-distribution, F-distribution, and Central Limit Theorem
- Lecture 9 - Univariate Inferential Statistics: Estimation
- Lecture 10 - Univariate Inferential Statistics: Estimation (Continued...)
- Lecture 11 - Univariate Inferential Statistics: Hypothesis Testing
- Lecture 12 - Hypothesis Testing (Continued...): Decision Making Scenarios
- Lecture 13 - Multivariate Descriptive Statistics: Mean Vector
- Lecture 14 - Multivariate Descriptive Statistics: Covariance Matrix
- Lecture 15 - Multivariate Descriptive Statistics: Correlation Matrix
- Lecture 16 - Multivariate Descriptive Statistics: Relationship between correlation and covariance matrices
- Lecture 17 - Multivariate Normal Distribution
- Lecture 18 - Multivariate Normal Distribution (Continued...)
- Lecture 19 - Multivariate Normal Distribution (Continued...): Geometrical Interpretation
- Lecture 20 - Multivariate Normal Distribution (Continued...): Examining data for multivariate normal distribution
- Lecture 21 - Multivariate Inferential Statistics: Basics and Hotelling T-square statistic
- Lecture 22 - Multivariate Inferential Statistics: Confidence Region
- Lecture 23 - Multivariate Inferential Statistics: Simultaneous confidence interval and Hypothesis testing
- Lecture 24 - Multivariate Inferential Statistics: Hypothesis testing for equality of two population mean vectors
- Lecture 25 - Analysis of Variance (ANOVA)
- Lecture 26 - Analysis of Variance (ANOVA): Decomposition of Total sum of squares
- Lecture 27 - Analysis of Variance (ANOVA): Estimation of Parameters and Model Adequacy tests
- Lecture 28 - Two-way and Three-way Analysis of Variance (ANOVA)
- Lecture 29 - Tutorial ANOVA

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial ANOVA (Continued...)
- Lecture 31 - Multivariate Analysis of Variance (MANOVA): Conceptual Model
- Lecture 32 - Multivariate Analysis of Variance (MANOVA): Assumptions and Decomposition of total sum square and cross products
- Lecture 33 - Multivariate Analysis of Variance (MANOVA): Decomposition of total sum square and cross products
- Lecture 34 - Multivariate Analysis of Variance (MANOVA): Estimation and Hypothesis testing
- Lecture 35 - MANOVA Case Study
- Lecture 36 - Multiple Linear Regression: Introduction
- Lecture 37 - Multiple Linear Regression: Assumptions and Estimation of model parameters
- Lecture 38 - Multiple Linear Regression: Sampling Distribution of parameter estimates
- Lecture 39 - Multiple Linear Regression: Sampling Distribution of parameter estimates (Continued...)
- Lecture 40 - Multiple Linear Regression: Model Adequacy Tests
- Lecture 41 - Multiple Linear Regression: Model Adequacy Tests (Continued...)
- Lecture 42 - Multiple Linear Regression: Test of Assumptions
- Lecture 43 - MLR-Model diagnostics
- Lecture 44 - MLR-case study
- Lecture 45 - Multivariate Linear Regression: Conceptual model and assumptions
- Lecture 46 - Multivariate Linear Regression: Estimation of parameters
- Lecture 47 - Multivariate Linear Regression: Estimation of parameters (Continued...)
- Lecture 48 - Multiple Linear Regression: Sampling Distribution of parameter estimates
- Lecture 49 - Multivariate Linear Regression: Model Adequacy Tests
- Lecture 50 - Multiple Linear Regression: Model Adequacy Tests (Continued...)
- Lecture 51 - Regression modeling using SPSS
- Lecture 52 - Principal Component Analysis (PCA): Conceptual Model
- Lecture 53 - Principal Component Analysis (PCA): Extraction of Principal components (PCs)
- Lecture 54 - Principal Component Analysis (PCA): Model Adequacy and Interpretation
- Lecture 55 - Principal Component Analysis (PCA): Model Adequacy and Interpretation (Continued...)
- Lecture 56 - Factor Analysis: Basics and Orthogonal factor models
- Lecture 57 - Factor Analysis: Types of models and key questions
- Lecture 58 - Factor Analysis: Parameter Estimation
- Lecture 59 - Factor Analysis: Parameter Estimation (Continued...)
- Lecture 60 - Factor Analysis: Model Adequacy tests and factor rotation
- Lecture 61 - Factor Analysis: Factor scores and case study

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Partial Differential Equations (PDE) for Engineers: Solution by Separation of Variables

Subject Co-ordinator - Prof. S. De

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to PDE

Lecture 2 - Classification of PDE

Lecture 3 - Principle of Linear Superposition

Lecture 4 - Standard Eigen Value Problem and Special ODEs

Lecture 5 - Adjoint Operator

Lecture 6 - Generalized Sturm - Liouville Problem

Lecture 7 - Properties of Adjoint Operator

Lecture 8 - Separation of Variables

Lecture 9 - Solution of 3 Dimensional Parabolic Problem

Lecture 10 - Solution of 4 Dimensional Parabolic problem

Lecture 11 - Solution of 4 Dimensional Parabolic Problem (Continued...)

Lecture 12 - Solution of Elliptical PDE

Lecture 13 - Solution of Hyperbolic PDE

Lecture 14 - Orthogonality of Bessel Function and 2 Dimensional Cylindrical Coordinate System

Lecture 15 - Cylindrical Co-ordinate System - 3 Dimensional Problem

Lecture 16 - Spherical Polar Coordinate System

Lecture 17 - Spherical Polar Coordinate System (Continued...)

Lecture 18 - Example of Generalized 3 Dimensional Problem

Lecture 19 - Example of Application Oriented Problems

Lecture 20 - Examples of Application Oriented Problems (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC: Introductory Course in Real Analysis

Subject Co-ordinator - Prof. P.D. Srivastava

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Countable and Uncountable sets
- Lecture 2 - Properties of Countable and Uncountable sets
- Lecture 3 - Examples of Countable and Uncountable sets
- Lecture 4 - Concepts of Metric Space
- Lecture 5 - Open ball, Closed ball, Limit point of a set
- Lecture 6 - Tutorial-I
- Lecture 7 - Some theorems on Open and Closed sets
- Lecture 8 - Ordered set, Least upper bound, Greatest lower bound of a set
- Lecture 9 - Ordered set, Least upper bound, Greatest lower bound of a set (Continued...)
- Lecture 10 - Compact Set
- Lecture 11 - Properties of Compact sets
- Lecture 12 - Tutorial-II
- Lecture 13 - Heine Borel Theorem
- Lecture 14 - Weierstrass Theorem
- Lecture 15 - Cantor set and its properties
- Lecture 16 - Derived set and Dense set
- Lecture 17 - Limit of a sequence and monotone sequence
- Lecture 18 - Tutorial-III
- Lecture 19 - Some Important limits of sequences
- Lecture 20 - Ratio Test Cauchy's theorems on limits of sequences of real numbers
- Lecture 21 - Fundamental theorems on limits
- Lecture 22 - Some results on limits and Bolzano-Weierstrass Theorem
- Lecture 23 - Criteria for convergent sequence
- Lecture 24 - Tutorial-IV
- Lecture 25 - Criteria for Divergent Sequence
- Lecture 26 - Cauchy Sequence
- Lecture 27 - Cauchy Convergence Criteria for Sequences
- Lecture 28 - Infinite Series of Real Numbers
- Lecture 29 - Convergence Criteria for Series of Positive Real Numbers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial-V
- Lecture 31 - Comparison Test for Series
- Lecture 32 - Absolutely and Conditionally Convergent Series
- Lecture 33 - Rearrangement Theorem and Test for Convergence of Series
- Lecture 34 - Ratio and Integral Test for Convergence of Series
- Lecture 35 - Raabe's Test for Convergence of Series
- Lecture 36 - Tutorial-VI
- Lecture 37 - Limit of Functions and Cluster Point
- Lecture 38 - Limit of Functions (Continued...)
- Lecture 39 - Divergence Criteria for Limit
- Lecture 40 - Various Properties of Limit of Functions
- Lecture 41 - Left and Right Hand Limits for Functions
- Lecture 42 - Tutorial-VII
- Lecture 43 - Limit of Functions at Infinity
- Lecture 44 - Continuous Functions (Cauchy's Definition)
- Lecture 45 - Continuous Functions (Heine's Definition)
- Lecture 46 - Properties of Continuous Functions
- Lecture 47 - Properties of Continuous Functions (Continued...)
- Lecture 48 - Tutorial-VIII
- Lecture 49 - Boundness Theorem and Max-Min Theorem
- Lecture 50 - Location of Root and Bolzano's Theorem
- Lecture 51 - Uniform Continuity and Related Theorems
- Lecture 52 - Absolute Continuity and Related Theorems
- Lecture 53 - Types of Discontinuities
- Lecture 54 - Tutorial-IX
- Lecture 55 - Types of Discontinuities (Continued...)
- Lecture 56 - Relation between Continuity and Compact Sets
- Lecture 57 - Differentiability of Real Valued Functions
- Lecture 58 - Local Max. - Min. Cauchy's and Lagrange's Mean Value Theorem
- Lecture 59 - Rolle's Mean Value Theorems and Its Applications
- Lecture 60 - Tutorial-X
- Lecture 61
- Lecture 62
- Lecture 63
- Lecture 64
- Lecture 65
- Lecture 66
- Lecture 67
- Lecture 68

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69  
Lecture 70  
Lecture 71  
Lecture 72  
Lecture 73

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Modeling Transport Phenomena of Microparticles

Subject Co-ordinator - Dr. G.P. Raja Sekhar, Prof. Somnath Bhattacharyya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Preliminary concepts
- Lecture 2 - Cauchy's equation of motion and Navier-Stokes equations
- Lecture 3 - Reduced forms of Navier-Stokes equations and Boundary conditions
- Lecture 4 - Exact solutions of Navier-Stokes equations in particular cases
- Lecture 5 - Dimensional Analysis - Non-dimensionalization of Navier-Stokes's equations
- Lecture 6 - Stream function formulation of Navier-Stokes equations
- Lecture 7 - Stokes flow past a cylinder
- Lecture 8 - Stokes flow past a sphere
- Lecture 9 - Elementary Lubrication Theory
- Lecture 10 - Hydrodynamics of Squeeze flow
- Lecture 11 - Solution of arbitrary Stokes flows
- Lecture 12 - Mechanics of Swimming Microorganisms
- Lecture 13 - Viscous flow past a spherical drop
- Lecture 14 - Migration of a viscous drop under Marangoni effects
- Lecture 15 - Singularities of Stokes flows
- Lecture 16 - Introduction to porous media
- Lecture 17 - Flow through porous media - elementary geometries
- Lecture 18 - Flow through composite porous channels
- Lecture 19 - Modeling transport of particles inside capillaries
- Lecture 20 - Modeling transport of microparticles - some applications
- Lecture 21 - Introduction to Electrokinetics
- Lecture 22 - Basics on Electrostatics
- Lecture 23 - Transport Equations for Electrokinetics, Part-I
- Lecture 24 - Transport Equations for Electrokinetics, Part-II
- Lecture 25 - Electric Double Layer
- Lecture 26 - Electroosmotic flow (EOF) of ionized fluid
- Lecture 27 - EOF in micro-channel
- Lecture 28 - Non-linear EOF, Overlapping Debye Layer
- Lecture 29 - Two-dimensional EOF

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- Lecture 30 - EOF near heterogeneous surface potential
- Lecture 31 - Electroosmosis in hydrophobic surface
- Lecture 32 - Numerical Methods for Boundary Value Problems (BVP)
- Lecture 33 - Numerical Methods for nonlinear BVP
- Lecture 34 - Numerical Methods for coupled set of BVP
- Lecture 35 - Numerical Methods for PDEs
- Lecture 36 - Numerical Methods for transport equations, Part-I
- Lecture 37 - Numerical Methods for transport equations, Part-II
- Lecture 38 - Electrophoresis of charged colloids, Part-I
- Lecture 39 - Electrophoresis of charged colloids, Part-II
- Lecture 40 - Gel Electrophoresis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Constrained and Unconstrained Optimization

Subject Co-ordinator - Dr. Debjani Chakraborty, Prof. A. Goswami

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Optimization  
Lecture 2 - Assumptions and Mathematical Modeling of LPP  
Lecture 3 - Geometrey of LPP  
Lecture 4 - Graphical Solution of LPP - I  
Lecture 5 - Graphical Solution of LPP - II  
Lecture 6 - Solution of LPP  
Lecture 7 - Simplex Method  
Lecture 8 - Introduction to BIG-M Method  
Lecture 9 - Algorithm of BIG-M Method  
Lecture 10 - Problems on BIG-M Method  
Lecture 11 - Two Phase Method  
Lecture 12 - Two Phase Method  
Lecture 13 - Special Cases of LPP  
Lecture 14 - Degeneracy in LPP  
Lecture 15 - Sensitivity Analysis - I  
Lecture 16 - Sensitivity Analysis - II  
Lecture 17 - Problems on Sensitivity Analysis  
Lecture 18 - Introduction to Duality Theory - I  
Lecture 19 - Introduction to Duality Theory - II  
Lecture 20 - Dual Simplex Method  
Lecture 21 - Examples on Dual Simplex Method  
Lecture 22 - Interger Linear Programming  
Lecture 23 - Interger Linear Programming  
Lecture 24 - IPP  
Lecture 25 - Mixed Integer Programming Problem  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30
- Lecture 31 - Introduction to Nonlinear programming
- Lecture 32 - Graphical Solution of NLP
- Lecture 33 - Types of NLP
- Lecture 34 - One dimensional unconstrained optimization
- Lecture 35 - Unconstrained Optimization
- Lecture 36 - Region Elimination Technique - 1
- Lecture 37 - Region Elimination Technique - 2
- Lecture 38 - Region Elimination Technique - 3
- Lecture 39 - Unconstrained Optimization
- Lecture 40 - Unconstrained Optimization
- Lecture 41 - Multivariate Unconstrained Optimization - 1
- Lecture 42 - Multivariate Unconstrained Optimization - 2
- Lecture 43 - Unconstrained Optimization
- Lecture 44 - NLP with Equality Constrained - 1
- Lecture 45 - NLP with Equality Constrained - 2
- Lecture 46 - Constrained NLP - 1
- Lecture 47 - Constrained NLP - 2
- Lecture 48 - Constrained Optimization
- Lecture 49 - Constrained Optimization
- Lecture 50 - KKT
- Lecture 51 - Constrained Optimization
- Lecture 52 - Constrained Optimization
- Lecture 53 - Feasible Direction
- Lecture 54 - Penalty and barrier method
- Lecture 55 - Penalty method
- Lecture 56 - Penalty and barrier method
- Lecture 57 - Penalty and barrier method
- Lecture 58 - Dynamic programming
- Lecture 59 - Multi-Objective decision making
- Lecture 60 - Multi-Attribute decision making

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Matrix Solver

Subject Co-ordinator - Prof. Somnath Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Matrix Algebra - I
- Lecture 2 - Introduction to Matrix Algebra - II
- Lecture 3 - System of Linear Equations
- Lecture 4 - Determinant of a Matrix
- Lecture 5 - Determinant of a Matrix (Continued...)
- Lecture 6 - Gauss Elimination
- Lecture 7 - Gauss Elimination (Continued...)
- Lecture 8 - LU Decomposition
- Lecture 9 - Gauss-Jordan Method
- Lecture 10 - Representation of Physical Systems as Matrix Equations
- Lecture 11 - Tridiagonal Matrix Algorithm
- Lecture 12 - Equations with Singular Matrices
- Lecture 13 - Introduction to Vector Space
- Lecture 14 - Vector Subspace
- Lecture 15 - Column Space and Nullspace of a Matrix
- Lecture 16 - Finding Null Space of a Matrix
- Lecture 17 - Solving  $Ax=b$  when A is Singular
- Lecture 18 - Linear Independence and Spanning of a Subspace
- Lecture 19 - Basis and Dimension of a Vector Space
- Lecture 20 - Four Fundamental Subspaces of a Matrix
- Lecture 21 - Left and right inverse of a matrix
- Lecture 22 - Orthogonality between the subspaces
- Lecture 23 - Best estimate
- Lecture 24 - Projection operation and linear transformation
- Lecture 25 - Creating orthogonal basis vectors
- Lecture 26 - Gram-Schmidt and modified Gram-Schmidt algorithms
- Lecture 27 - Comparing GS and modified GS
- Lecture 28 - Introduction to eigenvalues and eigenvectors
- Lecture 29 - Eigenvalues and eigenvectors for real symmetric matrix

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- Lecture 30 - Positive definiteness of a matrix
- Lecture 31 - Positive definiteness of a matrix (Continued...)
- Lecture 32 - Basic Iterative Methods
- Lecture 33 - Basic Iterative Methods
- Lecture 34 - Convergence Rate and Convergence Factor for Iterative Methods
- Lecture 35 - Numerical Experiments on Convergence
- Lecture 36 - Steepest Descent Method
- Lecture 37 - Steepest Descent Method
- Lecture 38 - Steepest Descent Method
- Lecture 39 - Introduction to General Projection Methods
- Lecture 40 - Residue Norm and Minimum Residual Algorithm
- Lecture 41 - Developing computer programs for basic iterative methods
- Lecture 42 - Developing computer programs for projection based methods
- Lecture 43 - Introduction to Krylov subspace methods
- Lecture 44 - Krylov subspace methods for linear systems
- Lecture 45 - Iterative methods for solving linear systems using Krylov subspace methods
- Lecture 46 - Conjugate gradient methods
- Lecture 47 - Conjugate gradient methods (Continued...)
- Lecture 48 - Conjugate gradient methods (Continued...) and Introduction to GMRES
- Lecture 49 - GMRES (Continued...)
- Lecture 50 - Lanczos Biorthogonalization and BCG Algorithm
- Lecture 51 - Numerical issues in BICG and polynomial based formulation
- Lecture 52 - Conjugate gradient squared and Biconjugate gradient stabilized
- Lecture 53 - Line relaxation method
- Lecture 54 - Block relaxation method
- Lecture 55 - Domain Decomposition and Parallel Computing
- Lecture 56 - Preconditioners
- Lecture 57 - Preconditioned conjugate gradient
- Lecture 58 - Preconditioned GMRES
- Lecture 59 - Multigrid methods - I
- Lecture 60 - Multigrid methods - II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Abstract and Linear Algebra

Subject Co-ordinator - Prof.Sourav Mukhopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Set Theory  
Lecture 2 - Set Operations  
Lecture 3 - Set Operations (Continued...)  
Lecture 4 - Set of sets  
Lecture 5 - Binary relation  
Lecture 6 - Equivalence relation  
Lecture 7 - Mapping  
Lecture 8 - Permutation  
Lecture 9 - Binary Composition  
Lecture 10 - Groupoid  
Lecture 11 - Group  
Lecture 12 - Order of an element  
Lecture 13 - Subgroup  
Lecture 14 - Cyclic Group  
Lecture 15 - Subgroup Operations  
Lecture 16 - Left Cosets  
Lecture 17 - Right Cosets  
Lecture 18 - Normal Subgroup  
Lecture 19 - Rings  
Lecture 20 - Field  
Lecture 21 - Vector Spaces  
Lecture 22 - Sub-Spaces  
Lecture 23 - Linear Span  
Lecture 24 - Basis of a Vector Space  
Lecture 25 - Dimension of a Vector space  
Lecture 26 - Complement of subspace  
Lecture 27 - Linear Transformation  
Lecture 28 - Linear Transformation (Continued...)  
Lecture 29 - More on linear mapping

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear Space
- Lecture 31 - Rank of a matrix
- Lecture 32 - Rank of a matrix (Continued...)
- Lecture 33 - System of linear equations
- Lecture 34 - Row rank and Column rank
- Lecture 35 - Eigen value of a matrix
- Lecture 36 - Eigen Vector
- Lecture 37 - Geometric multiplicity
- Lecture 38 - More on eigen value
- Lecture 39 - Similar matrices
- Lecture 40 - Diagonalisable

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Engineering Mathematics-I

Subject Co-ordinator - Prof. Jitendra Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Rolle's Theorem
- Lecture 2 - Mean Value Theorems
- Lecture 3 - Indeterminate Forms - Part 1
- Lecture 4 - Indeterminate Forms - Part 2
- Lecture 5 - Taylor Polynomial and Taylor Series
- Lecture 6 - Limit of Functions of Two Variables
- Lecture 7 - Evaluation of Limit of Functions of Two Variables
- Lecture 8 - Continuity of Functions of Two Variables
- Lecture 9 - Partial Derivatives of Functions of Two Variables
- Lecture 10 - Partial Derivatives of Higher Order
- Lecture 11 - Derivative and Differentiability
- Lecture 12 - Differentiability of Functions of Two Variables
- Lecture 13 - Differentiability of Functions of Two Variables (Continued...)
- Lecture 14 - Differentiability of Functions of Two Variables (Continued...)
- Lecture 15 - Composite and Homogeneous Functions
- Lecture 16 - Taylor's Theorem for Functions of Two Variables
- Lecture 17 - Maxima and Minima of Functions of Two Variables
- Lecture 18 - Maxima and Minima of Functions of Two Variables (Continued...)
- Lecture 19 - Maxima and Minima of Functions of Two Variables (Continued...)
- Lecture 20 - Constrained Maxima and Minima
- Lecture 21 - Improper Integrals
- Lecture 22 - Improper Integrals (Continued...)
- Lecture 23 - Improper Integrals (Continued...)
- Lecture 24 - Improper Integrals (Continued...)
- Lecture 25 - Beta and Gamma Function
- Lecture 26 - Beta and Gamma Function (Continued...)
- Lecture 27 - Differentiation Under Integral Sign
- Lecture 28 - Double Integrals
- Lecture 29 - Double Integrals (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Double Integrals (Continued...)
- Lecture 31 - Integral Calculus Double Integrals in Polar Form
- Lecture 32 - Integral Calculus Double Integrals
- Lecture 33 - Integral Calculus Double Integrals
- Lecture 34 - Integral Calculus Triple Integrals
- Lecture 35 - Integral Calculus Triple Integrals (Continued...)
- Lecture 36 - System of Linear Equations
- Lecture 37 - System of Linear Equations Gauss Elimination
- Lecture 38 - System of Linear Equations Gauss Elimination (Continued...)
- Lecture 39 - Linear Algebra - Vector Spaces
- Lecture 40 - Linear Independence of Vectors
- Lecture 41 - Vector Spaces Spanning Set
- Lecture 42 - Vector Spaces Basis and Dimension
- Lecture 43 - Rank of a Matrix
- Lecture 44 - Linear Transformations
- Lecture 45 - Linear Transformations (Continued...)
- Lecture 46 - Eigenvalues and Eigenvectors
- Lecture 47 - Eigenvalues and Eigenvectors (Continued...)
- Lecture 48 - Eigenvalues and Eigenvectors (Continued...)
- Lecture 49 - Eigenvalues and Eigenvectors (Continued...)
- Lecture 50 - Eigenvalues and Eigenvectors
- Lecture 51 - Differential Equations - Introduction
- Lecture 52 - First Order Differential Equations
- Lecture 53 - Exact Differential Equations
- Lecture 54 - Exact Differential Equations (Continued...)
- Lecture 55 - First Order Linear Differential Equations
- Lecture 56 - Higher Order Linear Differential Equations
- Lecture 57 - Solution of Higher Order Homogeneous Linear Equations
- Lecture 58 - Solution of Higher Order Non-Homogeneous Linear Equations
- Lecture 59 - Solution of Higher Order Non-Homogeneous Linear Equations (Continued...)
- Lecture 60 - Cauchy-Euler Equations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC: Integral and Vector Calculus

Subject Co-ordinator - Prof. Hari Shankar Mahato

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Partition, Riemann integrability and One example
- Lecture 2 - Partition, Riemann integrability and One example (Continued...)
- Lecture 3 - Condition of integrability
- Lecture 4 - Theorems on Riemann integrations
- Lecture 5 - Examples
- Lecture 6 - Examples (Continued...)
- Lecture 7 - Reduction formula
- Lecture 8 - Reduction formula (Continued...)
- Lecture 9 - Improper Integral
- Lecture 10 - Improper Integral (Continued...)
- Lecture 11 - Improper Integral (Continued...)
- Lecture 12 - Improper Integral (Continued...)
- Lecture 13 - Introduction to Beta and Gamma Function
- Lecture 14 - Beta and Gamma Function
- Lecture 15 - Differentiation under Integral Sign
- Lecture 16 - Differentiation under Integral Sign (Continued...)
- Lecture 17 - Double Integral
- Lecture 18 - Double Integral over a Region E
- Lecture 19 - Examples of Integral over a Region E
- Lecture 20 - Change of variables in a Double Integral
- Lecture 21 - Change of order of Integration
- Lecture 22 - Triple Integral
- Lecture 23 - Triple Integral (Continued...)
- Lecture 24 - Area of Plane Region
- Lecture 25 - Area of Plane Region (Continued...)
- Lecture 26 - Rectification
- Lecture 27 - Rectification (Continued...)
- Lecture 28 - Surface Integral
- Lecture 29 - Surface Integral (Continued...)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Surface Integral (Continued...)
- Lecture 31 - Volume Integral, Gauss Divergence Theorem
- Lecture 32 - Vector Calculus
- Lecture 33 - Limit, Continuity, Differentiability
- Lecture 34 - Successive Differentiation
- Lecture 35 - Integration of Vector Function
- Lecture 36 - Gradient of a Function
- Lecture 37 - Divergence and Curl
- Lecture 38 - Divergence and Curl Examples
- Lecture 39 - Divergence and Curl important Identities
- Lecture 40 - Level Surface Relevant Theorems
- Lecture 41 - Directional Derivative (Concept and Few Results)
- Lecture 42 - Directional Derivative (Concept and Few Results) (Continued...)
- Lecture 43 - Directional Derivatives, Level Surfaces
- Lecture 44 - Application to Mechanics
- Lecture 45 - Equation of Tangent, Unit Tangent Vector
- Lecture 46 - Unit Normal, Unit binormal, Equation of Normal Plane
- Lecture 47 - Introduction and Derivation of Serret-Frenet Formula, few results
- Lecture 48 - Example on binormal, normal tangent, Serret-Frenet Formula
- Lecture 49 - Osculating Plane, Rectifying plane, Normal plane
- Lecture 50 - Application to Mechanics, Velocity, speed, acceleration
- Lecture 51 - Angular Momentum, Newton's Law
- Lecture 52 - Example on derivation of equation of motion of particle
- Lecture 53 - Line Integral
- Lecture 54 - Surface integral
- Lecture 55 - Surface integral (Continued...)
- Lecture 56 - Green's Theorem and Example
- Lecture 57 - Volume integral, Gauss theorem
- Lecture 58 - Gauss divergence theorem
- Lecture 59 - Stoke's Theorem
- Lecture 60 - Overview of Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Transform Calculus and its applications in Differential Equations

Subject Co-ordinator - Prof. A. Goswami

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Integral Transform and Laplace Transform

Lecture 2 - Existence of Laplace Transform

Lecture 3 - Shifting Properties of Laplace Transform

Lecture 4 - Laplace Transform of Derivatives and Integration of a Function - I

Lecture 5 - Laplace Transform of Derivatives and Integration of a Function - II

Lecture 6 - Explanation of properties of Laplace Transform using Examples

Lecture 7 - Laplace Transform of Periodic Function

Lecture 8 - Laplace Transform of some special Functions

Lecture 9 - Error Function, Dirac Delta Function and their Laplace Transform

Lecture 10 - Bessel Function and its Laplace Transform

Lecture 11 - Introduction to Inverse Laplace Transform

Lecture 12 - Properties of Inverse Laplace Transform

Lecture 13 - Convolution and its Applications

Lecture 14 - Evaluation of Integrals using Laplace Transform

Lecture 15 - Solution of Ordinary Differential Equations with constant coefficients using Laplace Transform

Lecture 16 - Solution of Ordinary Differential Equations with variable coefficients using Laplace Transform

Lecture 17 - Solution of Simultaneous Ordinary Differential Equations using Laplace Transform

Lecture 18 - Introduction to Integral Equation and its Solution Process

Lecture 19 - Introduction to Fourier Series

Lecture 20 - Fourier Series for Even and Odd Functions

Lecture 21 - Fourier Series of Functions having arbitrary period - I

Lecture 22 - Fourier Series of Functions having arbitrary period - II

Lecture 23 - Half Range Fourier Series

Lecture 24 - Parseval's Theorem and its Applications

Lecture 25 - Complex form of Fourier Series

Lecture 26 - Fourier Integral Representation

Lecture 27 - Introduction to Fourier Transform

Lecture 28 - Derivation of Fourier Cosine Transform and Fourier Sine Transform of Functions

Lecture 29 - Evaluation of Fourier Transform of various functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linearity Property and Shifting Properties of Fourier Transform
- Lecture 31 - Change of Scale and Modulation Properties of Fourier Transform
- Lecture 32 - Fourier Transform of Derivative and Integral of a Function
- Lecture 33 - Applications of Properties of Fourier Transform - I
- Lecture 34 - Applications of Properties of Fourier Transform - II
- Lecture 35 - Fourier Transform of Convolution of two functions
- Lecture 36 - Parseval's Identity and its Application
- Lecture 37 - Evaluation of Definite Integrals using Properties of Fourier Transform
- Lecture 38 - Fourier Transform of Dirac Delta Function
- Lecture 39 - Representation of a function as Fourier Integral
- Lecture 40 - Applications of Fourier Transform to Ordinary Differential Equations - I
- Lecture 41 - Applications of Fourier Transform to Ordinary Differential Equations - II
- Lecture 42 - Solution of Integral Equations using Fourier Transform
- Lecture 43 - Introduction to Partial Differential Equations
- Lecture 44 - Solution of Partial Differential Equations using Laplace Transform
- Lecture 45 - Solution of Heat Equation and Wave Equation using Laplace Transform
- Lecture 46 - Criteria for choosing Fourier Transform, Fourier Sine Transform, Fourier Cosine Transform in solving PDEs
- Lecture 47 - Solution of Partial Differential Equations using Fourier Cosine Transform and Fourier Sine Transform
- Lecture 48 - Solution of Partial Differential Equations using Fourier Transform - I
- Lecture 49 - Solution of Partial Differential Equations using Fourier Transform - II
- Lecture 50 - Solving problems on Partial Differential Equations using Transform Techniques
- Lecture 51 - Introduction to Finite Fourier Transform
- Lecture 52 - Solution of Boundary Value Problems using Finite Fourier Transform - I
- Lecture 53 - Solution of Boundary Value Problems using Finite Fourier Transform - II
- Lecture 54 - Introduction to Mellin Transform
- Lecture 55 - Properties of Mellin Transform
- Lecture 56 - Examples of Mellin Transform - I
- Lecture 57 - Examples of Mellin Transform - II
- Lecture 58 - Introduction to Z-Transform
- Lecture 59 - Properties of Z-Transform
- Lecture 60 - Evaluation of Z-Transform of some functions



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Statistical Inference (2019)

Subject Co-ordinator - Prof. Somesh Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Motivation - I  
Lecture 2 - Introduction and Motivation - II  
Lecture 3 - Basic Concepts of Point Estimations - I  
Lecture 4 - Basic Concepts of Point Estimations - II  
Lecture 5 - Basic Concepts of Point Estimations - III  
Lecture 6 - Basic Concepts of Point Estimations - IV  
Lecture 7 - Finding Estimators - I  
Lecture 8 - Finding Estimators - II  
Lecture 9 - Finding Estimators - III  
Lecture 10 - Finding Estimators - IV  
Lecture 11 - Finding Estimators - V  
Lecture 12 - Finding Estimators - VI  
Lecture 13 - Properties of MLEs - I  
Lecture 14 - Properties of MLEs - II  
Lecture 15 - Lower Bounds for Variance - I  
Lecture 16 - Lower Bounds for Variance - II  
Lecture 17 - Lower Bounds for Variance - III  
Lecture 18 - Lower Bounds for Variance - IV  
Lecture 19 - Lower Bounds for Variance - V  
Lecture 20 - Lower Bounds for Variance - VI  
Lecture 21 - Lower Bounds for Variance - VII  
Lecture 22 - Lower Bounds for Variance - VIII  
Lecture 23 - Sufficiency - I  
Lecture 24 - Sufficiency - II  
Lecture 25 - Sufficiency and Information - I  
Lecture 26 - Sufficiency and Information - II  
Lecture 27 - Minimal Sufficiency, Completeness - I  
Lecture 28 - Minimal Sufficiency, Completeness - II  
Lecture 29 - UMVU Estimation, Ancillarity - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - UMVU Estimation, Ancillarity - II
- Lecture 31 - Testing of Hypotheses
- Lecture 32 - Testing of Hypotheses
- Lecture 33 - Neyman Pearson Fundamental Lemma - I
- Lecture 34 - Neyman Pearson Fundamental Lemma - II
- Lecture 35 - Application of NP-Lemma - I
- Lecture 36 - Application of NP-Lemma - II
- Lecture 37 - UMP Tests - I
- Lecture 38 - UMP Tests - II
- Lecture 39 - UMP Tests - III
- Lecture 40 - UMP Tests - IV
- Lecture 41 - UMP Unbiased Tests - I
- Lecture 42 - UMP Unbiased Tests - II
- Lecture 43 - UMP Unbiased Tests - III
- Lecture 44 - UMP Unbiased Tests - IV
- Lecture 45 - Applications of UMP Unbiased Tests - I
- Lecture 46 - Applications of UMP Unbiased Tests - II
- Lecture 47 - Unbiased Test for Normal Populations - I
- Lecture 48 - Unbiased Test for Normal Populations - II
- Lecture 49 - Unbiased Test for Normal Populations - III
- Lecture 50 - Unbiased Test for Normal Populations - IV
- Lecture 51 - Likelihood Ratio Tests - I
- Lecture 52 - Likelihood Ratio Tests - II
- Lecture 53 - Likelihood Ratio Tests - III
- Lecture 54 - Likelihood Ratio Tests - IV
- Lecture 55 - Likelihood Ratio Tests - V
- Lecture 56 - Likelihood Ratio Tests - VI
- Lecture 57 - Likelihood Ratio Tests - VII
- Lecture 58 - Likelihood Ratio Tests - VIII
- Lecture 59 - Test for Goodness of Fit - I
- Lecture 60 - Test for Goodness of Fit - II
- Lecture 61 - Interval Estimation - I
- Lecture 62 - Interval Estimation - II
- Lecture 63 - Interval Estimation - III
- Lecture 64 - Interval Estimation - IV

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Mathematical Methods for Boundary Value Problems

Subject Co-ordinator - Prof. Somnath Bhattacharyya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Sturm-Liouville Problems, Linear BVP

Lecture 2 - Sturm-Liouville Problems, Linear BVP (Continued...)

Lecture 3 - Solution of BVPs by Eigen function expansion

Lecture 4 - Solution of BVPs by Eigen function expansion (Continued...)

Lecture 5 - Solutions of linear parabolic, hyperbolic and elliptic PDEs with finite domain by Eigen function

Lecture 6 - Solutions of linear parabolic, hyperbolic and elliptic PDEs with finite domain by Eigen function

Lecture 7 - Green's Function for BVP and Dirichlet Problem

Lecture 8 - Green's Function for BVP and Dirichlet Problem (Continued...)

Lecture 9 - Numerical Techniques for IVP; Shooting Method for BVP

Lecture 10 - Numerical Techniques for IVP; Shooting Method for BVP (Continued...)

Lecture 11 - Finite difference methods for linear BVP; Thomas Algorithm

Lecture 12 - Finite difference methods for linear BVP; Thomas Algorithm (Continued...)

Lecture 13 - Finite difference method for Higher-order BVP; Block tri-diagonal System

Lecture 14 - Finite difference method for Higher-order BVP; Block tri-diagonal System (Continued...)

Lecture 15 - Iterative methods for nonlinear BVP; Control volume formulation

Lecture 16 - Iterative methods for nonlinear BVP; Control volume formulation (Continued...)

Lecture 17 - Implicit scheme; Truncation error; Crank-Nicolson scheme

Lecture 18 - Implicit scheme; Truncation error; Crank-Nicolson scheme (Continued...)

Lecture 19 - Stability analysis of numerical schemes

Lecture 20 - Alternating-Direction-Implicit Scheme; Successive-Over-Relaxation technique for Poisson equation

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Engineering Mathematics-II

Subject Co-ordinator - Prof. Jitendra Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Vector Functions
- Lecture 2 - Vector and Scalar Fields
- Lecture 3 - Divergence and Curl of a Vector Field
- Lecture 4 - Line Integrals
- Lecture 5 - Conservative Vector Field
- Lecture 6 - Green's Theorem
- Lecture 7 - Surface Integral - I
- Lecture 8 - Surface Integral - II
- Lecture 9 - Stokes's Theorem
- Lecture 10 - Divergence Theorem
- Lecture 11 - Complex Numbers and Functions
- Lecture 12 - Differentiability of Complex Functions
- Lecture 13 - Analytic Functions
- Lecture 14 - Line Integral
- Lecture 15 - Cauchy Integral Theorem
- Lecture 16 - Cauchy Integral Formula
- Lecture 17 - Taylor's Series
- Lecture 18 - Laurent's Series
- Lecture 19 - Singularities
- Lecture 20 - Residue
- Lecture 21 - Iterative Methods for Solving System of Linear Equations
- Lecture 22 - Iterative Methods for Solving System of Linear Equations (Continued...)
- Lecture 23 - Iterative Methods for Solving System of Linear Equations (Continued...)
- Lecture 24 - Roots of Algebraic and Transcendental Equations
- Lecture 25 - Roots of Algebraic and Transcendental Equations (Continued...)
- Lecture 26 - Polynomial Interpolation
- Lecture 27 - Polynomial Interpolation (Continued...)
- Lecture 28 - Polynomial Interpolation (Continued...)
- Lecture 29 - Polynomial Interpolation (Continued...)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Numerical Integration
- Lecture 31 - Trigonometric Polynomials and Series
- Lecture 32 - Derivation of Fourier Series
- Lecture 33 - Fourier Series -Evaluation
- Lecture 34 - Convergence of Fourier Series - I
- Lecture 35 - Convergence of Fourier Series - II
- Lecture 36 - Fourier Series for Even and Odd Functions
- Lecture 37 - Half Range Fourier Expansions
- Lecture 38 - Differentiation and Integration of Fourier Series
- Lecture 39 - Bessel's Inequality and Parseval's Identity
- Lecture 40 - Complex Form of Fourier Series
- Lecture 41 - Fourier Integral Representation of a Function
- Lecture 42 - Fourier Sine and Cosine Integrals
- Lecture 43 - Fourier Cosine and Sine Transform
- Lecture 44 - Fourier Transform
- Lecture 45 - Properties of Fourier Transform
- Lecture 46 - Evaluation of Fourier Transform - Part 1
- Lecture 47 - Evaluation of Fourier Transform - Part 2
- Lecture 48 - Introduction to Partial Differential Equations
- Lecture 49 - Applications of Fourier Transform to PDEs - Part 1
- Lecture 50 - Applications of Fourier Transform to PDEs - Part 2
- Lecture 51 - Laplace Transform of Some Elementary Functions
- Lecture 52 - Existence of Laplace Transform
- Lecture 53 - Inverse Laplace Transform
- Lecture 54 - Properties of Laplace Transform
- Lecture 55 - Properties of Laplace Transform (Continued...)
- Lecture 56 - Properties of Laplace Transform (Continued...)
- Lecture 57 - Laplace Transform of Special Functions
- Lecture 58 - Laplace Transform of Special Functions (Continued...)
- Lecture 59 - Applications of Laplace Transform
- Lecture 60 - Applications of Laplace Transform (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Advanced Calculus For Engineers

Subject Co-ordinator - Prof. Somesh Kumar, Prof. Jitendra Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Rolle's Theorem  
Lecture 2 - Mean Value Theorem  
Lecture 3 - Taylor's Formula (Single Variable)  
Lecture 4 - Indeterminate Forms - Part 1  
Lecture 5 - Indeterminate Forms - Part 2  
Lecture 6 - Introduction to Limit  
Lecture 7 - Evaluation of Limit  
Lecture 8 - Continuity  
Lecture 9 - First Order Partial Derivatives  
Lecture 10 - Higher Order Partial Derivatives  
Lecture 11 - Differentiability - Part 1  
Lecture 12 - Differentiability - Part 2  
Lecture 13 - Differentiability - Part 3  
Lecture 14 - Differentiability - Part 4  
Lecture 15 - Composite and Homogeneous Functions  
Lecture 16 - Taylor's Theorem (Multivariable)  
Lecture 17 - Maxima and Minima - Part 1  
Lecture 18 - Maxima and Minima - Part 2  
Lecture 19 - Maxima and Minima - Part 3  
Lecture 20 - Maxima and Minima - Part 4  
Lecture 21 - Formation of Differential Equations  
Lecture 22 - First Order and First Degree DE  
Lecture 23 - Exact Differential Equations  
Lecture 24 - Integrating Factor  
Lecture 25 - Linear Differential Equations  
Lecture 26 - Introduction to Higher Order DEs  
Lecture 27 - Complementary Function  
Lecture 28 - Particular Integral  
Lecture 29 - Cauchy-Euler Equations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Method of Variation of Parameters
- Lecture 31 - Improper Integral - Part 1
- Lecture 32 - Improper Integral - Part 2
- Lecture 33 - Improper Integral - Part 3
- Lecture 34 - Improper Integral - Part 4
- Lecture 35 - Beta and Gamma Function - Part 1
- Lecture 36 - Beta and Gamma Function - Part 2
- Lecture 37 - Differentiation under the Integral Sign
- Lecture 38 - Double Integrals - Part 1
- Lecture 39 - Double Integrals - Part 2
- Lecture 40 - Double Integrals - Part 3
- Lecture 41 - Double Integrals - Part 4
- Lecture 42 - Double Integrals - Part 5
- Lecture 43 - Double Integrals - Part 6
- Lecture 44 - Triple Integrals - Part 1
- Lecture 45 - Triple Integrals - Part 2
- Lecture 46 - Vector Functions
- Lecture 47 - Vector and Scalar Fields
- Lecture 48 - Divergence and Curl of a Vector Field
- Lecture 49 - Line Integrals
- Lecture 50 - Conservative Vector Fields
- Lecture 51 - Green's Theorem
- Lecture 52 - Surface Integrals - Part 1
- Lecture 53 - Surface Integrals - Part 2
- Lecture 54 - Stokes' Theorem
- Lecture 55 - Divergence Theorem
- Lecture 56 - Application of Derivatives
- Lecture 57 - Application of Derivatives (Continued...)
- Lecture 58 - Properties of Gradient, Divergence and Curl
- Lecture 59 - Properties of Gradient, Divergence and Curl (Continued...)
- Lecture 60 - Curl and Integrals

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Rings and Modules

Subject Co-ordinator - Prof. Ramakrishna Nanduri, Prof. Mousumi Mandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Rings
- Lecture 2 - Rings, Subrings
- Lecture 3 - Ring Homomorphism, Ideals
- Lecture 4 - Properties of Ideals
- Lecture 5 - Properties of Ideals (Continued...)
- Lecture 6 - Quotient Ring, Isomorphism Theorem
- Lecture 7 - Isomorphism Theorem, Homomorphism Theorem
- Lecture 8 - Homomorphism Theorem
- Lecture 9 - Integral Domain, Quotient Ring
- Lecture 10 - Quotient Ring
- Lecture 11 - Prime ideals, Maximal ideals
- Lecture 12 - Maximal ideals
- Lecture 13 - Hilbert's Nullstellensatz
- Lecture 14 - Hilbert's Nullstellensatz (Continued...)
- Lecture 15 - Application of Hilbert's Nullstellensatz
- Lecture 16 - Unique Factorization domain
- Lecture 17 - Properties of Unique Factorization domain
- Lecture 18 - Principal ideal domain
- Lecture 19 - Properties of PID and ED
- Lecture 20 - Properties of PID and ED (Continued...)
- Lecture 21 - Prime elements of  $\mathbb{Z}[i]$
- Lecture 22 - Prime elements of  $\mathbb{Z}[i]$  (Continued...)
- Lecture 23 - Application in  $\mathbb{Z}[i]$
- Lecture 24 - Polynomial Rings over UFD
- Lecture 25 - Gauss's Lemma
- Lecture 26 - Polynomial Ring over UFD and Irreducibility Criterion
- Lecture 27 - Irreducibility Criterion
- Lecture 28 - Chinese Remainder Theorem
- Lecture 29 - Nilradical and Jacobson radical

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Examples and Problems
- Lecture 31 - Definition of Modules and Examples
- Lecture 32 - Definition of Modules and Examples (Continued...)
- Lecture 33 - Submodules, direct sum and direct product of modules
- Lecture 34 - Direct sum and direct product of modules, free modules
- Lecture 35 - Finitely generated modules, free modules vs Vector spaces
- Lecture 36 - Free modules vs Vector spaces
- Lecture 37 - Vector spaces vs free modules and Examples
- Lecture 38 - Quotient modules and module homomorphisms
- Lecture 39 - Module homomorphism, Epimorphism theorem
- Lecture 40 - Epimorphism theorem
- Lecture 41 - Maximal submodules, minimal submodules
- Lecture 42 - Freeness of submodules of a free module over a PID
- Lecture 43 - Torsion modules, freeness of torsion-free modules over a PID
- Lecture 44 - Rank of a module, p-submodules over a PID
- Lecture 45 - Structure of a torsion module over a PID
- Lecture 46 - Structure theorem, chain conditions
- Lecture 47 - Artinian modules, Artinian rings
- Lecture 48 - Noetherian modules, Noetherian rings
- Lecture 49 - Ascending chain condition, Noetherian modules
- Lecture 50 - Examples of Noetherian and Artinian modules and rings
- Lecture 51 - Composition series, Modules of finite length
- Lecture 52 - Jordan-Holder's theorem
- Lecture 53 - Artinian rings
- Lecture 54 - Noetherian rings
- Lecture 55 - Hilbert basis theorem
- Lecture 56 - Cohen's theorem on Noetherianness
- Lecture 57 - Nakayama lemma
- Lecture 58 - Nil and Jacobson radicals in Artinian rings
- Lecture 59 - Structure theorem
- Lecture 60 - Comparison between Artinian and Noetherian rings

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Advanced Computational Techniques

Subject Co-ordinator - Prof. Somnath Bhattacharyya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Polynomial Interpolation
- Lecture 2 - Polynomial Interpolation
- Lecture 3 - Polynomial Interpolation
- Lecture 4 - Spline Interpolation
- Lecture 5 - Spline Interpolation
- Lecture 6 - Numerical Quadrature
- Lecture 7 - Numerical Quadrature (Continued...)
- Lecture 8 - Least Squares Approximation
- Lecture 9 - Linear System of Equations
- Lecture 10 - Linear System of Equations (Continued... )
- Lecture 11 - Initial Value Problems (IVP)
- Lecture 12 - Initial Value Problems (Continued...)
- Lecture 13 - Initial Value Problems (Continued...)
- Lecture 14 - Initial Value Problems (Continued...)
- Lecture 15 - Linear Boundary Value Problem (BVP)
- Lecture 16 - Linear Boundary Value Problem (BVP) (Continued...)
- Lecture 17 - Non-linear BVP, Iterative Method
- Lecture 18 - Linear Parabolic PDE
- Lecture 19 - Hyperbolic PDE
- Lecture 20 - Non-linear advection-diffusion equation

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Applied Linear Algebra in AI and ML

Subject Co-ordinator - Prof. Swanand Khare

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Vector Spaces
- Lecture 2 - Vector Subspaces
- Lecture 3 - Linear Span and Linear Dependence
- Lecture 4 - Linear Independence
- Lecture 5 - Basis and Dimension
- Lecture 6 - Linear Functionals
- Lecture 7 - Norm of Vector - Part I
- Lecture 8 - Norm of Vector - Part II
- Lecture 9 - Linear Functions
- Lecture 10 - Affine Functions and Examples
- Lecture 11 - Examples of Linear and Affine Functions
- Lecture 12 - Function Composition
- Lecture 13 - System of Linear Equations
- Lecture 14 - Left Invertibility
- Lecture 15 - Invertibility of Matrices
- Lecture 16 - Triangular Systems
- Lecture 17 - LU Decomposition - Part I
- Lecture 18 - LU Decomposition - Part II
- Lecture 19 - QR Decomposition (Rotators) - Part I
- Lecture 20 - QR Decomposition (Rotators) - Part II
- Lecture 21 - QR Decomposition (Reflectors) - Part I
- Lecture 22 - QR Decomposition (Reflectors) - Part II
- Lecture 23 - Matrix Norms
- Lecture 24 - Sensitivity Analysis
- Lecture 25 - Condition Number of a Matrix
- Lecture 26 - Sensitivity Analysis - II
- Lecture 27 - Sensitivity Analysis - III
- Lecture 28 - Least Squares - Part I
- Lecture 29 - Least Squares - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Least Squares - Part III
- Lecture 31 - Least Squares Data Fitting
- Lecture 32 - Examples of LS data fitting
- Lecture 33 - Classification using Least Squares
- Lecture 34 - Examples of LS classification
- Lecture 35 - Constrained Least Squares
- Lecture 36 - Multiobjective Least Squares
- Lecture 37 - Eigenvalues and Eigenvectors - Part I
- Lecture 38 - Eigenvalues and Eigenvectors - Part II
- Lecture 39 - Spectral Decomposition Theorem
- Lecture 40 - Positive Definite Matrices
- Lecture 41 - Singular Value Decomposition (SVD)
- Lecture 42 - Proof of SVD
- Lecture 43 - Properties of SVD
- Lecture 44 - Another Proof of SVD
- Lecture 45 - Low Rank Approximations
- Lecture 46 - Principal Component Analysis
- Lecture 47 - SVD and Pseudo - Inverse
- Lecture 48 - SVD and the Least Squares Problem
- Lecture 49 - Sensitivity Analysis of the Least Squares Problem
- Lecture 50 - Power Method
- Lecture 51 - Directed Graphs and Properties
- Lecture 52 - Page Ranking Algorithm
- Lecture 53 - Inverse Eigen Value Problem
- Lecture 54 - Fastest Mixing Markov Chains on Graphs - Part I
- Lecture 55 - Fastest Mixing Markov Chains on Graphs - Part II
- Lecture 56 - Sparse Solution and Underdetermined Systems
- Lecture 57 - Structured Low Rank Approximations - Part I
- Lecture 58 - Structured Low Rank Approximations - Part II
- Lecture 59 - Structured Low Rank Approximations - Part III
- Lecture 60 - Recap

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Advanced Engineering Mathematics (2023)

Subject Co-ordinator - Prof. H S Mahato

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction on functions of a single variable  
Lecture 2 - Basic definitions  
Lecture 3 - Mean value Theorems  
Lecture 4 - Extremum of function of single variable  
Lecture 5 - Examples  
Lecture 6 - Introduction on functions of two variable  
Lecture 7 - Basic definitions  
Lecture 8 - Partial differentiation  
Lecture 9 - Extremum of function of two variable  
Lecture 10 - Examples  
Lecture 11 - Convergence and divergence test  
Lecture 12 - Beta function, Gamma function  
Lecture 13 - Differentiation under integral sign  
Lecture 14 - Line integral, integration in  $R^2$  (Double integral)  
Lecture 15 - Examples  
Lecture 16 - Double integral  
Lecture 17 - Integration in  $R^3$   
Lecture 18 - Triple integral  
Lecture 19 - Examples  
Lecture 20 - Introduction to Differential equation  
Lecture 21 - Exact form  
Lecture 22 - Second order differential equation  
Lecture 23 - Iterative method (bisection and fixed point)  
Lecture 24 - Newton-Raphson, Jacobi and Gauss-Seidel method  
Lecture 25 - Finite difference method  
Lecture 26 - Newton's forward and backward interpolation  
Lecture 27 - Numerical integration  
Lecture 28 - Vector space and Subspace  
Lecture 29 - Basis and dimension

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Rank of a matrix
- Lecture 31 - Gauss-Elimination Method
- Lecture 32 - Linear Transformation
- Lecture 33 - Examples
- Lecture 34 - Matrix Representation
- Lecture 35 - Eigenvalues and Eigenvectors
- Lecture 36 - Cayley-Hamilton Theorem
- Lecture 37 - Diagonalisation of a Matrix
- Lecture 38 - Examples and applications
- Lecture 39 - Types of matrices
- Lecture 40 - Equivalent Matrices and Elementary Matrices
- Lecture 41 - Introduction to the vector function
- Lecture 42 - Differentiation and integration of the vector function
- Lecture 43 - Partial differentiation of vector function
- Lecture 44 - Directional derivative of a vector function
- Lecture 45 - Examples on directional derivative, tangent plane and normal
- Lecture 46 - Divergence and curl of a vector function
- Lecture 47 - Application to mechanics of vector calculus
- Lecture 48 - Serret-Frenet formula and more applications to mechanics
- Lecture 49 - Examples on finding unit vectors, curvature and torsion
- Lecture 50 - Application of vector calculus to the particle dynamics
- Lecture 51 - Line integral of vector function
- Lecture 52 - Surface integral of vector function
- Lecture 53 - Volume integral of vector function and Gauss Divergence Theorem
- Lecture 54 - Green's theorem and Stoke's theorem
- Lecture 55 - Verification and application of Divergencen theorem, Green's theorem and Stoke's theorem
- Lecture 56 - Basic properties of a complex valued function
- Lecture 57 - Analytic Complex valued function
- Lecture 58 - Complex Integration and theorems
- Lecture 59 - Application of Cauchy's integral formula
- Lecture 60 - Regular and Singular point of a complex valued function

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Essentials of Topology

Subject Co-ordinator - Prof. S. P. Tiwari

Co-ordinating Institute - IIT-ISM Dhanbad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Sets and Functions - I  
Lecture 3 - Sets and Functions - II  
Lecture 4 - Sets and Functions - III  
Lecture 5 - Sets and Functions - IV  
Lecture 6 - Metric Spaces  
Lecture 7 - Topological Spaces  
Lecture 8 - Topological Spaces (Examples)  
Lecture 9 - Typologies on  $\mathbb{R}$  - I  
Lecture 10 - Typologies on  $\mathbb{R}$  - II  
Lecture 11 - Comparison of topologies  
Lecture 12 - Closed sets  
Lecture 13 - Basis for a topology - I  
Lecture 14 - Basis for a topology - II  
Lecture 15 - A topology on  $\mathbb{R}^2$   
Lecture 16 - Subbasis and Neighborhood  
Lecture 17 - Limit points of sets  
Lecture 18 - Closure of sets  
Lecture 19 - Interior and boundary of sets  
Lecture 20 - Subspaces  
Lecture 21 - Product topology  
Lecture 22 - Product and Box topologies  
Lecture 23 - The Quotient topology  
Lecture 24 - Krakowski closure/interior operator  
Lecture 25 - Countability axioms - I  
Lecture 26 - Countability axioms - II  
Lecture 27 - Countability axioms - III  
Lecture 28 - Continuous functions - I  
Lecture 29 - Continuous functions - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Continuous functions - III
- Lecture 31 - Continuous functions - IV
- Lecture 32 - Homeomorphisms - I
- Lecture 33 - Homeomorphisms - II
- Lecture 34 - Homeomorphisms - III
- Lecture 35 - Connectedness - I
- Lecture 36 - Connectedness - II
- Lecture 37 - Connectedness - III
- Lecture 38 - Connectedness - IV
- Lecture 39 - Connectedness - V
- Lecture 40 - Connectedness - VI
- Lecture 41 - Connectedness - VII
- Lecture 42 - Connectedness - VIII
- Lecture 43 - Path connectedness - I
- Lecture 44 - Path connectedness - II
- Lecture 45 - Path connectedness - III
- Lecture 46 - Path components and Local connectedness
- Lecture 47 - Local connectedness
- Lecture 48 - Local path connectedness
- Lecture 49 - Compactness - I
- Lecture 50 - Compactness - II
- Lecture 51 - Compactness - III
- Lecture 52 - Compactness - IV
- Lecture 53 - Compactness - V
- Lecture 54 - Compactness - VI
- Lecture 55 - Compactness - VII
- Lecture 56 - Compactness - VIII
- Lecture 57 - Compactness - IX
- Lecture 58 - Compactness - X
- Lecture 59 - One-point compactifications - I
- Lecture 60 - One-point compactifications - II
- Lecture 61 - Separation axioms - I
- Lecture 62 - Separation axioms - II
- Lecture 63 - Separation axioms - III
- Lecture 64 - Separation axioms - IV
- Lecture 65 - Separation axioms - V
- Lecture 66 - Separation axioms - VI
- Lecture 67 - Separation axioms - VII
- Lecture 68 - Separation axioms - VIII

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Tychonoff theorem - I
- Lecture 70 - Tychonoff theorem - II
- Lecture 71 - Stone-Cech compactification - I
- Lecture 72 - Stone-Cech compactification - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Numerical Linear Algebra and Application

Subject Co-ordinator - Prof. Srinivasa Rao Pentyala

Co-ordinating Institute - IIT-ISM Dhanbad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Linear Algebra and Introduction
- Lecture 2 - Computational Difficulties
- Lecture 3 - Computational Error
- Lecture 4 - Stability
- Lecture 5 - Gaussian Elimination
- Lecture 6 - LU Factorization
- Lecture 7 - Iterative refinement
- Lecture 8 - QR Factorization
- Lecture 9 - Gram-Schmidt Orthogonalization
- Lecture 10 - Cholesky Decomposition
- Lecture 11 - Projections
- Lecture 12 - House-Holder Reflectors
- Lecture 13 - Image Compression
- Lecture 14 - Singular Value Decomposition
- Lecture 15 - Least Square Solutions
- Lecture 16 - Pseudo-Inverse
- Lecture 17 - Normal Equations
- Lecture 18 - Eigenvalue problems
- Lecture 19 - Gershgorin Theorem
- Lecture 20 - Similarity Transforms
- Lecture 21 - Eigenvalues
- Lecture 22 - Sensitivity Vectors
- Lecture 23 - Power method
- Lecture 24 - Schur Decomposition
- Lecture 25 - Jordan Canonical form
- Lecture 26 - QR Iteration
- Lecture 27 - Heisenberg transformation
- Lecture 28 - Rayleigh Quotient
- Lecture 29 - Symmetric eigenvalue problem

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Jacobi Method
- Lecture 31 - Divide and Conquer
- Lecture 32 - Computing the Singular Value Decomposition
- Lecture 33 - Golub-Kahan-Reinsch Algorithm
- Lecture 34 - Chan SVD Algorithm
- Lecture 35 - Generalized SVD
- Lecture 36 - Generalized and Quadratic Eigenvalue Problems
- Lecture 37 - Generalized Schur Decomposition (QZ Decomposition)
- Lecture 38 - Iterative Methods for Large Linear Systems: Jacobi
- Lecture 39 - Iterative methods for large linear systems: Gauss-Seidel Method
- Lecture 40 - Iterative methods for large linear systems: SOR method
- Lecture 41 - Convergence of iterative algorithms
- Lecture 42 - Krylov subspace methods
- Lecture 43 - Lanczos
- Lecture 44 - Arnoldi
- Lecture 45 - Stability of the Cholesky QR Algorithm
- Lecture 46 - Conditioning of the eigenvalues
- Lecture 47 - Symmetric definite pencil
- Lecture 48 - AI applications
- Lecture 49 - Sensitive systems
- Lecture 50 - Real Life Systems
- Lecture 51 - Transient thermal systems
- Lecture 52 - Left Inverse
- Lecture 53 - Right Inverse
- Lecture 54 - Generalized Inverse
- Lecture 55 - Applications
- Lecture 56 - Applications (Continued...)
- Lecture 57 - Applications (Continued...)
- Lecture 58 - Applications (Continued...)
- Lecture 59 - Applications (Continued...)
- Lecture 60 - Applications of the Matrices in Real Life Systems
- Lecture 61 - Matrices and Its Fundamentals: Recalling Examples
- Lecture 62 - Properties of Matrices: Recalling and Revision, Examples
- Lecture 63 - Matrices: Finite Digit Arithmetic: recalling and Examples

## NPTL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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NPTL Video Course - Mathematics - An Introduction to Riemann Surfaces and Algebraic Curves:  
Complex 1-Tori and Elliptic Curves

Subject Co-ordinator - Dr. T.E. Venkata Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The Idea of a Riemann Surface
- Lecture 2 - Simple Examples of Riemann Surfaces
- Lecture 3 - Maximal Atlases and Holomorphic Maps of Riemann Surfaces
- Lecture 4 - A Riemann Surface Structure on a Cylinder
- Lecture 5 - A Riemann Surface Structure on a Torus
- Lecture 6 - Riemann Surface Structures on Cylinders and Tori via Covering Spaces
- Lecture 7 - Moebius Transformations Make up Fundamental Groups of Riemann Surfaces
- Lecture 8 - Homotopy and the First Fundamental Group
- Lecture 9 - A First Classification of Riemann Surfaces
- Lecture 10 - The Importance of the Path-lifting Property
- Lecture 11 - Fundamental groups as Fibres of the Universal covering Space
- Lecture 12 - The Monodromy Action
- Lecture 13 - The Universal covering as a Hausdorff Topological Space
- Lecture 14 - The Construction of the Universal Covering Map
- Lecture 15 - Completion of the Construction of the Universal Covering
- Lecture 16 - Completion of the Construction of the Universal Covering
- Lecture 17 - The Riemann Surface Structure on the Topological Covering of a Riemann Surface
- Lecture 18 - Riemann Surfaces with Universal Covering the Plane or the Sphere
- Lecture 19 - Classifying Complex Cylinders
- Lecture 20 - Characterizing Moebius Transformations with a Single Fixed Point
- Lecture 21 - Characterizing Moebius Transformations with Two Fixed Points
- Lecture 22 - Torsion-freeness of the Fundamental Group of a Riemann Surface
- Lecture 23 - Characterizing Riemann Surface Structures on Quotients of the Upper Half-Plane with Abelian Fundamental Groups
- Lecture 24 - Classifying Annuli up to Holomorphic Isomorphism
- Lecture 25 - Orbits of the Integral Unimodular Group in the Upper Half-Plane
- Lecture 26 - Galois Coverings are precisely Quotients by Properly Discontinuous Free Actions
- Lecture 27 - Local Actions at the Region of Discontinuity of a Kleinian Subgroup of Moebius Transformations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 28 - Quotients by Kleinian Subgroups give rise to Riemann Surfaces
- Lecture 29 - The Unimodular Group is Kleinian
- Lecture 30 - The Necessity of Elliptic Functions for the Classification of Complex Tori
- Lecture 31 - The Uniqueness Property of the Weierstrass Phe-function associated to a Lattice in the Plane
- Lecture 32 - The First Order Degree Two Cubic Ordinary Differential Equation satisfied by the Weierstrass Phe-function
- Lecture 33 - The Values of the Weierstrass Phe-function at the Zeros of its Derivative are nonvanishing Analytic Functions on the Upper Half-Plane
- Lecture 34 - The Construction of a Modular Form of Weight Two on the Upper Half-Plane
- Lecture 35 - The Fundamental Functional Equations satisfied by the Modular Form of Weight Two on the Upper Half-Plane
- Lecture 36 - The Weight Two Modular Form assumes Real Values on the Imaginary Axis in the Upper Half-plane
- Lecture 37 - The Weight Two Modular Form Vanishes at Infinity
- Lecture 38 - The Weight Two Modular Form Decays Exponentially in a Neighbourhood of Infinity
- Lecture 39 - A Suitable Restriction of the Weight Two Modular Form is a Holomorphic Conformal Isomorphism onto the Upper Half-Plane
- Lecture 40 - The J-Invariant of a Complex Torus (or) of an Algebraic Elliptic Curve
- Lecture 41 - A Fundamental Region in the Upper Half-Plane for the Elliptic Modular J-Invariant
- Lecture 42 - The Fundamental Region in the Upper Half-Plane for the Unimodular Group
- Lecture 43 - A Region in the Upper Half-Plane Meeting Each Unimodular Orbit Exactly Once
- Lecture 44 - Moduli of Elliptic Curves
- Lecture 45 - Punctured Complex Tori are Elliptic Algebraic Affine Plane Cubic Curves in Complex 2-Space
- Lecture 46 - The Natural Riemann Surface Structure on an Algebraic Affine Nonsingular Plane Curve
- Lecture 47 - Complex Projective 2-Space as a Compact Complex Manifold of Dimension Two
- Lecture 48 - Complex Tori are the same as Elliptic Algebraic Projective Curves

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Linear Algebra

Subject Co-ordinator - Dr. K.C. Sivakumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the Course Contents

Lecture 2 - Linear Equations

Lecture 3a - Equivalent Systems of Linear Equations I

Lecture 3b - Equivalent Systems of Linear Equations II

Lecture 4 - Row-reduced Echelon Matrices

Lecture 5 - Row-reduced Echelon Matrices and Non-homogeneous Equations

Lecture 6 - Elementary Matrices, Homogeneous Equations and Non-homogeneous Equations

Lecture 7 - Invertible matrices, Homogeneous Equations Non-homogeneous Equations

Lecture 8 - Vector spaces

Lecture 9 - Elementary Properties in Vector Spaces. Subspaces

Lecture 10 - Subspaces (Continued...), Spanning Sets, Linear Independence, Dependence

Lecture 11 - Basis for a vector space

Lecture 12 - Dimension of a vector space

Lecture 13 - Dimensions of Sums of Subspaces

Lecture 14 - Linear Transformations

Lecture 15 - The Null Space and the Range Space of a Linear Transformation

Lecture 16 - The Rank-Nullity-Dimension Theorem. Isomorphisms Between Vector Spaces

Lecture 17 - Isomorphic Vector Spaces, Equality of the Row-rank and the Column-rank - I

Lecture 18 - Equality of the Row-rank and the Column-rank - II

Lecture 19 - The Matrix of a Linear Transformation

Lecture 20 - Matrix for the Composition and the Inverse. Similarity Transformation

Lecture 21 - Linear Functionals. The Dual Space. Dual Basis - I

Lecture 22 - Dual Basis II. Subspace Annihilators - I

Lecture 23 - Subspace Annihilators - II

Lecture 24 - The Double Dual. The Double Annihilator

Lecture 25 - The Transpose of a Linear Transformation. Matrices of a Linear Transformation and its Transpose

Lecture 26 - Eigenvalues and Eigenvectors of Linear Operators

Lecture 27 - Diagonalization of Linear Operators. A Characterization

Lecture 28 - The Minimal Polynomial

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - The Cayley-Hamilton Theorem
- Lecture 30 - Invariant Subspaces
- Lecture 31 - Triangulability, Diagonalization in Terms of the Minimal Polynomial
- Lecture 32 - Independent Subspaces and Projection Operators
- Lecture 33 - Direct Sum Decompositions and Projection Operators - I
- Lecture 34 - Direct Sum Decompositions and Projection Operators - II
- Lecture 35 - The Primary Decomposition Theorem and Jordan Decomposition
- Lecture 36 - Cyclic Subspaces and Annihilators
- Lecture 37 - The Cyclic Decomposition Theorem - I
- Lecture 38 - The Cyclic Decomposition Theorem - II. The Rational Form
- Lecture 39 - Inner Product Spaces
- Lecture 40 - Norms on Vector spaces. The Gram-Schmidt Procedure I
- Lecture 41 - The Gram-Schmidt Procedure II. The QR Decomposition
- Lecture 42 - Bessel's Inequality, Parseval's Identity, Best Approximation
- Lecture 43 - Best Approximation
- Lecture 44 - Orthogonal Complementary Subspaces, Orthogonal Projections
- Lecture 45 - Projection Theorem. Linear Functionals
- Lecture 46 - The Adjoint Operator
- Lecture 47 - Properties of the Adjoint Operation. Inner Product Space Isomorphism
- Lecture 48 - Unitary Operators
- Lecture 49 - Unitary operators - II. Self-Adjoint Operators - I.
- Lecture 50 - Self-Adjoint Operators - II - Spectral Theorem
- Lecture 51 - Normal Operators - Spectral Theorem

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Mathematical Logic

Subject Co-ordinator - Prof. Arindama Singh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Sets and Strings  
Lecture 2 - Syntax of Propositional Logic  
Lecture 3 - Unique Parsing  
Lecture 4 - Semantics of PL  
Lecture 5 - Consequences and Equivalences  
Lecture 6 - Five results about PL  
Lecture 7 - Calculations and Informal Proofs  
Lecture 8 - More Informal Proofs  
Lecture 9 - Normal forms  
Lecture 10 - SAT and 3SAT  
Lecture 11 - Horn-SAT and Resolution  
Lecture 12 - Resolution  
Lecture 13 - Adequacy of Resolution  
Lecture 14 - Adequacy and Resolution Strategies  
Lecture 15 - Propositional Calculus (PC)  
Lecture 16 - Some Results about PC  
Lecture 17 - Arguing with Proofs  
Lecture 18 - Adequacy of PC  
Lecture 19 - Compactness & Analytic Tableau  
Lecture 20 - Examples of Tableau Proofs  
Lecture 21 - Adequacy of Tableaux  
Lecture 22 - Syntax of First order Logic (FL)  
Lecture 23 - Symbolization & Scope of Quantifiers  
Lecture 24 - Hurdles in giving Meaning  
Lecture 25 - Semantics of FL  
Lecture 26 - Relevance Lemma  
Lecture 27 - Validity, Satisfiability & Equivalence  
Lecture 28 - Six Results about FL  
Lecture 29 - Laws, Calculation & Informal Proof

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- Lecture 30 - Quantifier Laws and Consequences
- Lecture 31 - More Proofs and Prenex Form
- Lecture 32 - Prenex Form Conversion
- Lecture 33 - Skolem Form
- Lecture 34 - Syntactic Interpretation
- Lecture 35 - Herbrand's Theorem
- Lecture 36 - Most General Unifiers
- Lecture 37 - Resolution Rules
- Lecture 38 - Resolution Examples
- Lecture 39 - Axiomatic System FC
- Lecture 40 - FC and Semidecidability of FL
- Lecture 41 - Analytic Tableau for FL
- Lecture 42 - Godels Incompleteness Theorems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Real Analysis

Subject Co-ordinator - Prof. S.H. Kulkarni

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Functions and Relations  
Lecture 3 - Finite and Infinite Sets  
Lecture 4 - Countable Sets  
Lecture 5 - Uncountable Sets, Cardinal Number  
Lecture 6 - Real Number System  
Lecture 7 - LUB Axiom  
Lecture 8 - Sequences of Real Numbers  
Lecture 9 - Sequences of Real Numbers - (Continued.)  
Lecture 10 - Sequences of Real Numbers - (Continued.)  
Lecture 11 - Infinite Series of Real Numbers  
Lecture 12 - Series of nonnegative Real Numbers  
Lecture 13 - Conditional Convergence  
Lecture 14 - Metric Spaces  
Lecture 15 - Metric Spaces  
Lecture 16 - Balls and Spheres  
Lecture 17 - Open Sets  
Lecture 18 - Closure Points, Limit Points and isolated Points  
Lecture 19 - Closed sets  
Lecture 20 - Sequences in Metric Spaces  
Lecture 21 - Completeness  
Lecture 22 - Baire Category Theorem  
Lecture 23 - Limit and Continuity of a Function defined on a Metric space  
Lecture 24 - Continuous Functions on a Metric Space  
Lecture 25 - Uniform Continuity  
Lecture 26 - Connectedness  
Lecture 27 - Connected Sets  
Lecture 28 - Compactness  
Lecture 29 - Compactness (Continued.)

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- Lecture 30 - Characterizations of Compact Sets
- Lecture 31 - Continuous Functions on Compact Sets
- Lecture 32 - Types of Discontinuity
- Lecture 33 - Differentiation
- Lecture 34 - Mean Value Theorems
- Lecture 35 - Mean Value Theorems (Continued.)
- Lecture 36 - Taylor's Theorem
- Lecture 37 - Differentiation of Vector Valued Functions
- Lecture 38 - Integration
- Lecture 39 - Integrability
- Lecture 40 - Integrable Functions
- Lecture 41 - Integrable Functions (Continued.)
- Lecture 42 - Integration as a Limit of Sum
- Lecture 43 - Integration and Differentiation
- Lecture 44 - Integration of Vector Valued Functions
- Lecture 45 - More Theorems on Integrals
- Lecture 46 - Sequences and Series of Functions
- Lecture 47 - Uniform Convergence
- Lecture 48 - Uniform Convergence and Integration
- Lecture 49 - Uniform Convergence and Differentiation
- Lecture 50 - Construction of Everywhere Continuous Nowhere Differentiable Function
- Lecture 51 - Approximation of a Continuous Function by Polynomials
- Lecture 52 - Equicontinuous family of Functions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Dynamic Data Assimilation: An Introduction

Subject Co-ordinator - Prof. S. Lakshmivarahan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Overview
- Lecture 2 - Data Mining, Data assimilation and prediction
- Lecture 3 - A classification of forecast errors
- Lecture 4 - Finite Dimensional Vector Space
- Lecture 5 - Matrices
- Lecture 6 - Matrices (Continued...)
- Lecture 7 - Multi-variate Calculus
- Lecture 8 - Optimization in Finite Dimensional Vector spaces
- Lecture 9 - Deterministic, Static, linear Inverse (well-posed) Problems
- Lecture 10 - Deterministic, Static, Linear Inverse (Ill-posed) Problems
- Lecture 11 - A Geometric View of Projections
- Lecture 12 - Deterministic, Static, nonlinear Inverse Problems
- Lecture 13 - On-line Least Squares
- Lecture 14 - Examples of static inverse problems
- Lecture 15 - Interlude and a Way Forward
- Lecture 16 - Matrix Decomposition Algorithms
- Lecture 17 - Matrix Decomposition Algorithms (Continued...)
- Lecture 18 - Minimization algorithms
- Lecture 19 - Minimization algorithms (Continued...)
- Lecture 20 - Inverse problems in deterministic
- Lecture 21 - Inverse problems in deterministic (Continued...)
- Lecture 22 - Forward sensitivity method
- Lecture 23 - Relation between FSM and 4DVAR
- Lecture 24 - Statistical Estimation
- Lecture 25 - Statistical Least Squares
- Lecture 26 - Maximum Likelihood Method
- Lecture 27 - Bayesian Estimation
- Lecture 28 - From Gauss to Kalman-Linear Minimum Variance Estimation
- Lecture 29 - Initialization Classical Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Optimal interpolations
- Lecture 31 - A Bayesian Formation-3D-VAR methods
- Lecture 32 - Linear Stochastic Dynamics - Kalman Filter
- Lecture 33 - Linear Stochastic Dynamics - Kalman Filter (Continued...)
- Lecture 34 - Linear Stochastic Dynamics - Kalman Filter (Continued...)
- Lecture 35 - Covariance Square Root Filter
- Lecture 36 - Nonlinear Filtering
- Lecture 37 - Ensemble Reduced Rank Filter
- Lecture 38 - Basic nudging methods
- Lecture 39 - Deterministic predictability
- Lecture 40 - Predictability A stochastic view and Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:An Invitation to Mathematics

Subject Co-ordinator - Prof. Sankaran Vishwanath

Co-ordinating Institute - Institute of Mathematical Sciences

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Long division
- Lecture 3 - Applications of Long division
- Lecture 4 - Lagrange interpolation
- Lecture 5 - The 0-1 idea in other contexts - dot and cross product
- Lecture 6 - Taylors formula
- Lecture 7 - The Chebyshev polynomials
- Lecture 8 - Counting number of monomials - several variables
- Lecture 9 - Permutations, combinations and the binomial theorem
- Lecture 10 - Combinations with repetition, and counting monomials
- Lecture 11 - Combinations with restrictions, recurrence relations
- Lecture 12 - Fibonacci numbers; an identity and a bijective proof
- Lecture 13 - Permutations and cycle type
- Lecture 14 - The sign of a permutation, composition of permutations
- Lecture 15 - Rules for drawing tangle diagrams
- Lecture 16 - Signs and cycle decompositions
- Lecture 17 - Sorting lists of numbers, and crossings in tangle diagrams
- Lecture 18 - Real and integer valued polynomials
- Lecture 19 - Integer valued polynomials revisited
- Lecture 20 - Functions on the real line, continuity
- Lecture 21 - The intermediate value property
- Lecture 22 - Visualizing functions
- Lecture 23 - Functions on the plane, Rigid motions
- Lecture 24 - More examples of functions on the plane, dilations
- Lecture 25 - Composition of functions
- Lecture 26 - Affine and Linear transformations
- Lecture 27 - Length and Area dilation, the derivative
- Lecture 28 - Examples-I
- Lecture 29 - Examples-II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear equations, Lagrange interpolation revisited
- Lecture 31 - Completed Matrices in combinatorics
- Lecture 32 - Polynomials acting on matrices
- Lecture 33 - Divisibility, prime numbers
- Lecture 34 - Congruences, Modular arithmetic
- Lecture 35 - The Chinese remainder theorem
- Lecture 36 - The Euclidean algorithm, the 0-1 idea and the Chinese remainder theorem

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Advanced Complex Analysis

Subject Co-ordinator - Dr. T.E. Venkata Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamental Theorems Connected with Zeros of Analytic Functions
- Lecture 2 - The Argument (Counting) Principle, Rouché's Theorem and The Fundamental Theorem of Algebra
- Lecture 3 - Morera's Theorem and Normal Limits of Analytic Functions
- Lecture 4 - Hurwitz's Theorem and Normal Limits of Univalent Functions
- Lecture 5 - Local Constancy of Multiplicities of Assumed Values
- Lecture 6 - The Open Mapping Theorem
- Lecture 7 - Introduction to the Inverse Function Theorem
- Lecture 8 - Completion of the Proof of the Inverse Function Theorem
- Lecture 9 - Univalent Analytic Functions have never-zero Derivatives and are Analytic Isomorphisms
- Lecture 10 - Introduction to the Implicit Function Theorem
- Lecture 11 - Proof of the Implicit Function Theorem
- Lecture 12 - Proof of the Implicit Function Theorem
- Lecture 13 - Doing Complex Analysis on a Real Surface
- Lecture 14 -  $F(z,w)=0$  is naturally a Riemann Surface
- Lecture 15 - Constructing the Riemann Surface for the Complex Logarithm
- Lecture 16 - Constructing the Riemann Surface for the  $m$ -th root function
- Lecture 17 - The Riemann Surface for the functional inverse of an analytic mapping at a critical point
- Lecture 18 - The Algebraic nature of the functional inverses of an analytic mapping at a critical point
- Lecture 19 - The Idea of a Direct Analytic Continuation or an Analytic Extension
- Lecture 20 - General or Indirect Analytic Continuation and the Lipschitz Nature of the Radius of Convergence
- Lecture 21 - Analytic Continuation Along Paths via Power Series Part A
- Lecture 22 - Analytic Continuation Along Paths via Power Series Part B
- Lecture 23 - Continuity of Coefficients occurring in Families of Power Series defining Analytic Continuations
- Lecture 24 - Analytic Continuability along Paths
- Lecture 25 - Maximal Domains of Direct and Indirect Analytic Continuation
- Lecture 26 - Deducing the Second (Simply Connected) Version of the Monodromy Theorem from the First (Homotopy)
- Lecture 27 - Existence and Uniqueness of Analytic Continuations on Nearby Paths
- Lecture 28 - Proof of the First (Homotopy) Version of the Monodromy Theorem
- Lecture 29 - Proof of the Algebraic Nature of Analytic Branches of the Functional Inverse of an Analytic Function

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- Lecture 30 - The Mean-Value Property, Harmonic Functions and the Maximum Principle
- Lecture 31 - Proofs of Maximum Principles and Introduction to Schwarz Lemma
- Lecture 32 - Proof of Schwarz Lemma and Uniqueness of Riemann Mappings
- Lecture 33 - Reducing Existence of Riemann Mappings to Hyperbolic Geometry of Sub-domains of the Unit Disc
- Lecture 34 - Differential or Infinitesimal Schwarz Lemma, Picks Lemma, Hyperbolic Arclengths, Metric and Geodesics
- Lecture 35 - Differential or Infinitesimal Schwarz Lemma, Picks Lemma, Hyperbolic Arclengths, Metric and Geodesics
- Lecture 36 - Hyperbolic Geodesics for the Hyperbolic Metric on the Unit Disc
- Lecture 37 - Schwarz-Pick Lemma for the Hyperbolic Metric on the Unit Disc
- Lecture 38 - Arzela-Ascoli Theorem
- Lecture 39 - Completion of the Proof of the Arzela-Ascoli Theorem and Introduction to Montels Theorem
- Lecture 40 - The Proof of Montels Theorem
- Lecture 41 - The Candidate for a Riemann Mapping
- Lecture 42 - Completion of Proof of The Riemann Mapping Theorem
- Lecture 43 - Completion of Proof of The Riemann Mapping Theorem

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Discrete Mathematics

Subject Co-ordinator - Prof. Sourav Chakraborty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction
- Lecture 2 - Sets, Relations and Functions
- Lecture 3 - Propositional Logic and Predicate Logic
- Lecture 4 - Propositional Logic and Predicate Logic (Part 2)
- Lecture 5 - Elementary Number Theory
- Lecture 6 - Formal Proofs
- Lecture 7 - Direct Proofs
- Lecture 8 - Case Study
- Lecture 9 - Case Study (Part 2)
- Lecture 10 - Sets, Relations, Function and Logic
- Lecture 11 - Proof by Contradiction (Part 1)
- Lecture 12 - Proof by Contradiction (Part 2)
- Lecture 13 - Proof by Contraposition
- Lecture 14 - Proof by Counter Example
- Lecture 15 - Mathematical Induction (Part 1)
- Lecture 16 - Mathematical Induction (Part 2)
- Lecture 17 - Mathematical Induction (Part 3)
- Lecture 18 - Mathematical Induction (Part 4)
- Lecture 19 - Mathematical Induction (Part 5)
- Lecture 20 - Mathematical Induction (Part 6)
- Lecture 21 - Mathematical Induction (Part 7)
- Lecture 22 - Mathematical Induction (Part 8)
- Lecture 23 - Introduction to Graph Theory
- Lecture 24 - Handshake Problem
- Lecture 25 - Tournament Problem
- Lecture 26 - Tournament Problem (Part 2)
- Lecture 27 - Ramsey Problem
- Lecture 28 - Ramsey Problem (Part 2)
- Lecture 29 - Properties of Graphs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problem 1
- Lecture 31 - Problem 2
- Lecture 32 - Problem 3 & 4
- Lecture 33 - Counting for Selection
- Lecture 34 - Counting for Distribution
- Lecture 35 - Counting for Distribution (Part 2)
- Lecture 36 - Some Counting Problems
- Lecture 37 - Counting using Recurrence Relations
- Lecture 38 - Counting using Recurrence Relations (Part 2)
- Lecture 39 - Solving Recurrence Relations (Part 1)
- Lecture 40 - Solving Recurrence Relations (Part 2)
- Lecture 41 - Asymptotic Relations (Part 1)
- Lecture 42 - Asymptotic Relations (Part 2)
- Lecture 43 - Asymptotic Relations (Part 3)
- Lecture 44 - Asymptotic Relations (Part 4)
- Lecture 45 - Generating Functions (Part 1)
- Lecture 46 - Generating Functions (Part 2)
- Lecture 47 - Generating Functions (Part 3)
- Lecture 48 - Generating Functions (Part 4)
- Lecture 49 - Proof Techniques
- Lecture 50 - Modeling
- Lecture 51 - Combinatorics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Advanced Complex Analysis - Part 2

Subject Co-ordinator - Dr. T.E. Venkata Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Properties of the Image of an Analytic Function - Introduction to the Picard Theorems
- Lecture 2 - Recalling Singularities of Analytic Functions - Non-isolated and Isolated Removable, Pole and Essential
- Lecture 3 - Recalling Riemann's Theorem on Removable Singularities
- Lecture 4 - Casorati-Weierstrass Theorem; Dealing with the Point at Infinity -- Riemann Sphere and Riemann Sphere
- Lecture 5 - Neighborhood of Infinity, Limit at Infinity and Infinity as an Isolated Singularity
- Lecture 6 - Studying Infinity - Formulating Epsilon-Delta Definitions for Infinite Limits and Limits at Infinity
- Lecture 7 - When is a function analytic at infinity ?
- Lecture 8 - Laurent Expansion at Infinity and Riemann's Removable Singularities Theorem for the Point at Infinity
- Lecture 9 - The Generalized Liouville Theorem - Little Brother of Little Picard and Analogue of Casorati-Weierstrass
- Lecture 10 - Morera's Theorem at Infinity, Infinity as a Pole and Behaviour at Infinity of Rational and Meromorphic
- Lecture 11 - Residue at Infinity and Introduction to the Residue Theorem for the Extended Complex Plane - Residue
- Lecture 12 - Proofs of Two Avatars of the Residue Theorem for the Extended Complex Plane and Applications of
- Lecture 13 - Infinity as an Essential Singularity and Transcendental Entire Functions
- Lecture 14 - Meromorphic Functions on the Extended Complex Plane are Precisely Quotients of Polynomials
- Lecture 15 - The Ubiquity of Meromorphic Functions - The Nerves of the Geometric Network Bridging Algebra, Analysis
- Lecture 16 - Continuity of Meromorphic Functions at Poles and Topologies of Spaces of Functions
- Lecture 17 - Why Normal Convergence, but Not Globally Uniform Convergence, is the Inevitable in Complex Analysis
- Lecture 18 - Measuring Distances to Infinity, the Function Infinity and Normal Convergence of Holomorphic Functions
- Lecture 19 - The Invariance Under Inversion of the Spherical Metric on the Extended Complex Plane
- Lecture 20 - Introduction to Hurwitz's Theorem for Normal Convergence of Holomorphic Functions in the Spherical
- Lecture 21 - Completion of Proof of Hurwitz's Theorem for Normal Limits of Analytic Functions in the Spherical
- Lecture 22 - Hurwitz's Theorem for Normal Limits of Meromorphic Functions in the Spherical Metric
- Lecture 23 - What could the Derivative of a Meromorphic Function Relative to the Spherical Metric Possibly Be
- Lecture 24 - Defining the Spherical Derivative of a Meromorphic Function
- Lecture 25 - Well-definedness of the Spherical Derivative of a Meromorphic Function at a Pole and Inversion-in
- Lecture 26 - Topological Preliminaries - Translating Compactness into Boundedness
- Lecture 27 - Introduction to the Arzela-Ascoli Theorem - Passing from abstract Compactness to verifiable Equi
- Lecture 28 - Proof of the Arzela-Ascoli Theorem for Functions - Abstract Compactness Implies Equicontinuity
- Lecture 29 - Proof of the Arzela-Ascoli Theorem for Functions - Equicontinuity Implies Compactness

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to the Montel Theorem - the Holomorphic Avatar of the Arzela-Ascoli Theorem & Why
- Lecture 31 - Completion of Proof of the Montel Theorem - the Holomorphic Avatar of the Arzela-Ascoli Theorem
- Lecture 32 - Introduction to Marty's Theorem - the Meromorphic Avatar of the Montel & Arzela-Ascoli Theorems
- Lecture 33 - Proof of one direction of Marty's Theorem - the Meromorphic Avatar of the Montel & Arzela-Ascoli
- Lecture 34 - Proof of the other direction of Marty's Theorem - the Meromorphic Avatar of the Montel & Arzela
- Lecture 35 - Normal Convergence at Infinity and Hurwitz's Theorems for Normal Limits of Analytic and Meromorphic
- Lecture 36 - Normal Sequential Compactness, Normal Uniform Boundedness and Montel's & Marty's Theorems at Infinity
- Lecture 37 - Local Analysis of Normality and the Zooming Process - Motivation for Zalcman's Lemma
- Lecture 38 - Characterizing Normality at a Point by the Zooming Process and the Motivation for Zalcman's Lemma
- Lecture 39 - Local Analysis of Normality and the Zooming Process - Motivation for Zalcman's Lemma
- Lecture 40 - Montel's Deep Theorem - The Fundamental Criterion for Normality or Fundamental Normality Test
- Lecture 41 - Proofs of the Great and Little Picard Theorems
- Lecture 42 - Royden's Theorem on Normality Based On Growth Of Derivatives
- Lecture 43 - Schottky's Theorem - Uniform Boundedness from a Point to a Neighbourhood & Problem Solving Sessions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Basic Algebraic Geometry : Varieties, Morphisms, Local Rings, Function Fields

Subject Co-ordinator - Dr. T.E. Venkata Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Algebraic Geometry?
- Lecture 2 - The Zariski Topology and Affine Space
- Lecture 3 - Going back and forth between subsets and ideals
- Lecture 4 - Irreducibility in the Zariski Topology
- Lecture 5 - Irreducible Closed Subsets Correspond to Ideals Whose Radicals are Prime
- Lecture 6 - Understanding the Zariski Topology on the Affine Line; The Noetherian property in Topology and in Algebra
- Lecture 7 - Basic Algebraic Geometry
- Lecture 8 - Topological Dimension, Krull Dimension and Heights of Prime Ideals
- Lecture 9 - The Ring of Polynomial Functions on an Affine Variety
- Lecture 10 - Geometric Hypersurfaces are Precisely Algebraic Hypersurfaces
- Lecture 11 - Why Should We Study Affine Coordinate Rings of Functions on Affine Varieties ?
- Lecture 12 - Capturing an Affine Variety Topologically From the Maximal Spectrum of its Ring of Functions
- Lecture 13 - Analyzing Open Sets and Basic Open Sets for the Zariski Topology
- Lecture 14 - The Ring of Functions on a Basic Open Set in the Zariski Topology
- Lecture 15 - Quasi-Compactness in the Zariski Topology; Regularity of a Function at a point of an Affine Variety
- Lecture 16 - What is a Global Regular Function on a Quasi-Affine Variety?
- Lecture 17 - Characterizing Affine Varieties; Defining Morphisms between Affine or Quasi-Affine Varieties
- Lecture 18 - Translating Morphisms into Affines as  $k$ -Algebra maps and the Grand Hilbert Nullstellensatz
- Lecture 19 - Morphisms into an Affine Correspond to  $k$ -Algebra Homomorphisms from its Coordinate Ring of Functions
- Lecture 20 - The Coordinate Ring of an Affine Variety Determines the Affine Variety and is Intrinsic to it
- Lecture 21 - Automorphisms of Affine Spaces and of Polynomial Rings - The Jacobian Conjecture; The Punctured Plane
- Lecture 22 - The Various Avatars of Projective  $n$ -space
- Lecture 23 - Gluing  $(n+1)$  copies of Affine  $n$ -Space to Produce Projective  $n$ -space in Topology, Manifold Theory
- Lecture 24 - Translating Projective Geometry into Graded Rings and Homogeneous Ideals
- Lecture 25 - Expanding the Category of Varieties to Include Projective and Quasi-Projective Varieties
- Lecture 26 - Translating Homogeneous Localisation into Geometry and Back
- Lecture 27 - Adding a Variable is Undone by Homogenous Localization - What is the Geometric Significance of this?
- Lecture 28 - Doing Calculus Without Limits in Geometry ?
- Lecture 29 - The Birth of Local Rings in Geometry and in Algebra

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Formula for the Local Ring at a Point of a Projective Variety Or Playing with Localisations
- Lecture 31 - The Field of Rational Functions or Function Field of a Variety - The Local Ring at the Generic Point
- Lecture 32 - Fields of Rational Functions or Function Fields of Affine and Projective Varieties and their Relationship
- Lecture 33 - Global Regular Functions on Projective Varieties are Simply the Constants
- Lecture 34 - The d-Uple Embedding and the Non-Intrinsic Nature of the Homogeneous Coordinate Ring of a Projective Variety
- Lecture 35 - The Importance of Local Rings - A Morphism is an Isomorphism if it is a Homeomorphism and Induces an Isomorphism of Local Rings
- Lecture 36 - The Importance of Local Rings - A Rational Function in Every Local Ring is Globally Regular
- Lecture 37 - Geometric Meaning of Isomorphism of Local Rings - Local Rings are Almost Global
- Lecture 38 - Local Ring Isomorphism, Equals Function Field Isomorphism, Equals Birationality
- Lecture 39 - Why Local Rings Provide Calculus Without Limits for Algebraic Geometry Pun Intended!
- Lecture 40 - How Local Rings Detect Smoothness or Nonsingularity in Algebraic Geometry
- Lecture 41 - Any Variety is a Smooth Manifold with or without Non-Smooth Boundary
- Lecture 42 - Any Variety is a Smooth Hypersurface On an Open Dense Subset

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Commutative Algebra

Subject Co-ordinator - Prof. A.V.Jayanthan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of Ring Theory
- Lecture 2 - Review of Ring Theory (Continued...)
- Lecture 3 - Ideals in commutative rings
- Lecture 4 - Operations on ideals
- Lecture 5 - Properties of prime ideals
- Lecture 6 - Colon and Radical of ideals
- Lecture 7 - Radicals, extension and contraction of ideals
- Lecture 8 - Modules and homomorphisms
- Lecture 9 - Isomorphism theorems and Operations on modules
- Lecture 10 - Operations on modules (Continued...)
- Lecture 11 - Module homomorphism and determinant trick
- Lecture 12 - Nakayama's lemma and exact sequences
- Lecture 13 - Exact sequences (Continued...)
- Lecture 14 - Homomorphisms and Tensor products
- Lecture 15 - Properties of tensor products
- Lecture 16 - Properties of tensor products (Continued...)
- Lecture 17 - Tensor product of Algebras
- Lecture 18 - Localization
- Lecture 19 - Localization (Continued...)
- Lecture 20 - Local properties
- Lecture 21 - Further properties of localization
- Lecture 22 - Integral dependence
- Lecture 23 - Integral extensions
- Lecture 24 - Lying over and Going-up theorems
- Lecture 25 - Going-down theorem
- Lecture 26 - Going-down theorem (Continued...)
- Lecture 27 - Chain conditions
- Lecture 28 - Noetherian and Artinian modules
- Lecture 29 - Properties of Noetherian and Artinian modules, Composition Series

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Further properties of Noetherian and Artinian modules and rings
- Lecture 31 - Hilbert basis theorem and Primary decomposition
- Lecture 32 - Primary decomposition (Continued...)
- Lecture 33 - Uniqueness of primary decomposition
- Lecture 34 - 2nd Uniqueness theorem, Artinian rings
- Lecture 35 - Properties of Artinian rings
- Lecture 36 - Structure Theorem of Artinian rings
- Lecture 37 - Noether Normalization
- Lecture 38 - Hilberts Nullstellensatz

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Differential Equations

Subject Co-ordinator - Prof. Srinivasa Manam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Ordinary Differential Equations (ODE)
- Lecture 2 - Methods for First Order ODE's - Homogeneous Equations
- Lecture 3 - Methods for First order ODE's - Exact Equations
- Lecture 4 - Methods for First Order ODE's - Exact Equations (Continued...)
- Lecture 5 - Methods for First order ODE's - Reducible to Exact Equations
- Lecture 6 - Methods for First order ODE's - Reducible to Exact Equations (Continued...)
- Lecture 7 - Non-Exact Equations - Finding Integrating Factors
- Lecture 8 - Linear First Order ODE and Bernoulli's Equation
- Lecture 9 - Introduction to Second order ODE's
- Lecture 10 - Properties of solutions of second order homogeneous ODE's
- Lecture 11 - Abel's formula to find the other solution
- Lecture 12 - Abel's formula - Demonstration
- Lecture 13 - Second Order ODE's with constant coefficients
- Lecture 14 - Euler - Cauchy equation
- Lecture 15 - Non homogeneous ODEs Variation of Parameters
- Lecture 16 - Method of undetermined coefficients
- Lecture 17 - Demonstration of Method of undetermined coefficients
- Lecture 18 - Power Series and its properties
- Lecture 19 - Power Series Solutions to Second Order ODE's
- Lecture 20 - Power Series Solutions (Continued...)
- Lecture 21 - Legendre Differential Equation
- Lecture 22 - Legendre Polynomials
- Lecture 23 - Properties of Legendre Polynomials
- Lecture 24 - Power series solutions around a regular singular point
- Lecture 25 - Frobenius method of solutions
- Lecture 26 - Frobenius method of solutions (Continued...)
- Lecture 27 - Examples on Frobenius method
- Lecture 28 - Bessel differential equation
- Lecture 29 - Frobenius solutions for Bessel Equation

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Properties of Bessel functions
- Lecture 31 - Properties of Bessel functions (Continued...)
- Lecture 32 - Introduction to Sturm-Liouville theory
- Lecture 33 - Sturm-Liouville Problems
- Lecture 34 - Regular Sturm-Liouville problem
- Lecture 35 - Periodic and singular Sturm-Liouville Problems
- Lecture 36 - Generalized Fourier series
- Lecture 37 - Examples of Sturm-Liouville systems
- Lecture 38 - Examples of Sturm-Liouville systems (Continued...)
- Lecture 39 - Examples of regular Sturm-Liouville systems
- Lecture 40 - Second order linear PDEs
- Lecture 41 - Classification of second order linear PDEs
- Lecture 42 - Reduction to canonical form for equations with constant coefficients
- Lecture 43 - Reduction to canonical form for equations with variable coefficients
- Lecture 44 - Reduction to Normal form-More examples
- Lecture 45 - D'Alembert solution for wave equation
- Lecture 46 - Uniqueness of solutions for wave equation
- Lecture 47 - Vibration of a semi-infinite string
- Lecture 48 - Vibration of a finite string
- Lecture 49 - Finite length string vibrations
- Lecture 50 - Finite length string vibrations (Continued...)
- Lecture 51 - Non-homogeneous wave equation
- Lecture 52 - Vibration of a circular drum
- Lecture 53 - Solutions of heat equation-Properties
- Lecture 54 - Temperature in an infinite rod
- Lecture 55 - Temperature in a semi-infinite rod
- Lecture 56 - Non-homogeneous heat equation
- Lecture 57 - Temperature in a finite rod
- Lecture 58 - Temperature in a finite rod with insulated ends
- Lecture 59 - Laplace equation over a rectangle
- Lecture 60 - Laplace equation over a rectangle with flux boundary conditions
- Lecture 61 - Laplace equation over circular domains
- Lecture 62 - Laplace equation over circular Sectors
- Lecture 63 - Uniqueness of the boundary value problems for Laplace equation
- Lecture 64 - Conclusions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Numerical Analysis

Subject Co-ordinator - Prof. R. Usha

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Lesson 1 - Introduction, Motivation
- Lecture 2 - Lesson 2 - Part 1 - Mathematical Preliminaries, Polynomial Interpolation - 1
- Lecture 3 - Lesson 2 - Part 2 - Mathematical Preliminaries, Polynomial Interpolation - 1
- Lecture 4 - Lesson 3 - Part 1 - Polynomial Interpolation - 2
- Lecture 5 - Lesson 3 - Part 2 - Polynomial Interpolation - 2
- Lecture 6 - Lesson 4 - Polynomial Interpolation - 3
- Lecture 7 - Lagrange Interpolation Polynomial, Error In Interpolation - 1
- Lecture 8 - Lagrange Interpolation Polynomial, Error In Interpolation - 1
- Lecture 9 - Error In Interpolation - 2
- Lecture 10 - Error In Interpolation - 2
- Lecture 11 - Divide Difference Interpolation Polynomial
- Lecture 12 - Properties Of Divided Difference, Introduction To Inverse Interpolation
- Lecture 13 - Properties Of Divided Difference, Introduction To Inverse Interpolation
- Lecture 14 - Inverse Interpolation, Remarks on Polynomial Interpolation
- Lecture 15 - Numerical Differentiation - 1 Taylor Series Method
- Lecture 16 - Numerical Differentiation - 2 Method Of Undetermined Coefficients
- Lecture 17 - Numerical Differentiation - 2 Polynomial Interpolation Method
- Lecture 18 - Numerical Differentiation - 3 Operator Method Numerical Integration - 1
- Lecture 19 - Numerical Integration - 2 Error in Trapezoidal Rule Simpson's Rule
- Lecture 20 - Numerical Integration - 3 Error in Simpson's Rule Composite in Trapezoidal Rule, Error
- Lecture 21 - Numerical Integration - 4 Composite Simpsons Rule , Error Method of Undetermined Coefficients
- Lecture 22 - Numerical Integration - 5 Gaussian Quadrature (Two-Point Method)
- Lecture 23 - Numerical Integrature - 5 Gaussian Quadrature (Three-Point Method) Adaptive Quadrature
- Lecture 24 - Numerical Solution of Ordinary Differential Equation (ODE) - 1
- Lecture 25 - Numerical Solution Of ODE-2 Stability , Single-Step Methods - 1 Taylor Series Method
- Lecture 26 - Numerical Solution Of ODE-3 Examples of Taylor Series Method Euler's Method
- Lecture 27 - Numerical Solution Of ODE-4 Runge-Kutta Methods
- Lecture 28 - Numerical Solution Of ODE-5 Example For RK-Method Of Order 2 Modified Euler's Method
- Lecture 29 - Numerical Solution Of Ordinary Differential Equations - 6 Predictor-Corrector Methods (Adam-Moulton)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Numerical Solution Of Ordinary Differential Equations - 7
- Lecture 31 - Numerical Solution Of Ordinary Differential Equations - 8
- Lecture 32 - Numerical Solution of Ordinary Differential Equations - 9
- Lecture 33 - Numerical Solution of Ordinary Differential Equations - 10
- Lecture 34 - Numerical Solution of Ordinary Differential Equations - 11
- Lecture 35 - Root Finding Methods - 1 The Bisection Method - 1
- Lecture 36 - Root Finding Methods - 2 The Bisection Method - 2
- Lecture 37 - Root Finding Methods - 3 Newton-Raphson Method - 1
- Lecture 38 - Root Finding Methods - 4 Newton-Raphson Method - 2
- Lecture 39 - Root Finding Methods - 5 Secant Method, Method Of false Position
- Lecture 40 - Root Finding Methods - 6 Fixed Point Methods - 1
- Lecture 41 - Root Finding Methods - 7 Fixed Point Methods - 2
- Lecture 42 - Root Finding Methods - 8 Fixed Point Iteration Methods - 3
- Lecture 43 - Root Finding Methods - 9 Practice Problems
- Lecture 44 - Solution Of Linear Systems Of Equations - 1
- Lecture 45 - Solution Of Linear Systems Of Equations - 2
- Lecture 46 - Solution Of Linear Systems Of Equations - 3
- Lecture 47 - Solution Of Linear Systems Of Equations - 4
- Lecture 48 - Solution Of Linear Systems Of Equations - 5
- Lecture 49 - Solution Of Linear Systems Of Equations - 6
- Lecture 50 - Solution Of Linear Systems Of Equations - 7
- Lecture 51 - Solution Of Linear Systems Of Equations - 8 Iterative Method - 1
- Lecture 52 - Solution Of Linear Systems Of Equations - 8 Iterative Method - 2
- Lecture 53 - Matrix Eigenvalue Problems - 2 Power Method - 2
- Lecture 54 - Practice Problems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Graph Theory

Subject Co-ordinator - Dr. Soumen Maity

Co-ordinating Institute - IISER - Pune

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Concepts  
Lecture 2 - Basic Concepts - 1  
Lecture 3 - Eulerian and Hamiltonian Graph  
Lecture 4 - Eulerian and Hamiltonian Graph - 1  
Lecture 5 - Bipartite Graph  
Lecture 6 - Bipartite Graph  
Lecture 7 - Diameter of a graph; Isomorphic graphs  
Lecture 8 - Diameter of a graph; Isomorphic graphs  
Lecture 9 - Minimum Spanning Tree  
Lecture 10 - Minimum Spanning Trees (Continued...)  
Lecture 11 - Minimum Spanning Trees (Continued...)  
Lecture 12 - Minimum Spanning Trees (Continued...)  
Lecture 13 - Maximum Matching in Bipartite Graph  
Lecture 14 - Maximum Matching in Bipartite Graph - 1  
Lecture 15 - Hall's Theorem and Konig's Theorem  
Lecture 16 - Hall's Theorem and Konig's Theorem - 1  
Lecture 17 - Independent Set and Edge Cover  
Lecture 18 - Independent Set and Edge Cover - 1  
Lecture 19 - Matching in General Graphs  
Lecture 20 - Proof of Halls Theorem  
Lecture 21 - Stable Matching  
Lecture 22 - Gale-Shapley Algorithm  
Lecture 23 - Graph Connectivity  
Lecture 24 - Graph Connectivity - 1  
Lecture 25 - 2-Connected Graphs  
Lecture 26 - 2-Connected Graphs - 1  
Lecture 27 - Subdivision of an edge; 2-edge-connected graphs  
Lecture 28 - Problems Related to Graphs Connectivity  
Lecture 29 - Flow Network

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- Lecture 30 - Residual Network and Augmenting Path
- Lecture 31 - Augmenting Path Algorithm
- Lecture 32 - Max-Flow and Min-Cut
- Lecture 33 - Max-Flow and Min-Cut Theorem
- Lecture 34 - Vertex Colouring
- Lecture 35 - Chromatic Number and Max. Degree
- Lecture 36 - Edge Colouring
- Lecture 37 - Planar Graphs and Euler's Formula
- Lecture 38 - Characterization Of Planar Graphs
- Lecture 39 - Colouring of Planar Graphs

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Transform Techniques for Engineers

Subject Co-ordinator - Prof. Srinivasa Manam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Fourier series

Lecture 2 - Fourier series - Examples

Lecture 3 - Complex Fourier series

Lecture 4 - Conditions for the Convergence of Fourier Series

Lecture 5 - Conditions for the Convergence of Fourier Series (Continued...)

Lecture 6 - Use of Delta function in the Fourier series convergence

Lecture 7 - More Examples on Fourier Series of a Periodic Signal

Lecture 8 - Gibb's Phenomenon in the Computation of Fourier Series

Lecture 9 - Properties of Fourier Transform of a Periodic Signal

Lecture 10 - Properties of Fourier transform (Continued...)

Lecture 11 - Parseval's Identity and Recap of Fourier series

Lecture 12 - Fourier integral theorem-an informal proof

Lecture 13 - Definition of Fourier transforms

Lecture 14 - Fourier transform of a Heavyside function

Lecture 15 - Use of Fourier transforms to evaluate some integrals

Lecture 16 - Evaluation of an integral- Recall of complex function theory

Lecture 17 - Properties of Fourier transforms of non-periodic signals

Lecture 18 - More properties of Fourier transforms

Lecture 19 - Fourier integral theorem - proof

Lecture 20 - Application of Fourier transform to ODE's

Lecture 21 - Application of Fourier transforms to differential and integral equations

Lecture 22 - Evaluation of integrals by Fourier transforms

Lecture 23 - D'Alembert's solution by Fourier transform

Lecture 24 - Solution of Heat equation by Fourier transform

Lecture 25 - Solution of Heat and Laplace equations by Fourier transform

Lecture 26 - Introduction to Laplace transform

Lecture 27 - Laplace transform of elementary functions

Lecture 28 - Properties of Laplace transforms

Lecture 29 - Properties of Laplace transforms (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Methods of finding inverse Laplace transform
- Lecture 31 - Heavyside expansion theorem
- Lecture 32 - Review of complex function theory
- Lecture 33 - Inverse Laplace transform by contour integration
- Lecture 34 - Application of Laplace transforms - ODEs'
- Lecture 35 - Solutions of initial or boundary value problems for ODEs'
- Lecture 36 - Solving first order PDE's by Laplace transform
- Lecture 37 - Solution of wave equation by Laplace transform
- Lecture 38 - Solving hyperbolic equations by Laplace transform
- Lecture 39 - Solving heat equation by Laplace transform
- Lecture 40 - Initial boundary value problems for heat equations
- Lecture 41 - Solution of Integral Equations by Laplace Transform
- Lecture 42 - Evaluation of Integrals by Laplace Transform
- Lecture 43 - Introduction to Z-Transforms
- Lecture 44 - Properties of Z-Transforms
- Lecture 45 - Inverse Z-transforms
- Lecture 46 - Solution of difference equations by Z-transforms
- Lecture 47 - Evaluation of infinite sums by Z-transforms
- Lecture 48 - conclusions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Probability and Statistics

Subject Co-ordinator - Prof. G. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to probability and Statistics
- Lecture 2 - Types of data
- Lecture 3 - Categorical data
- Lecture 4 - Describing Categorical data
- Lecture 5 - Describing Categorical data (Continued...)
- Lecture 6 - Describing numerical data
- Lecture 7 - Describing numerical data (Continued...)
- Lecture 8 - Exercises, Association between categorical variables
- Lecture 9 - Association between categorical variables (Continued...)
- Lecture 10 - Association between numerical variables
- Lecture 11 - Association between numerical variables (Continued...)
- Lecture 12 - Probability
- Lecture 13 - Rules of Probability
- Lecture 14 - Rules of Probability (Continued...)
- Lecture 15 - Conditional Probability
- Lecture 16 - Random variables
- Lecture 17 - Random variables - concepts and exercises
- Lecture 18 - Association between Random variables
- Lecture 19 - Binomial Distribution
- Lecture 20 - Normal distribution
- Lecture 21 - Additional Examples

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Abstract Group Theory

Subject Co-ordinator - Prof. Krishna Hanumanthu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivational examples of groups
- Lecture 2 - Definition of a group and examples
- Lecture 3 - More examples of groups
- Lecture 4 - Basic properties of groups and multiplication tables
- Lecture 5 - Problems - 1
- Lecture 6 - Problems - 2
- Lecture 7 - Problems - 3
- Lecture 8 - Subgroups
- Lecture 9 - Types of groups
- Lecture 10 - Group homomorphisms and examples
- Lecture 11 - Properties of homomorphisms
- Lecture 12 - Group isomorphisms
- Lecture 13 - Normal subgroups
- Lecture 14 - Equivalence relations
- Lecture 15 - Problems - 4
- Lecture 16 - Cosets and Lagrange's theorem
- Lecture 17 -  $S_3$  revisited
- Lecture 18 - Problems - 5
- Lecture 19 - Quotient groups
- Lecture 20 - Examples of quotient groups
- Lecture 21 - First isomorphism theorem
- Lecture 22 - Examples and Second isomorphism theorem
- Lecture 23 - Third isomorphism theorem
- Lecture 24 - Cauchy's theorem
- Lecture 25 - Problems - 6
- Lecture 26 - Symmetric groups - I
- Lecture 27 - Symmetric Groups - II
- Lecture 28 - Symmetric groups - III
- Lecture 29 - Symmetric groups - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Odd and even permutations - I
- Lecture 31 - Odd and even permutations - II
- Lecture 32 - Alternating groups
- Lecture 33 - Group actions
- Lecture 34 - Examples of group actions
- Lecture 35 - Orbits and stabilizers
- Lecture 36 - Counting formula
- Lecture 37 - Cayley's theorem
- Lecture 38 - Problems - 7
- Lecture 39 - Problems - 8 and Class equation
- Lecture 40 - Group actions on subsets
- Lecture 41 - Sylow Theorem - I
- Lecture 42 - Sylow Theorem - II
- Lecture 43 - Sylow Theorem - III
- Lecture 44 - Problems - 9
- Lecture 45 - Problems - 10

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Groups: Motion, Symmetry and Puzzles

Subject Co-ordinator - Prof. Amit Kulshrestha

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Permutation, symmetry and groups
- Lecture 2 - Groups acting on a set/an object
- Lecture 3 - More on group actions
- Lecture 4 - Groups and parity
- Lecture 5 - Parity and puzzles
- Lecture 6 - Generators and relations
- Lecture 7 - Cosets, quotients and homomorphisms
- Lecture 8 - Cayley graphs of groups
- Lecture 9 - Platonic solids
- Lecture 10 - Symmetries of plane and wallpapers
- Lecture 11 - Introduction to GAP
- Lecture 12 - GAP through Rubik's cube
- Lecture 13 - Representing abstract groups
- Lecture 14 - A quick introduction to group representations
- Lecture 15 - Rotations and quaternions
- Lecture 16 - Rotational symmetries of platonic solids
- Lecture 17 - Finite subgroups of  $SO(3)$

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Rings and Fields

Subject Co-ordinator - Prof. Krishna Hanumanthu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, main definitions
- Lecture 2 - Examples of rings
- Lecture 3 - More examples
- Lecture 4 - Polynomial Rings - 1
- Lecture 5 - Polynomial Rings - 2
- Lecture 6 - Homomorphisms
- Lecture 7 - Kernels, ideals
- Lecture 8 - Problems - 1
- Lecture 9 - Problems - 2
- Lecture 10 - Problems - 3
- Lecture 11 - Quotient Rings
- Lecture 12 - First isomorphism and correspondence theorems
- Lecture 13 - Examples of correspondence theorem
- Lecture 14 - Prime ideals
- Lecture 15 - Maximal ideals, integral domains
- Lecture 16 - Existence of maximal ideals
- Lecture 17 - Problems - 4
- Lecture 18 - Problems - 5
- Lecture 19 - Problems - 6
- Lecture 20 - Field of fractions, Noetherian rings - 1
- Lecture 21 - Noetherian rings - 2
- Lecture 22 - Hilbert Basis Theorem
- Lecture 23 - Irreducible, prime elements
- Lecture 24 - Irreducible, prime elements, GCD
- Lecture 25 - Principal Ideal Domains
- Lecture 26 - Unique Factorization Domains - 1
- Lecture 27 - Unique Factorization Domains - 2
- Lecture 28 - Gauss Lemma
- Lecture 29 -  $\mathbb{Z}[X]$  is a UFD

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Eisenstein criterion and Problems - 7
- Lecture 31 - Problems - 8
- Lecture 32 - Problems - 9
- Lecture 33 - Field extensions - 1
- Lecture 34 - Field extensions - 2
- Lecture 35 - Degree of a field extension - 1
- Lecture 36 - Degree of a field extension - 2
- Lecture 37 - Algebraic elements form a field
- Lecture 38 - Field homomorphisms
- Lecture 39 - Splitting fields
- Lecture 40 - Finite fields - 1
- Lecture 41 - Finite fields - 2
- Lecture 42 - Finite fields - 3
- Lecture 43 - Problems - 10
- Lecture 44 - Problems - 11

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Probabilistic Methods in PDE

Subject Co-ordinator - Prof. Anindya Goswami

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Prerequisite Measure Theory - Part 1
- Lecture 2 - Prerequisite Measure Theory - Part 2
- Lecture 3 - Prerequisite Measure Theory - Part 3
- Lecture 4 - Random variable
- Lecture 5 - Stochastic Process
- Lecture 6 - Conditional Expectation
- Lecture 7 - Preliminary for Stochastic Integration - Part 1
- Lecture 8 - Preliminary for Stochastic Integration - Part 2
- Lecture 9 - Definition and properties of Stochastic Integration - Part 1
- Lecture 10 - Definition and properties of Stochastic Integration - Part 2
- Lecture 11 - Further properties of Stochastic Integration
- Lecture 12 - Extension of stochastic integral
- Lecture 13 - change of variable formula and proof - Part 1
- Lecture 14 - change of variable formula and proof - Part 2
- Lecture 15 - Brownian motion as the building block
- Lecture 16 - Brownian motion and its martingale property - Part 1
- Lecture 17 - Brownian motion and its martingale property - Part 2
- Lecture 18 - Application of Ito's rule on Ito process
- Lecture 19 - Harmonic function and its properties
- Lecture 20 - Maximum principle of harmonic function
- Lecture 21 - Dirichlet Problem and bounded solution
- Lecture 22 - Example of a Dirichlet problem
- Lecture 23 - Regular points at the boundary
- Lecture 24 - Zarembas cone condition for regularity
- Lecture 25 - Summary of the Zaremba's cone condition
- Lecture 26 - Continuity of candidate solution at regular points - Part 1
- Lecture 27 - Continuity of candidate solution at regular points - Part 2
- Lecture 28 - Summary of bounded solution to the Dirichlet Problem
- Lecture 29 - Stochastic representation of bounded solution to a heat equation - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Stochastic representation of bounded solution to a heat equation - Part 2
- Lecture 31 - Uniqueness of solution to the heat equation
- Lecture 32 - Remark on Tychonoff's Theorem
- Lecture 33 - Widder's result and its extension on heat equation
- Lecture 34 - Solution to the mixed initial boundary value problem
- Lecture 35 - The Feynman-Kac formula
- Lecture 36 - Kac's theorem on the stochastic representation of solution to a second-order linear ODE - Part 1
- Lecture 37 - Kac's theorem on the stochastic representation of solution to a second-order linear ODE - Part 2
- Lecture 38 - Geometric Brownian motion
- Lecture 39 - A system of stochastic differential equations in application
- Lecture 40 - Brownian bridge
- Lecture 41 - Simulation of stochastic differential equations
- Lecture 42 - Stochastic differential equations
- Lecture 43 - Stochastic differential equations
- Lecture 44 - Stochastic differential equations
- Lecture 45 - Stochastic differential equations
- Lecture 46 - Stochastic differential equations
- Lecture 47 - Functional Stochastic Differential Equations
- Lecture 48 - Statement of Dirichlet and Cauchy problems with variable coefficients elliptic operators
- Lecture 49 - Cauchy Problem with variable coefficients
- Lecture 50 - Cauchy Problem with variable coefficients
- Lecture 51 - Semigroup of bounded linear operators on Banach space - Part 1
- Lecture 52 - Semigroup of bounded linear operators on Banach space - Part 2
- Lecture 53 - Growth property of  $C_0$  semigroup
- Lecture 54 - Unique semigroup generated by a bounded linear operator
- Lecture 55 - Homogeneous initial value problem
- Lecture 56 - Mild solution to homogeneous initial value problem
- Lecture 57 - Mild solution to inhomogeneous initial value problem
- Lecture 58 - Sufficient condition for existence of classical solution of IVP
- Lecture 59 - Tutorial on Resolvent operator
- Lecture 60 - Feynman-Kac formula and the formula of variations of constants
- Lecture 61 - Non-autonomous evolution problem and mild/generalized solution
- Lecture 62 - Sufficient condition for existence of an evolution system
- Lecture 63 -  $Y$ -valued solution
- Lecture 64 - mild/generalized solution to Semi-linear Evolution Problem
- Lecture 65 - Existence of classical solution - Part 1
- Lecture 66 - Existence of classical solution - Part 2
- Lecture 67 - Conclusion video

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Linear Algebra (Prof. Pranav Haridas)

Subject Co-ordinator - Prof. Pranav Haridas

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Vector Spaces
- Lecture 2 - Examples of Vector Spaces
- Lecture 3 - Vector Subspaces
- Lecture 4 - Linear Combinations and Span
- Lecture 5 - Linear Independence
- Lecture 6 - Basis
- Lecture 7 - Dimension
- Lecture 8 - Replacement theorem consequences
- Lecture 9 - Rank Nullity
- Lecture 10 - Linear Transformations
- Lecture 11 - Linear Transformation Basis
- Lecture 12 - Linear Transformation and Matrices
- Lecture 13 - Problem session
- Lecture 14 - Linear Transformation and Matrices (Continued...)
- Lecture 15 - Invertible Linear Transformations
- Lecture 16 - Invertible Linear Transformations and Matrices
- Lecture 17 - Change of Basis
- Lecture 18 - Product of Vector Spaces
- Lecture 19 - Quotient Spaces
- Lecture 20 - Dual Spaces
- Lecture 21 - Row operations
- Lecture 22 - Rank of a Matrix
- Lecture 23 - Inverting matrices
- Lecture 24 - Determinants
- Lecture 25 - Problem Session
- Lecture 26 - Diagonal Matrices
- Lecture 27 - Eigenvectors and eigenvalues
- Lecture 28 - Computing eigenvalues
- Lecture 29 - Characteristic polynomials

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diagonalizability
- Lecture 31 - Multiplicity of eigenvalues
- Lecture 32 - Invariant subspaces
- Lecture 33 - Complex Vector Spaces
- Lecture 34 - Inner Product Spaces
- Lecture 35 - Inner Product and Length
- Lecture 36 - Orthogonality
- Lecture 37 - Problem Session
- Lecture 38 - Problem Session
- Lecture 39 - Orthonormal Basis
- Lecture 40 - Gram Schmidt Orthogonalization
- Lecture 41 - Orthogonal Complements
- Lecture 42 - Problem Session
- Lecture 43 - Riesz Representation Theorem
- Lecture 44 - Adjoint of a linear transformation
- Lecture 45 - Problem Session
- Lecture 46 - Normal Operators
- Lecture 47 - Self Adjoint Operators
- Lecture 48 - Spectral Theorem

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Algebra - I

Subject Co-ordinator - Prof. Amritanshu Prasad, Prof. S. Viswanath

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Permutations  
Lecture 2 - Group Axioms  
Lecture 3 - Order and Conjugacy  
Lecture 4 - Subgroups  
Lecture 5 - Problem solving  
Lecture 6 - Group Actions  
Lecture 7 - Cosets  
Lecture 8 - Group Homomorphisms  
Lecture 9 - Normal subgroups  
Lecture 10 - Quotient Groups  
Lecture 11 - Product and Chinese Remainder Theorem  
Lecture 12 - Dihedral Groups  
Lecture 13 - Semidirect products  
Lecture 14 - Problem solving  
Lecture 15 - The Orbit Counting Theorem  
Lecture 16 - Fixed points of group actions  
Lecture 17 - Second application  
Lecture 18 - Sylow Theorem - a preliminary proposition  
Lecture 19 - Sylow Theorem - I  
Lecture 20 - Problem solving - I  
Lecture 21 - Problem solving - II  
Lecture 22 - Sylow Theorem - II  
Lecture 23 - Sylow Theorem - III  
Lecture 24 - Problem solving - I  
Lecture 25 - Problem solving - II  
Lecture 26 - Free Groups - I  
Lecture 27 - Free Groups - IIa  
Lecture 28 - Free Groups - IIb  
Lecture 29 - Free Groups - III

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Free Groups - IV
- Lecture 31 - Problem Solving/Examples
- Lecture 32 - Generators and relations for symmetric groups  $\hat{A}_n$  I
- Lecture 33 - Generators and relations for symmetric groups  $\hat{A}_n$  II
- Lecture 34 - Definition of a Ring
- Lecture 35 - Euclidean Domains
- Lecture 36 - Gaussian Integers
- Lecture 37 - The Fundamental Theorem of Arithmetic
- Lecture 38 - Divisibility and Ideals
- Lecture 39 - Factorization and the Noetherian Condition
- Lecture 40 - Examples of Ideals in Commutative Rings
- Lecture 41 - Problem Solving/Examples
- Lecture 42 - The Ring of Formal Power Series
- Lecture 43 - Fraction Fields
- Lecture 44 - Path Algebra of a Quiver
- Lecture 45 - Ideals In Non-Commutative Rings
- Lecture 46 - Product of Rings
- Lecture 47 - Ring Homomorphisms
- Lecture 48 - Quotient Rings
- Lecture 49 - Problem solving
- Lecture 50 - Tensor and Exterior Algebras
- Lecture 51 - Modules
- Lecture 52 - Modules over polynomial rings  $K[x]$
- Lecture 53 - Modules
- Lecture 54 - Modules
- Lecture 55 - Submodules
- Lecture 56 - General constructions of submodules
- Lecture 57 - Problem Solving
- Lecture 58 - Quotient modules
- Lecture 59 - Homomorphisms
- Lecture 60 - More examples of homomorphisms
- Lecture 61 - First isomorphism theorem
- Lecture 62 - Direct sums of modules
- Lecture 63 - Complementary submodules
- Lecture 64 - Change of ring
- Lecture 65 - Problem solving
- Lecture 66 - Free Modules (finitely generated)
- Lecture 67 - Determinants
- Lecture 68 - Primary Decomposition

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Problem solving
- Lecture 70 - Finitely generated modules and the Noetherian condition
- Lecture 71 - Counterexamples to the Noetherian condition
- Lecture 72 - Generators and relations for Finitely Generated Modules
- Lecture 73 - General Linear Group over a Commutative Ring
- Lecture 74 - Equivalence of Matrices
- Lecture 75 - Smith Canonical Form for a Euclidean domain
- Lecture 76 - solved\_problems1
- Lecture 77 - Smith Canonical Form for PID
- Lecture 78 - Structure of finitely generated modules over a PID
- Lecture 79 - Structure of a finitely generated abelian group
- Lecture 80 - Similarity of Matrices
- Lecture 81 - Deciding Similarity
- Lecture 82 - Rational Canonical Form
- Lecture 83 - Jordan Canonical Form

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Computational Commutative Algebra

Subject Co-ordinator - Prof. Manoj Kummini

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Definitions  
Lecture 2 - Homomorphisms  
Lecture 3 - Quotient rings  
Lecture 4 - Noetherian rings  
Lecture 5 - Monomials  
Lecture 6 - Initial ideals  
Lecture 7 - Division algorithm  
Lecture 8 - Grobner basis  
Lecture 9 - Solving Polynomial Equations  
Lecture 10 - Nullstellensatz - Part 1  
Lecture 11 - Nullstellensatz - Part 2  
Lecture 12 - Buchberger criterion  
Lecture 13 - Monomial basis  
Lecture 14 - Elimination  
Lecture 15 - Modules - Part 1  
Lecture 16 - Modules - Part 2  
Lecture 17 - Localisation  
Lecture 18 - Nakayama Lemma  
Lecture 19 - Spectrum - Part 1  
Lecture 20 - Spectrum - Part 2  
Lecture 21 - Associated primes  
Lecture 22 - Primary Decomposition  
Lecture 23 - Support of a module  
Lecture 24 - Associated primes  
Lecture 25 - Prime avoidance  
Lecture 26 - Saturation - Part 1  
Lecture 27 - Saturation - Part 2  
Lecture 28 - Saturation - Part 3  
Lecture 29 - Morphisms - Part 1

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Morphisms - Part 2
- Lecture 31 - Integral extensions
- Lecture 32 - Noether normalisation lemma
- Lecture 33 - Noether normalisation lemma
- Lecture 34 - Polynomial rings
- Lecture 35 - Going up theorem
- Lecture 36 - Artinian rings
- Lecture 37 - Graded modules
- Lecture 38 - Hilbert polynomial
- Lecture 39 - Hilbert-Samuel polynomial
- Lecture 40 - Artin Rees Lemma
- Lecture 41 - Degree of Hilbert-Samuel polynomial
- Lecture 42 - Dimension of noetherian local rings - Part 1
- Lecture 43 - Dimension of noetherian local rings - Part 2
- Lecture 44 - Dimension of polynomial rings
- Lecture 45 - Algebras over a field
- Lecture 46 - Graded rings - Part 1
- Lecture 47 - Graded rings - Part 2
- Lecture 48 - Polynomial rings over fields
- Lecture 49 - Hilbert series - Part 1
- Lecture 50 - Hilbert series - Part 2
- Lecture 51 - Proj of a graded ring
- Lecture 52 - Homogenization - Part 1
- Lecture 53 - Homogenization - Part 2
- Lecture 54 - More on graded rings
- Lecture 55 - Free resolutions
- Lecture 56 - Computing syzygies
- Lecture 57 - Koszul complex
- Lecture 58 - More on Koszul complexes
- Lecture 59 - Castelnuovo Mumford regularity
- Lecture 60 - Castelnuovo Mumford regularity



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Laplace Transform

Subject Co-ordinator - Prof. Indrava Roy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Motivation for Laplace transforms - Part 1
- Lecture 2 - Introduction and Motivation for Laplace transforms - Part 2
- Lecture 3 - Improper Riemann integrals
- Lecture 4 - Improper Riemann integrals
- Lecture 5 - Existence of Laplace transforms and Examples
- Lecture 6 - Properties of Laplace transforms-I - Part 1
- Lecture 7 - Properties of Laplace transforms-I - Part 2
- Lecture 8 - Existence of Laplace transforms for functions with vertical asymptote at the Y-axis - Part 1
- Lecture 9 - Existence of Laplace transforms for functions with vertical asymptote at the Y-axis - Part 2
- Lecture 10 - Properties of Laplace transforms-II - Part 1
- Lecture 11 - Properties of Laplace transforms-II - Part 2
- Lecture 12 - Laplace transform of Derivatives - Part 1
- Lecture 13 - Laplace transform of Derivatives - Part 2
- Lecture 14 - Laplace transform of Periodic functions and Integrals - I
- Lecture 15 - Laplace transform of Integrals-II - Part 1
- Lecture 16 - Laplace transform of Integrals-II - Part 2
- Lecture 17 - Inverse Laplace transform and asymptotic behaviour - Part 1
- Lecture 18 - Inverse Laplace transform and asymptotic behaviour - Part 2
- Lecture 19 - Methods of finding Inverse Laplace transform-I- Partial Fractions
- Lecture 20 - Methods of finding Inverse Laplace transform-II- Convolution theorem
- Lecture 21 - Convolution theorem for Laplace transforms
- Lecture 22 - Applications of Laplace transforms
- Lecture 23 - Applications of Laplace Transform to physical systems
- Lecture 24 - Solving Linear ODE's with polynomial coefficients
- Lecture 25 - Integral and Integro-differential equation
- Lecture 26 - Further application of Laplace transforms - Part 1
- Lecture 27 - Further application of Laplace transforms - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Measure Theory (Prof. Indrava Roy)

Subject Co-ordinator - Prof. Indrava Roy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Finite Sets and Cardinality
- Lecture 2 - Infinite Sets and the Banach-Tarski Paradox - Part 1
- Lecture 3 - Infinite Sets and the Banach-Tarski Paradox - Part 2
- Lecture 4 - Elementary Sets and Elementary measure - Part 1
- Lecture 5 - Elementary Sets and Elementary measure - Part 2
- Lecture 6 - Properties of elementary measure - Part 1
- Lecture 7 - Properties of elementary measure - Part 2
- Lecture 8 - Uniqueness of elementary measure and Jordan measurability - Part 1
- Lecture 9 - Uniqueness of elementary measure and Jordan measurability - Part 2
- Lecture 10 - Characterization of Jordan measurable sets and basic properties of Jordan measure - Part 1
- Lecture 11 - Characterization of Jordan measurable sets and basic properties of Jordan measure - Part 2
- Lecture 12 - Examples of Jordan measurable sets-I
- Lecture 13 - Examples of Jordan measurable sets-II - Part 1
- Lecture 14 - Examples of Jordan measurable sets-II - Part 2
- Lecture 15 - Jordan measure under Linear transformations - Part 1
- Lecture 16 - Jordan measure under Linear transformations - Part 2
- Lecture 17 - Connecting the Jordan measure with the Riemann integral - Part 1
- Lecture 18 - Connecting the Jordan measure with the Riemann integral - Part 2
- Lecture 19 - Outer measure - Motivation and Axioms of outer measure
- Lecture 20 - Comparing Inner Jordan measure, Lebesgue outer measure and Jordan Outer measure
- Lecture 21 - Finite additivity of outer measure on Separated sets, Outer regularity - Part 1
- Lecture 22 - Finite additivity of outer measure on Separated sets, Outer regularity - Part 2
- Lecture 23 - Lebesgue measurable class of sets and their Properties - Part 1
- Lecture 24 - Lebesgue measurable class of sets and their Properties - Part 2
- Lecture 25 - Equivalent criteria for lebesgue measurability of a subset - Part 1
- Lecture 26 - Equivalent criteria for lebesgue measurability of a subset - Part 2
- Lecture 27 - The measure axioms and the Borel-Cantelli Lemma
- Lecture 28 - Properties of the Lebesgue measure
- Lecture 29 - Properties of the Lebesgue measure

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lebesgue measurability under Linear transformation, Construction of Vitali Set - Part 1
- Lecture 31 - Lebesgue measurability under Linear transformation, Construction of Vitali Set - Part 2
- Lecture 32 - Abstract measure spaces
- Lecture 33 - Abstract measure and Caratheodory Measurability - Part 1
- Lecture 34 - Abstract measure and Caratheodory Measurability - Part 2
- Lecture 35 - Abstrsct measure and Hahn-Kolmogorov Extension
- Lecture 36 - Lebesgue measurable class vs Caratheodory extension of usual outer measure on  $\mathbb{R}^d$
- Lecture 37 - Examples of Measures defined on  $\mathbb{R}^d$  via Hahn Kolmogorov extension - Part 1
- Lecture 38 - Examples of Measures defined on  $\mathbb{R}^d$  via Hahn Kolmogorov extension - Part 2
- Lecture 39 - Measurable functions
- Lecture 40 - Measurable functions
- Lecture 41 - Egorov's theorem
- Lecture 42 - Lebesgue integral of unsigned simple measurable functions
- Lecture 43 - Lebesgue integral of unsigned measurable functions
- Lecture 44 - Fundamental convergence theorems in Lebesgue integration
- Lecture 45 - Lebesgue integral for complex and real measurable functions
- Lecture 46 - Basic properties of  $L^1$ -functions and Lebesgue's Dominated convergence theorem
- Lecture 47 -  $L^1$  functions on  $\mathbb{R}^d$
- Lecture 48 -  $L^1$  functions on  $\mathbb{R}^d$
- Lecture 49 -  $L^1$  functions on  $\mathbb{R}^d$
- Lecture 50 -  $L^1$  functions on  $\mathbb{R}^d$
- Lecture 51 - Various modes of convergence of measurable functions
- Lecture 52 - Easy implications from one mode of convergence to another
- Lecture 53 - Implication map for modes of convergence with various examples
- Lecture 54 - Uniqueness of limits across various modes of convergence
- Lecture 55 - Some criteria for reverse implications for modes of convergence
- Lecture 56 - Riesz Representation theorem- Motivation
- Lecture 57 - Basics on Locally compact Hausdorff spaces
- Lecture 58 - Borel and Radon measures on LCH spaces
- Lecture 59 - Properties of Radon measures and Lusin's theorem on LCH spaces
- Lecture 60 - Riesz Representation theorem - Complete statement and proof - Part 1
- Lecture 61 - Riesz Representation theorem - Complete statement and proof - Part 2
- Lecture 62 - Examples of measures constructed using RRT
- Lecture 63 - Theorems of Tonelli and Fubini- interchanging the order of integration for repeated integrals
- Lecture 64 - Product measures
- Lecture 65 - Tonelli's theorem for sets - Part 1
- Lecture 66 - Tonelli's theorem for sets - Part 2
- Lecture 67 - Fubini-Tonelli theorem
- Lecture 68 - Lebesgue's differentiation theorem

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- Lecture 69 - Lebesgue's differentiation theorem
- Lecture 70 - Lebesgue's differentiation theorem
- Lecture 71 - Differentiation theorems
- Lecture 72 - Differentiation theorems
- Lecture 73 - Riesz's Rising Sun Lemma
- Lecture 74 - Differentiation theorem for monotone continuous functions
- Lecture 75 - Differentiation theorem for general monotone functions and Second fundamental theorem of calculus

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Complex Analysis

Subject Co-ordinator - Prof. Pranav Haridas

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Field of Complex Numbers
- Lecture 2 - Conjugation and Absolute value
- Lecture 3 - Topology on Complex plane
- Lecture 4 - Topology on Complex Plane (Continued...)
- Lecture 5 - Problem Session
- Lecture 6 - Isometries on the Complex Plane
- Lecture 7 - Functions on the Complex Plane
- Lecture 8 - Complex differentiability
- Lecture 9 - Power Series
- Lecture 10 - Differentiation of power series
- Lecture 11 - Problem Session
- Lecture 12 - Cauchy-Riemann equations
- Lecture 13 - Harmonic functions
- Lecture 14 - Möbius transformations
- Lecture 15 - Problem session
- Lecture 16 - Curves in the complex plane
- Lecture 17 - Complex Integration over curves
- Lecture 18 - First Fundamental theorem of Calculus
- Lecture 19 - Second Fundamental theorem of Calculus
- Lecture 20 - Problem session
- Lecture 21 - Homotopy of curves
- Lecture 22 - Cauchy-Goursat theorem
- Lecture 23 - Cauchy's theorem
- Lecture 24 - Problem Session
- Lecture 25 - Cauchy Integral Formula
- Lecture 26 - Principle of analytic continuation and Cauchy estimates
- Lecture 27 - Further consequences of Cauchy Integral Formula
- Lecture 28 - Problem session
- Lecture 29 - Winding number

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Open mapping theorem
- Lecture 31 - Schwarz reflection principle
- Lecture 32 - Problem session
- Lecture 33 - Singularities of a holomorphic function
- Lecture 34 - Pole of a function
- Lecture 35 - Laurent Series
- Lecture 36 - Casorati Weierstrass theorem
- Lecture 37 - Problem Session
- Lecture 38 - Residue theorem
- Lecture 39 - Argument principle
- Lecture 40 - Problem Session
- Lecture 41 - Branch of the Complex logarithm
- Lecture 42 - Automorphisms of the Unit disk
- Lecture 43 - Phragmen Lindelof method
- Lecture 44 - Problem Session
- Lecture 45 - Lifting of maps
- Lecture 46 - Covering spaces
- Lecture 47 - Bloch's theorem
- Lecture 48 - Little Picard's theorem

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Real Analysis - I

Subject Co-ordinator - Prof. Jaikrishnan J

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - WEEK 1 - INTRODUCTION  
Lecture 2 - Why study Real Analysis  
Lecture 3 - Square root of 2  
Lecture 4 - Wason's selection task  
Lecture 5 - Zeno's Paradox  
Lecture 6 - Basic set theory  
Lecture 7 - Basic logic  
Lecture 8 - Quantifiers  
Lecture 9 - Proofs  
Lecture 10 - Functions and relations  
Lecture 11 - Axioms of Set Theory  
Lecture 12 - Equivalence relations  
Lecture 13 - What are the rationals  
Lecture 14 - Cardinality  
Lecture 15 - WEEK 2 - INTRODUCTION  
Lecture 16 - Field axioms  
Lecture 17 - Order axioms  
Lecture 18 - Absolute value  
Lecture 19 - The completeness axiom  
Lecture 20 - Nested intervals property  
Lecture 21 - NIP+APâ Completeness  
Lecture 22 - Existence of square roots  
Lecture 23 - Uncountability of the real numbers  
Lecture 24 - Density of rationals and irrationals  
Lecture 25 - WEEK 3 - INTRODUCTION  
Lecture 26 - Motivation for infinite sums  
Lecture 27 - Definition of sequence and examples  
Lecture 28 - Definition of convergence  
Lecture 29 - Uniqueness of limits

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Achilles and the tortoise
- Lecture 31 - Deep dive into the definition of convergence
- Lecture 32 - A descriptive language for convergence
- Lecture 33 - Limit laws
- Lecture 34 - Subsequences
- Lecture 35 - Examples of convergent and divergent sequences
- Lecture 36 - Some special sequences-CORRECT
- Lecture 37 - Monotone sequences
- Lecture 38 - Bolzano-Weierstrass theorem
- Lecture 39 - The Cauchy Criterion
- Lecture 40 - MCT implies completeness
- Lecture 41 - Definition and examples of infinite series
- Lecture 42 - Cauchy tests-Corrected
- Lecture 43 - Tests for convergence
- Lecture 44 - Erdos's proof on divergence of reciprocals of primes
- Lecture 45 - Resolving Zeno's paradox
- Lecture 46 - Absolute and conditional convergence
- Lecture 47 - Absolute convergence continued
- Lecture 48 - The number  $e$
- Lecture 49 - Grouping terms of an infinite series
- Lecture 50 - The Cauchy product
- Lecture 51 - WEEK 5 - INTRODUCTION
- Lecture 52 - The role of topology in real analysis
- Lecture 53 - Open and closed sets
- Lecture 54 - Basic properties of adherent and limit points
- Lecture 55 - Basic properties of open and closed sets
- Lecture 56 - Definition of continuity
- Lecture 57 - Deep dive into epsilon-delta
- Lecture 58 - Negating continuity
- Lecture 59 - The functions  $x$  and  $x^2$
- Lecture 60 - Limit laws
- Lecture 61 - Limit of  $\sin x$
- Lecture 62 - Relationship between limits and continuity
- Lecture 63 - Global continuity and open sets
- Lecture 64 - Continuity of square root
- Lecture 65 - Operations on continuous functions
- Lecture 66 - Language for limits
- Lecture 67 - Infinite limits
- Lecture 68 - One sided limits

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Limits of polynomials
- Lecture 70 - Compactness
- Lecture 71 - The Heine-Borel theorem
- Lecture 72 - Open covers and compactness
- Lecture 73 - Equivalent notions of compactness
- Lecture 74 - The extreme value theorem
- Lecture 75 - Uniform continuity
- Lecture 76 - Connectedness
- Lecture 77 - Intermediate Value Theorem
- Lecture 78 - Darboux continuity and monotone functions
- Lecture 79 - Perfect sets and the Cantor set
- Lecture 80 - The structure of open sets
- Lecture 81 - The Baire Category theorem
- Lecture 82 - Discontinuities
- Lecture 83 - Classification of discontinuities and monotone functions
- Lecture 84 - Structure of set of discontinuities
- Lecture 85 - WEEK 8 and 9 - INTRODUCTION
- Lecture 86 - Definition and interpretation of the derivative
- Lecture 87 - Basic properties of the derivative
- Lecture 88 - Examples of differentiation
- Lecture 89 - Darboux's theorem
- Lecture 90 - The mean value theorem
- Lecture 91 - Applications of the mean value theorem
- Lecture 92 - Taylor's theorem NEW
- Lecture 93 - The ratio mean value theorem and L'Hospital's rule
- Lecture 94 - Axiomatic characterisation of area and the Riemann integral
- Lecture 95 - Proof of axiomatic characterization
- Lecture 96 - The definition of the Riemann integral
- Lecture 97 - Criteria for Riemann integrability
- Lecture 98 - Linearity of integral
- Lecture 99 - Sets of measure zero
- Lecture 100 - The Riemann-Lebesgue theorem
- Lecture 101 - Consequences of the Riemann-Lebesgue theorem
- Lecture 102 - WEEK 10 and 11 - INTRODUCTION
- Lecture 103 - The fundamental theorem of calculus
- Lecture 104 - Taylor's theorem-Integral form of remainder
- Lecture 105 - Notation for Taylor polynomials
- Lecture 106 - Smooth functions and Taylor series
- Lecture 107 - Power series

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Definition of uniform convergence
- Lecture 109 - The exponential function
- Lecture 110 - The inverse function theorem
- Lecture 111 - The Logarithm
- Lecture 112 - Trigonometric functions
- Lecture 113 - The number Pi
- Lecture 114 - The graphs of sin and cos
- Lecture 115 - The Basel problem
- Lecture 116 - Improper integrals
- Lecture 117 - The Integral test
- Lecture 118 - Weierstrass approximation theorem
- Lecture 119 - Bernstein Polynomials
- Lecture 120 - Properties of Bernstein polynomials
- Lecture 121 - Proof of Weierstrass approximation theorem

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Variational Calculus and its applications in Control Theory and Nanome

Subject Co-ordinator - Prof. Sarthok Sircar

Co-ordinating Institute - IIIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction / Euler Lagrange Equations - Part 1  
Lecture 2 - Introduction / Euler Lagrange Equations - Part 2  
Lecture 3 - Introduction / Euler Lagrange Equations - Part 3  
Lecture 4 - Introduction / Euler Lagrange Equations - Part 4  
Lecture 5 - Introduction / Euler Lagrange Equations - Part 5  
Lecture 6 - Introduction / Euler Lagrange Equations - Part 6  
Lecture 7 - Special cases / Invariance, Existence and Uniqueness of solutions - Part 1  
Lecture 8 - Special cases / Invariance, Existence and Uniqueness of solutions - Part 2  
Lecture 9 - Special cases / Invariance, Existence and Uniqueness of solutions - Part 3  
Lecture 10 - Special cases / Invariance, Existence and Uniqueness of solutions - Part 4  
Lecture 11 - Special cases / Invariance, Existence and Uniqueness of solutions - Part 5  
Lecture 12 - Special cases / Invariance, Existence and Uniqueness of solutions - Part 6  
Lecture 13 - Generalization / Numerical solution of Euler Lagrange Equations - Part 1  
Lecture 14 - Generalization / Numerical solution of Euler Lagrange Equations - Part 2  
Lecture 15 - Generalization / Numerical solution of Euler Lagrange Equations - Part 3  
Lecture 16 - Generalization / Numerical solution of Euler Lagrange Equations - Part 4  
Lecture 17 - Generalization / Numerical solution of Euler Lagrange Equations - Part 5  
Lecture 18 - Generalization / Numerical solution of Euler Lagrange Equations - Part 6  
Lecture 19 - Isoperimetric Problems - Part 1  
Lecture 20 - Isoperimetric Problems - Part 2  
Lecture 21 - Isoperimetric Problems - Part 3  
Lecture 22 - Isoperimetric Problems - Part 4  
Lecture 23 - Isoperimetric Problems - Part 5  
Lecture 24 - Isoperimetric Problems - Part 6  
Lecture 25 - Problems with Holonomic and non- Holonomic Constraints, Variable Endpts - Part 1  
Lecture 26 - Problems with Holonomic and non- Holonomic Constraints, Variable Endpts - Part 2  
Lecture 27 - Problems with Holonomic and non- Holonomic Constraints, Variable Endpts - Part 3  
Lecture 28 - Problems with Holonomic and non- Holonomic Constraints, Variable Endpts - Part 4  
Lecture 29 - Problems with Holonomic and non- Holonomic Constraints, Variable Endpts - Part 5

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problems with Holonomic and non- Holonomic Constraints, Variable Endpts - Part 6
- Lecture 31 - Broken extremals / Hamiltonian Formulation - Part 1
- Lecture 32 - Broken extremals / Hamiltonian Formulation - Part 2
- Lecture 33 - Broken extremals / Hamiltonian Formulation - Part 3
- Lecture 34 - Broken extremals / Hamiltonian Formulation - Part 4
- Lecture 35 - Broken extremals / Hamiltonian Formulation - Part 5
- Lecture 36 - Broken extremals / Hamiltonian Formulation - Part 6
- Lecture 37 - Hamilton-Jacobi Equations - Part 1
- Lecture 38 - Hamilton-Jacobi Equations - Part 2
- Lecture 39 - Hamilton-Jacobi Equations - Part 3
- Lecture 40 - Hamilton-Jacobi Equations - Part 4
- Lecture 41 - Hamilton-Jacobi Equations - Part 5
- Lecture 42 - Hamilton-Jacobi Equations - Part 6
- Lecture 43 - Noether's Theorem / Introduction to Second Variation - Part 1
- Lecture 44 - Noether's Theorem / Introduction to Second Variation - Part 2
- Lecture 45 - Noether's Theorem / Introduction to Second Variation - Part 3
- Lecture 46 - Noether's Theorem / Introduction to Second Variation - Part 4
- Lecture 47 - Noether's Theorem / Introduction to Second Variation - Part 5
- Lecture 48 - Noether's Theorem / Introduction to Second Variation - Part 6
- Lecture 49 - Conjugate points / Jacobi Accessory Equations / Introduction to Optimal Control Theory - Part 1
- Lecture 50 - Conjugate points / Jacobi Accessory Equations / Introduction to Optimal Control Theory - Part 2
- Lecture 51 - Conjugate points / Jacobi Accessory Equations / Introduction to Optimal Control Theory - Part 3
- Lecture 52 - Conjugate points / Jacobi Accessory Equations / Introduction to Optimal Control Theory - Part 4
- Lecture 53 - Conjugate points / Jacobi Accessory Equations / Introduction to Optimal Control Theory - Part 5
- Lecture 54 - Conjugate points / Jacobi Accessory Equations / Introduction to Optimal Control Theory - Part 6
- Lecture 55 - Constrained Optimization in Optimal Control Theory - Part 1
- Lecture 56 - Constrained Optimization in Optimal Control Theory - Part 2
- Lecture 57 - Constrained Optimization in Optimal Control Theory - Part 3
- Lecture 58 - Constrained Optimization in Optimal Control Theory - Part 4
- Lecture 59 - Constrained Optimization in Optimal Control Theory - Part 5
- Lecture 60 - Constrained Optimization in Optimal Control Theory - Part 6
- Lecture 61 - Introduction to Nanomechanics - Part 1
- Lecture 62 - Introduction to Nanomechanics - Part 2
- Lecture 63 - Introduction to Nanomechanics - Part 3
- Lecture 64 - Introduction to Nanomechanics - Part 4
- Lecture 65 - Introduction to Nanomechanics - Part 5
- Lecture 66 - Introduction to Nanomechanics - Part 6

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Galois Theory

Subject Co-ordinator - Prof. Krishna Hanumanthu

Co-ordinating Institute - Chennai Mathematical Institute

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation and overview of the course
- Lecture 2 - Review of group theory
- Lecture 3 - Review of ring theory - I
- Lecture 4 - Review of ring theory - II
- Lecture 5 - Review of field theory - I
- Lecture 6 - Review of field theory - II
- Lecture 7 - Review of field theory - III
- Lecture 8 - Problem Session - Part 1
- Lecture 9 - Problem Session - Part 2
- Lecture 10 - Beginning of Galois theory
- Lecture 11 - Fixed fields
- Lecture 12 - Theorem I on fixed fields
- Lecture 13 - Theorem II on fixed fields
- Lecture 14 - Galois extensions, Galois groups
- Lecture 15 - Normal extensions
- Lecture 16 - Problem Session - Part 3
- Lecture 17 - Problem Session - Part 4
- Lecture 18 - Separable extension - Part 1
- Lecture 19 - Separable extension - Part 2
- Lecture 20 - Characterization of Galois extensions - Part 1
- Lecture 21 - Characterization of Galois extensions - Part 2
- Lecture 22 - Examples of Galois extensions
- Lecture 23 - Motivating the main theorem of Galois theory
- Lecture 24 - Main theorem of Galois theory - Part 1
- Lecture 25 - Main theorem of Galois theory - Part 2
- Lecture 26 - Fundamental theorem of algebra
- Lecture 27 - Problem Session - Part 5
- Lecture 28 - Problem Session - Part 6
- Lecture 29 - Problem Session - Part 7

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- Lecture 30 - Problem Session - Part 8
- Lecture 31 - Problem Session - Part 9
- Lecture 32 - Kummer extensions - Part 1
- Lecture 33 - Kummer extensions - Part 2
- Lecture 34 - Kummer extensions - Part 3
- Lecture 35 - Cyclotomic extensions - Part 1
- Lecture 36 - Cyclotomic extensions - Part 2
- Lecture 37 - Solvability by radicals
- Lecture 38 - Characterizations of solvability - Part 1
- Lecture 39 - Characterizations of solvability - Part 2
- Lecture 40 - Discriminants, Galois groups of polynomials
- Lecture 41 - Quartics are solvable
- Lecture 42 - Solvable groups - Part 1
- Lecture 43 - Solvable groups - Part 2
- Lecture 44 - Solvable groups - Part 3
- Lecture 45 - Insolvability of quintics
- Lecture 46 - Problem Session - Part 10
- Lecture 47 - Problem Session - Part 11
- Lecture 48 - Problem Session - Part 12
- Lecture 49 - Problem Session - Part 13

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Basic Calculus 1

Subject Co-ordinator - Prof. Arindama Singh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - The Real line - Part 1  
Lecture 2 - The Real line - Part 2  
Lecture 3 - Absolute value - Part 1  
Lecture 4 - Absolute value - Part 2  
Lecture 5 - Functions - Part 1  
Lecture 6 - Functions - Part 2  
Lecture 7 - Transcendental and trigonometric Functions - Part 1  
Lecture 8 - Transcendental and trigonometric Functions - Part 2  
Lecture 9 - Limits of functions - Part 1  
Lecture 10 - Limits of functions - Part 2  
Lecture 11 - Algebra of limits - Part 1  
Lecture 12 - Algebra of limits - Part 2  
Lecture 13 - One-sided limits - Part 1  
Lecture 14 - One-sided limits - Part 2  
Lecture 15 - Limits at infinity - Part 1  
Lecture 16 - Limits at infinity - Part 2  
Lecture 17 - Infinite limits - Part 1  
Lecture 18 - Infinite limits - Part 2  
Lecture 19 - Continuity - Part 1  
Lecture 20 - Continuity - Part 2  
Lecture 21 - Algebra of continuous functions - Part 1  
Lecture 22 - Algebra of continuous functions - Part 2  
Lecture 23 - Results on continuity - Part 1  
Lecture 24 - Results on continuity - Part 2  
Lecture 25 - Differentiability - Part 1  
Lecture 26 - Differentiability - Part 2  
Lecture 27 - Derivative and tangent - Part 1  
Lecture 28 - Derivative and tangent - Part 2  
Lecture 29 - Rules of differentiation - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Rules of differentiation - Part 2
- Lecture 31 - Differentiation exercises - Part 1
- Lecture 32 - Differentiation exercises - Part 2
- Lecture 33 - Maxima and minima - Part 1
- Lecture 34 - Maxima and minima - Part 2
- Lecture 35 - Rolle's theorem and mean value theorem - Part 1
- Lecture 36 - Rolle's theorem and mean value theorem - Part 2
- Lecture 37 - Using Rolle's theorem and Mean value theorem - Part 1
- Lecture 38 - Using Rolle's theorem and Mean value theorem - Part 2
- Lecture 39 - First derivative test - Part 1
- Lecture 40 - First derivative test - Part 2
- Lecture 41 - Second derivative test - Part 1
- Lecture 42 - Second derivative test - Part 2
- Lecture 43 - Concavity - Part 1
- Lecture 44 - Concavity - Part 2
- Lecture 45 - Linearization and differential - Part 1
- Lecture 46 - Linearization and differential - Part 2
- Lecture 47 - L'Hôpital's rules - Part 1
- Lecture 48 - L'Hôpital's rules - Part 2
- Lecture 49 - Definite integral - Part 1
- Lecture 50 - Definite integral - Part 2
- Lecture 51 - Properties of integral - Part 1
- Lecture 52 - Properties of integral - Part 2
- Lecture 53 - Fundamental theorem of calculus - Part 1
- Lecture 54 - Fundamental theorem of calculus - Part 2
- Lecture 55 - Applications of Fundamental theorem of calculus - Part 1
- Lecture 56 - Applications of Fundamental theorem of calculus - Part 2
- Lecture 57 - Rule of substitution - Part 1
- Lecture 58 - Rule of substitution - Part 2
- Lecture 59 - Area between curves - Part 1
- Lecture 60 - Area between curves - Part 2
- Lecture 61 - Volumes by slicing - Part 1
- Lecture 62 - Volumes by slicing - Part 2
- Lecture 63 - The disk method - Part 1
- Lecture 64 - The disk method - Part 2
- Lecture 65 - The washer method - Part 1
- Lecture 66 - The washer method - Part 2
- Lecture 67 - Volumes by cylindrical shells - Part 1
- Lecture 68 - Volumes by cylindrical shells - Part 2

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- Lecture 69 - Lengths of curves - Part 1
- Lecture 70 - Lengths of curves - Part 2
- Lecture 71 - Areas of surface of revolution - Part 1
- Lecture 72 - Areas of surface of revolution - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Functional Analysis

Subject Co-ordinator - Prof. Kesavan

Co-ordinating Institute - Institute of Mathematical Sciences

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Normed Linear Spaces  
Lecture 2 - Examples of Normed Linear Spaces  
Lecture 3 - Examples (Continued...)  
Lecture 4 - Continuous linear maps - Part 1  
Lecture 5 - Continuous linear maps - Part 2  
Lecture 6 - Isomorphisms  
Lecture 7 - Exercises  
Lecture 8 - Exercises (Continued...)  
Lecture 9 - Hahn-Banach Theorems  
Lecture 10 - Reflexivity  
Lecture 11 - Geometric version  
Lecture 12 - Geometric version (Continued...)  
Lecture 13 - Vector valued integration  
Lecture 14 - Exercises - Part 1  
Lecture 15 - Exercises - Part 2  
Lecture 16 - Baire's Theorem and Applications  
Lecture 17 - Application to Fourier series  
Lecture 18 - Open mapping and closed graph theorems  
Lecture 19 - Annihilators  
Lecture 20 - Complemented subspaces  
Lecture 21 - Unbounded Operators, Adjoints - Part 1  
Lecture 22 - Unbounded Operators, Adjoints - Part 2  
Lecture 23 - Orthogonality relations  
Lecture 24 - Exercises  
Lecture 25 - Exercises (Continued...)  
Lecture 26 - Weak topology - Part 1  
Lecture 27 - Weak topology - Part 2  
Lecture 28 - Weak topology - Part 3  
Lecture 29 - Weak\* topology - Part 1

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- Lecture 30 - Weak\* topology - Part 2
- Lecture 31 - Reflexive Spaces
- Lecture 32 - Separable Spaces - Part 1
- Lecture 33 - Separable Spaces - Part 2
- Lecture 34 - Uniformly Convex Spaces
- Lecture 35 - Applications
- Lecture 36 - Exercises
- Lecture 37 - L-p Spaces - Part 1
- Lecture 38 - L-p Spaces - Part 2
- Lecture 39 - Completeness
- Lecture 40 - Duality
- Lecture 41 - L-p Spaces in Euclidean spaces - Part 1
- Lecture 42 - L-p Spaces in Euclidean spaces - Part 2
- Lecture 43 - Dual of L-1
- Lecture 44 - The space L-1 (Continued...)
- Lecture 45 - Exercises - Part 1
- Lecture 46 - Exercises - Part 2
- Lecture 47 - Exercises - Part 3
- Lecture 48 - Exercises - Part 4
- Lecture 49 - Hilbert spaces - Part 1
- Lecture 50 - Hilbert spaces - Part 2
- Lecture 51 - Duality
- Lecture 52 - Adjoints
- Lecture 53 - Applications
- Lecture 54 - Orthonormal sets
- Lecture 55 - Orthonormal bases - Part 1
- Lecture 56 - Orthonormal bases - Part 2
- Lecture 57 - Fourier series
- Lecture 58 - Spectrum of an operator - Part 1
- Lecture 59 - Spectrum of an operator - Part 2
- Lecture 60 - Exercises - Part 1
- Lecture 61 - Exercises - Part 2
- Lecture 62 - Exercises - Part 3
- Lecture 63 - Compact operators - Part 1
- Lecture 64 - Compact operators - Part 2
- Lecture 65 - Riesz-Fredholm theory - Part 1
- Lecture 66 - Riesz-Fredholm theory - Part 2
- Lecture 67 - Riesz-Fredholm theory
- Lecture 68 - Spectrum of a compact operator

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- Lecture 69 - Spectrum of a compact self-adjoint operator
- Lecture 70 - Eigenvalues of a compact self-adjoint operator
- Lecture 71 - Exercises - Part 1
- Lecture 72 - Exercises - Part 2
- Lecture 73 - Exercises - Part 3
- Lecture 74 - Exercises - Part 4

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Mathematical Methods in Physics 1

Subject Co-ordinator - Prof. Auditya Sharma

Co-ordinating Institute - IISER - Bhopal

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Vectors
- Lecture 2 - Linear vector spaces
- Lecture 3 - Linear vector spaces: immediate consequences
- Lecture 4 - Dot product of Euclidean vectors
- Lecture 5 - Inner product on a Linear vector space
- Lecture 6 - Cauchy-Schwartz inequality for Euclidean vectors
- Lecture 7 - Cauchy-Schwartz inequality for vectors from LVS
- Lecture 8 - Applications of the Cauchy-Schwartz inequality
- Lecture 9 - Triangle inequality
- Lecture 10 - Linear dependence and independence of vectors
- Lecture 11 - Row reduction of matrices
- Lecture 12 - Rank of a matrix
- Lecture 13 - Rank of a matrix: consequences
- Lecture 14 - Determinants and their properties
- Lecture 15 - The rank of a matrix using determinants
- Lecture 16 - Cramer's rule
- Lecture 17 - Square system of equations
- Lecture 18 - Homogeneous equations
- Lecture 19 - The rank of a matrix and linear dependence
- Lecture 20 - Span, basis, and dimension of a LVS
- Lecture 21 - Gram-Schmidt orthogonalization
- Lecture 22 - Vector subspaces
- Lecture 23 - Linear operators
- Lecture 24 - Inverse of an operator
- Lecture 25 - Adjoint of an operator
- Lecture 26 - Projection operators
- Lecture 27 - Eigenvalues and Eigenvectors
- Lecture 28 - Hermitian operators
- Lecture 29 - Unitary operators

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Normal operators
- Lecture 31 - Similarity and Unitary transformations
- Lecture 32 - Matrix representations
- Lecture 33 - Eigenvalues and Eigenvectors of matrices
- Lecture 34 - Defective matrices
- Lecture 35 - Eigenvalues and eigenvectors: useful results
- Lecture 36 - Transformation of Basis
- Lecture 37 - A class of invertible matrices
- Lecture 38 - Diagonalization of matrices
- Lecture 39 - Diagonalizability of matrices
- Lecture 40 - Functions of matrices
- Lecture 41 - SHM and waves
- Lecture 42 - Periodic functions
- Lecture 43 - Average value of a function
- Lecture 44 - Piecewise continuous functions
- Lecture 45 - Orthogonal basis: Fourier series
- Lecture 46 - Fourier coefficients
- Lecture 47 - Dirichlet Conditions
- Lecture 48 - Complex Form of Fourier Series
- Lecture 49 - Other intervals: arbitrary period
- Lecture 50 - Even and Odd Functions
- Lecture 51 - Differentiating Fourier series
- Lecture 52 - Parseval's theorem
- Lecture 53 - Fourier series to Fourier transforms
- Lecture 54 - Fourier Sine and Cosine transforms
- Lecture 55 - Parseval's theorem for Fourier series
- Lecture 56 - Ordinary Differential equations
- Lecture 57 - First order ODEs
- Lecture 58 - Linear first order ODEs
- Lecture 59 - Orthogonal Trajectories
- Lecture 60 - Exact differential equations
- Lecture 61 - Special first order ODEs
- Lecture 62 - Solutions of linear first-order ODEs
- Lecture 63 - Revisit linear first-order ODEs
- Lecture 64 - ODEs in disguise
- Lecture 65 - 2nd order Homogeneous linear equations with constant coefficients
- Lecture 66 - The use of a known solution to find another
- Lecture 67 - An alternate approach to auxiliary equation
- Lecture 68 - Inhomogeneous second order equations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Methods to find a Particular solution
- Lecture 70 - Successive Integration of two first order equations
- Lecture 71 - Illustrative examples
- Lecture 72 - Variation of Parameters
- Lecture 73 - Vibrations in mechanical systems
- Lecture 74 - Forced Vibrations
- Lecture 75 - Resonance
- Lecture 76 - Linear Superposition
- Lecture 77 - Laplace Transform (LT)
- Lecture 78 - Basic Properties of Laplace Transforms
- Lecture 79 - Step functions, Translations, and Periodic functions
- Lecture 80 - The Inverse Laplace Transform
- Lecture 81 - Convolution of functions
- Lecture 82 - Solving ODEs using Laplace transforms
- Lecture 83 - The Dirac Delta function
- Lecture 84 - Properties of the Dirac Delta function
- Lecture 85 - Green's function method
- Lecture 86 - Green's function method: Boundary value problem
- Lecture 87 - Power series method
- Lecture 88 - Power series solutions about an ordinary point
- Lecture 89 - Initial value problem: power series solution
- Lecture 90 - Frobenius method for regular singular points

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Computational Mathematics with SageMath

Subject Co-ordinator - Prof. Ajit Kumar

Co-ordinating Institute - Institute of Chemical Technology - Mumbai

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Installation of Python
- Lecture 2 - Getting Started with Python
- Lecture 3 - Python as an advanced calculator
- Lecture 4 - Lists in Python
- Lecture 5 - Tuple, Sets and Dictionaries in Python
- Lecture 6 - Functions and Branching
- Lecture 7 - For loop in Python
- Lecture 8 - While loop in Python
- Lecture 9 - Creating Modules and Introduction to NumPy
- Lecture 10 - Use of NumPy module
- Lecture 11 - Python Graphics using Matplotlib
- Lecture 12 - Use of SciPy and SymPy in Python
- Lecture 13 - Classes in Python - Part 1
- Lecture 14 - Classes in Python - Part 2
- Lecture 15 - Introduction and Installation of SageMath
- Lecture 16 - Exploring integers in SageMath
- Lecture 17 - Solving Equations in SageMath
- Lecture 18 - 2d Plotting with SageMath
- Lecture 19 - 3d Plotting with SageMath
- Lecture 20 - Calculus of one variable with SageMath - Part 1
- Lecture 21 - Calculus of one variable with SageMath - Part 2
- Lecture 22 - Applications of derivatives
- Lecture 23 - Integration with SageMath
- Lecture 24 - Improper Integral using SageMath
- Lecture 25 - Application of integration using SageMath
- Lecture 26 - Limit and Continuity of real valued functions
- Lecture 27 - Partial Derivative with SageMath
- Lecture 28 - Local Maximum and Minimum
- Lecture 29 - Application of local maximum and local minimum

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Constrained optimization using Lagrange multipliers
- Lecture 31 - Working with vectors in SageMath
- Lecture 32 - Solving system of linear Equations in SageMath
- Lecture 33 - Vector Spaces in SageMath
- Lecture 34 - Basis and dimensions of vector spaces in SageMath
- Lecture 35 - Matrix Spaces with SageMath
- Lecture 36 - Linear Transformations - Part 1 with SageMath
- Lecture 37 - Linear Transformations - Part 2 with SageMath
- Lecture 38 - Eigenvalues and Eigenvectors - Part 1 with SageMath
- Lecture 39 - Eigenvalues and Eigenvectors - Part 2 with SageMath
- Lecture 40 - Inner Product - Part 1 with SageMath
- Lecture 41 - Inner Product - Part 2 with SageMath
- Lecture 42 - Orthogonal Decomposition with SageMath
- Lecture 43 - Least Square Solution with SageMath
- Lecture 44 - Singular Value Decomposition (SVD) with SageMath
- Lecture 45 - Application of SVD to image processing
- Lecture 46 - Solving System of linear ODE using Eigenvalues and Eigenvectors
- Lecture 47 - Google Page Rank Algorithm using SageMath
- Lecture 48 - Finding Roots of algebraic and transcendental equations in SageMath
- Lecture 49 - Numerical Solutions of System of linear equations in SageMath
- Lecture 50 - Interpolations in SageMath
- Lecture 51 - Numerical Integration in SageMath
- Lecture 52 - Numerical Eigenvalues
- Lecture 53 - Solving 1st and 2nd order ODE with SageMath
- Lecture 54 - Euler's Method to solve 1st order ODE with SageMath
- Lecture 55 - Fourth Order Runge-Kutta Method
- Lecture 56 - RK4 method for System of ODE and Applications
- Lecture 57 - Solving ODE using Laplace Transforms in SageMath
- Lecture 58 - Introduction to Linear Programming Problems (LPP)
- Lecture 59 - Solving Linear Programming Problems using Graphical Methods
- Lecture 60 - Basics Definitions and Results in LPP
- Lecture 61 - Theory of Simplex Method
- Lecture 62 - Simplex Methods in SageMath - Part 1
- Lecture 63 - Simplex Methods in SageMath - Part 2
- Lecture 64 - Simplex Methods in Matrix Form
- Lecture 65 - Revised Simplex Method in SageMath
- Lecture 66 - Two Phase Simplex Method in SageMath
- Lecture 67 - Big-M Method in SageMath
- Lecture 68 - Duality of Linear Program

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Dual Simplex Method in SageMath
- Lecture 70 - Review and What next in SageMath?

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Probability (with examples using R)

Subject Co-ordinator - Prof. Siva Athreya

Co-ordinating Institute - ISI - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Sample Space, Events and Probability  
Lecture 2 - Properties of Probability  
Lecture 3 - Equally likely Outcomes  
Lecture 4 - Conditional Probability  
Lecture 5 - Bayes Theorem  
Lecture 6 - Independence - Part 1  
Lecture 7 - Independence - Part 2  
Lecture 8 - Sampling and Repeated Trials  
Lecture 9 - Sampling and Repeated Trials - Part 1  
Lecture 10 - Sampling and Repeated Trials - Part 2  
Lecture 11 - Sampling with and Without Replacement  
Lecture 12 - Sampling without Replacement  
Lecture 13 - Hypergeometric Distribution and Discrete Random Variables  
Lecture 14 - Discrete Random Variables - Part 1  
Lecture 15 - Discrete Random Variables - Part 2  
Lecture 16 - Conditional, Joint and Marginal Distributions  
Lecture 17 - Memoryless property of Geometric Distribution  
Lecture 18 - Functions of Random Variables  
Lecture 19 - Sums of Independent Random Variables  
Lecture 20 - Functions and Independence  
Lecture 21 - Expectation of Random Variables  
Lecture 22 - Properties of Expectation  
Lecture 23 - Expectation: Independence and Functions  
Lecture 24 - Variance of Discrete Random Variables  
Lecture 25 - Markov and Chebyshev Inequalities  
Lecture 26 - Conditional Expectation and Covariance  
Lecture 27 - Continuous Random Variables - Part 1  
Lecture 28 - Continuous Random Variables - Part 2  
Lecture 29 - Distribution Function

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Exponential and Normal Random Variable
- Lecture 31 - Normal Random Variable
- Lecture 32 - Change of Variable
- Lecture 33 - Joint Distribution of Continuous Random Variables
- Lecture 34 - Marginal Density and Independence
- Lecture 35 - Conditional Density
- Lecture 36 - Sums of Independent Random Variables
- Lecture 37 - Quotient of Independent Random Variables
- Lecture 38 - Expectation and Variance of Continuous Random Variables
- Lecture 39 - Sampling Distribution and Sample Mean
- Lecture 40 - Weak Law of Large Numbers
- Lecture 41 - Revisit of Variance and Expectation
- Lecture 42 - Revisit of Properties of Variance
- Lecture 43 - Revisit Weak Law of Large Numbers
- Lecture 44 - Demoivre-Laplace Central Limit Theorem and Normal Random Variables
- Lecture 45 - Revisit Normal Random Variables
- Lecture 46 - Normal Tables, Mean and Variance

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Algebra-II

Subject Co-ordinator - Prof. Amritanshu Prasad, Prof. S. Viswanath

Co-ordinating Institute - Institute of Mathematical Sciences

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Algebraic and Transcendental Numbers
- Lecture 2 - Extensions Generated by Elements
- Lecture 3 - Isomorphic Extensions
- Lecture 4 - Degree of an Extension
- Lecture 5 - Constructible Numbers
- Lecture 6 - The Field of Constructible Numbers
- Lecture 7 - Characterization of Constructible Numbers
- Lecture 8 - Solved Problems (Week 1)
- Lecture 9 - Some Things can't be Constructed
- Lecture 10 - Symbolic Adjunction
- Lecture 11 - Repeated Roots
- Lecture 12 - Gauss Lemma
- Lecture 13 - Eisenstein's criterion
- Lecture 14 - Existence Theorem for Finite Fields
- Lecture 15 - Subfields of a Finite Field
- Lecture 16 - Multiplicative Group of a Finite Field
- Lecture 17 - Uniqueness Theorem for Finite Fields
- Lecture 18 - Solved Problems (Week 2)
- Lecture 19 - Algebraic Extensions and Algebraic Closures
- Lecture 20 - Existence of Algebraic Closures
- Lecture 21 - Uniqueness of Algebraic Closure
- Lecture 22 - Solved Problems - Part 1 (Week 3)
- Lecture 23 - Existence of splitting fields, bound on degree
- Lecture 24 - Uniqueness of splitting fields
- Lecture 25 - Solved problems - Part 2 (Week 3)
- Lecture 26 - Normal Extensions
- Lecture 27 - Separable polynomials
- Lecture 28 - Perfect fields, separable extensions
- Lecture 29 - Definition and examples, fixed fields

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Characterization of Galois extensions
- Lecture 31 - Linear Independence of Characters
- Lecture 32 - Solved problems (Week 4)
- Lecture 33 - Artin's Theorem - Part 1
- Lecture 34 - Artin's Theorem - Part 2
- Lecture 35 - Finite Galois Extensions
- Lecture 36 - The fundamental theorem of Galois Theory - 1
- Lecture 37 - The fundamental theorem of Galois Theory - 2
- Lecture 38 - Solved problems (Week 5)
- Lecture 39 - Cyclotomic extensions
- Lecture 40 - Irreducibility of the cyclotomic polynomial
- Lecture 41 - Application: Constructibility of regular n-gons.
- Lecture 42 - Insolvability of the general quintic - Part 1
- Lecture 43 - Insolvability of the general quintic - Part 2
- Lecture 44 - Insolvability of the general quintic - Part 3
- Lecture 45 - What is category theory (and why is it important)?
- Lecture 46 - Definition of a category
- Lecture 47 - Monomorphisms, epimorphisms, and isomorphisms
- Lecture 48 - Categories: First Problem Session
- Lecture 49 - Initial and Terminal Objects
- Lecture 50 - Products and Coproducts
- Lecture 51 - Categories: Second Problem Session
- Lecture 52 - Functors
- Lecture 53 - The Category of Categories
- Lecture 54 - Natural Transformations
- Lecture 55 - Functor Categories
- Lecture 56 - Categories: Third Problem Session
- Lecture 57 - Adjunction
- Lecture 58 - Categories: Fourth Problem Session
- Lecture 59 - Tensor products of  $\mathbb{Z}$ -modules
- Lecture 60 - Free abelian groups and quotient groups
- Lecture 61 - Construction of the tensor product
- Lecture 62 - Problem session
- Lecture 63 - Tensor product of  $R$ -modules
- Lecture 64 - Functoriality of the tensor product
- Lecture 65 - Bimodules
- Lecture 66 - Tensor products of bimodules
- Lecture 67 - Tensor products of modules over commutative rings
- Lecture 68 - Extension of scalars

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Problem session - tensor products of vector spaces
- Lecture 70 - Some Properties of the tensor product
- Lecture 71 - F-algebras
- Lecture 72 - Composition Series
- Lecture 73 - Schreier's Theorem
- Lecture 74 - Ascending and Descending Chain Conditions
- Lecture 75 - Existence of Jordan-Holder Series
- Lecture 76 - The Jordan-Holder Theorem
- Lecture 77 - Examples related to the Jordan-Holder Theorem
- Lecture 78 - The Jordan-Holder Theorem for Groups
- Lecture 79 - Indecomposable Modules
- Lecture 80 - Direct Sum Decompositions
- Lecture 81 - Decomposition as a sum of Indecomposables
- Lecture 82 - The Endomorphism Ring of an Indecomposable Module
- Lecture 83 - Krull-Schmidt Theorem
- Lecture 84 - Krull-Schmidt Examples

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Mathematical Methods in Physics 2

Subject Co-ordinator - Prof. Auditya Sharma

Co-ordinating Institute - IISER - Bhopal

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to complex numbers
- Lecture 2 - The triangle inequality
- Lecture 3 - The de Moivre formula
- Lecture 4 - Roots of unity
- Lecture 5 - Functions of a complex variable and the notion of continuity
- Lecture 6 - Derivative of a complex function
- Lecture 7 - Differentiation rules for a complex function
- Lecture 8 - Cauchy-Riemann Equations
- Lecture 9 - Sufficient conditions for differentiability
- Lecture 10 - Cauchy-Riemann conditions in polar coordinates
- Lecture 11 - More perspective on differentiability
- Lecture 12 - The value of the derivative
- Lecture 13 - Analytic functions
- Lecture 14 - Harmonic functions
- Lecture 15 - The exponential function
- Lecture 16 - Complex logarithm
- Lecture 17 - Complex exponents
- Lecture 18 - Trigonometric functions of complex variables
- Lecture 19 - Hyperbolic functions of complex variables
- Lecture 20 - Inverse Trigonometric and Hyperbolic functions
- Lecture 21 - Branch of a multivalued function
- Lecture 22 - Contour Integrals
- Lecture 23 - Green's Theorem
- Lecture 24 - Path dependence of the contour integral
- Lecture 25 - Antiderivatives
- Lecture 26 - The Cauchy theorem
- Lecture 27 - Crossing contours and multiply connected domains
- Lecture 28 - Cauchy Integral formula
- Lecture 29 - Derivatives of an analytic function

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Liouville's theorem and the Fundamental theorem of algebra
- Lecture 31 - Taylor Series
- Lecture 32 - Laurent Series
- Lecture 33 - Convergence
- Lecture 34 - Differentiation and integration of power series
- Lecture 35 - Isolated Singularities
- Lecture 36 - Residues
- Lecture 37 - Residue Theorem
- Lecture 38 - Evaluation of integrals - I
- Lecture 39 - Evaluation of integrals - II
- Lecture 40 - Analytic Continuation
- Lecture 41 - Introduction of orthogonal polynomials
- Lecture 42 - How to construct orthogonal polynomials
- Lecture 43 - The weight function
- Lecture 44 - Recursion relations
- Lecture 45 - Differential equation satisfied by the orthogonal polynomials
- Lecture 46 - Hermite polynomials
- Lecture 47 - Properties of Hermite polynomials
- Lecture 48 - Legendre polynomials
- Lecture 49 - Legendre polynomials: recurrence relation
- Lecture 50 - Differential equation corresponding to Legendre polynomials
- Lecture 51 - The generating function corresponding to Legendre polynomials
- Lecture 52 - Laguerre Polynomials
- Lecture 53 - Laguerre Polynomials: recurrence relation
- Lecture 54 - Laguerre polynomials: differential equation
- Lecture 55 - Laguerre polynomials: generating function
- Lecture 56 - Bessel functions: series definition
- Lecture 57 - Bessel functions: recurrence relations
- Lecture 58 - Bessel functions: differential equation
- Lecture 59 - Bessel functions of integral order: generating function
- Lecture 60 - Bessel functions: orthogonality
- Lecture 61 - Classification of Second Order PDEs
- Lecture 62 - Canonical Forms for Hyperbolic PDEs
- Lecture 63 - Canonical Forms for Parabolic PDEs
- Lecture 64 - Canonical Forms for Elliptic PDEs
- Lecture 65 - The Laplace Equation
- Lecture 66 - The Laplace Equation: Separation of Variables
- Lecture 67 - The Laplace Equation: Dirichlet and Neumann boundary conditions
- Lecture 68 - The Laplace Equation in Cartesian coordinates

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - The Laplace Equation for a 3-D rectangular box
- Lecture 70 - The Laplace Equation in spherical coordinates
- Lecture 71 - The Laplace Equation in Spherical Coordinates: Solution
- Lecture 72 - The Laplace Equation in Spherical Coordinates: illustrative examples
- Lecture 73 - The Poisson's Equation: Green's function solution
- Lecture 74 - The heat equation: a heuristic discussion
- Lecture 75 - From the random walk to the diffusion equation
- Lecture 76 - Solution of the Diffusion equation
- Lecture 77 - The Diffusion equation with Dirichlet and Neumann boundary conditions
- Lecture 78 - The Heat equation: illustrative examples
- Lecture 79 - The Wave equation: Method of characteristics
- Lecture 80 - The Wave equation: Separation of variables

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Real Analysis - II

Subject Co-ordinator - Prof. Jaikrishnan J

Co-ordinating Institute - IIT - Palakkad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Metric Spaces  
Lecture 2 - Examples of metric spaces  
Lecture 3 - Loads of definitions  
Lecture 4 - Normed vector spaces  
Lecture 5 - Examples of normed vector spaces  
Lecture 6 - Basic properties open closed sets metric  
Lecture 7 - Continuity in metric spaces  
Lecture 8 - Equivalent metrics and product spaces  
Lecture 9 - Completeness  
Lecture 10 - Completeness (Continued...)  
Lecture 11 - Completeness of  $B(x,y)$   
Lecture 12 - Completion  
Lecture 13 - Compactness  
Lecture 14 - The Bolzano-Weierstrass Property  
Lecture 15 - Open covers and Compactness  
Lecture 16 - The Heine-Borel Theorem for Metric Spaces  
Lecture 17 - Connectedness  
Lecture 18 - Path-Connectedness  
Lecture 19 - Connected Components  
Lecture 20 - The Arzela-Ascoli theorem  
Lecture 21 - Upper and lower limits  
Lecture 22 - The Stone-Weierstrass theorem  
Lecture 23 - All norms are equivalent  
Lecture 24 - Vector-valued functions  
Lecture 25 - Scalar-valued functions of a vector variable  
Lecture 26 - Directional derivatives and the gradient  
Lecture 27 - Interpretation and properties of the gradient  
Lecture 28 - Higher-order partial derivatives  
Lecture 29 - The derivative as a linear map

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Examples of differentiation
- Lecture 31 - Properties of the derivative map
- Lecture 32 - The mean-value theorem
- Lecture 33 - Differentiating under the integral sign
- Lecture 34 - Higher-order derivatives
- Lecture 35 - Symmetry of the second derivative
- Lecture 36 - Taylor's theorem
- Lecture 37 - Taylor's theorem with remainder
- Lecture 38 - The Banach fixed point theorem
- Lecture 39 - Newton's method
- Lecture 40 - The inverse function theorem
- Lecture 41 - Diffeomorphism and local diffeomorphisms
- Lecture 42 - The implicit function theorem
- Lecture 43 - Tangent space to a hypersurface
- Lecture 44 - The definition of a manifold
- Lecture 45 - Examples and non examples of manifolds
- Lecture 46 - The tangent space to a manifold
- Lecture 47 - Maxima and minima in several variables
- Lecture 48 - The Hessian and extrema
- Lecture 49 - Completing the squares
- Lecture 50 - Constrained extrema and lagrange multipliers
- Lecture 51 - Curves
- Lecture 52 - Rectifiability and arc-length
- Lecture 53 - The Riemann integral revisited
- Lecture 54 - Monotone sequences of functions
- Lecture 55 - Upper functions and their integrals
- Lecture 56 - Riemann integrable functions as upper functions
- Lecture 57 - Lebesgue integrable functions
- Lecture 58 - Approximation of Lebesgue integrable functions
- Lecture 59 - Levi monotone convergence theorem for step functions
- Lecture 60 - Monotone convergence theorem for upper functions
- Lecture 61 - Monotone convergence theorem for Lebesgue integrable functions
- Lecture 62 - The Lebesgue dominated convergence theorem
- Lecture 63 - Applications of the convergence theorems
- Lecture 64 - The problem of measure
- Lecture 65 - The Lebesgue integral on unbounded intervals
- Lecture 66 - Measurable functions
- Lecture 67 - Solution to the problem of measure
- Lecture 68 - The Lebesgue integral on arbitrary subsets

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Square integrable functions
- Lecture 70 - Norms and inner-products on complex vector spaces
- Lecture 71 - Convergence in  $L^2$
- Lecture 72 - The Riesz-Fischer theorem
- Lecture 73 - Multiple Riemann integration
- Lecture 74 - Multiple Lebesgue integration

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Sobolev Spaces and Partial Differential Equations

Subject Co-ordinator - Prof. Kesavan

Co-ordinating Institute - IMSc

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Test Functions - Part 1

Lecture 2 - Test Functions - Part 2

Lecture 3 - Distributions

Lecture 4 - Examples - Part 1

Lecture 5 - Distribution Derivatives

Lecture 6 - More operations on distributions

Lecture 7 - Support of a distribution

Lecture 8 - Distributions with compact support; singular support - Part 1

Lecture 9 - Distributions with compact support; singular support - Part 2

Lecture 10 - Exercises - Part 1

Lecture 11 - Convolution of functions - Part 1

Lecture 12 - Convolution of functions - Part 2

Lecture 13 - Convolution of functions - Part 3

Lecture 14 - Convolution of distributions - Part 1

Lecture 15 - Convolution of distributions - Part 2

Lecture 16 - Convolution of distributions - Part 3

Lecture 17 - Exercises - Part 2

Lecture 18 - Fundamental solutions

Lecture 19 - The Fourier transform

Lecture 20 - The Schwarz space - Part 1

Lecture 21 - The Schwarz space - Part 2

Lecture 22 - Examples - Part 1

Lecture 23 - Fourier inversion formula

Lecture 24 - Tempered distributions

Lecture 25 - Exercises - Part 3

Lecture 26 - Sobolev spaces - Part 1

Lecture 27 - Sobolev spaces - Part 2

Lecture 28 - Sobolev spaces - Part 3

Lecture 29 - Approximation by smooth functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Chain rule and applications - Part 1
- Lecture 31 - Chain rule and applications - Part 2
- Lecture 32 - Extension theorems - Part 1
- Lecture 33 - Extension theorems - Part 2
- Lecture 34 - Poincare's inequality
- Lecture 35 - Exercises - Part 4
- Lecture 36 - Exercises - Part 5
- Lecture 37 - Imbedding theorems
- Lecture 38 - Imbedding theorems: Case  $p$  less than  $N$  - Part 1
- Lecture 39 - Imbedding theorems: Case  $p = N$  - Part 2
- Lecture 40 - Imbedding theorems: Case  $p$  greater than  $N$  - Part 3
- Lecture 41 - Compactness theorems - Part 1
- Lecture 42 - Compactness theorems - Part 2
- Lecture 43 - Compactness theorems - Part 3
- Lecture 44 - The spaces  $W^{\{s,p\}}$
- Lecture 45 - spaces  $W^{\{s,p\}}$  and Trace spaces
- Lecture 46 - Trace theory - Part 1
- Lecture 47 - Trace theory - Part 2
- Lecture 48 - Trace theory - Part 3
- Lecture 49 - Trace theory - Part 4
- Lecture 50 - Exercises - Part 6
- Lecture 51 - Exercises - Part 7
- Lecture 52 - Abstract variational problems - Part 1
- Lecture 53 - Abstract variational problems - Part 2
- Lecture 54 - Weak solutions of elliptic boundary value problems - Part 1
- Lecture 55 - Weak solutions of elliptic boundary value problems - Part 2
- Lecture 56 - Neumann problems
- Lecture 57 - The Biharmonic operator
- Lecture 58 - The elasticity system
- Lecture 59 - Exercises - Part 8
- Lecture 60 - Exercises - Part 9
- Lecture 61 - Exercises - Part 9
- Lecture 62 - Maximum Principles - Part 1
- Lecture 63 - Maximum Principles - Part 2
- Lecture 64 - Exercises - Part 10
- Lecture 65 - Exercises - Part 11
- Lecture 66 - Eigenvalue problems - Part 1
- Lecture 67 - Eigenvalue problems - Part 2
- Lecture 68 - Eigenvalue problems - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Exercises - Part 12
- Lecture 70 - Exercises - Part 13
- Lecture 71 - Unbounded operators - Part 1
- Lecture 72 - Unbounded operators - Part 2
- Lecture 73 - The exponential map
- Lecture 74 -  $C_0$  Semigroups - Part 1
- Lecture 75 -  $C_0$  Semigroups - Part 2
- Lecture 76 - Infinitesimal generators of contraction semigroups
- Lecture 77 - Hille-Yosida theorem
- Lecture 78 - Regularity
- Lecture 79 - Contraction semigroups on Hilbert spaces
- Lecture 80 - Self-adjoint case and the case of isometries
- Lecture 81 - The heat equation
- Lecture 82 - The wave equation
- Lecture 83 - The Schrodinger equation
- Lecture 84 - The inhomogeneous equation
- Lecture 85 - Exercises - 14



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Combinatorics

Subject Co-ordinator - Prof. Narayanan N

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Pigeonhole Principle
- Lecture 2 - Dirichlet theorem and Erdos-Szekeres Theorem
- Lecture 3 - Ramey theorem as generalisation of PHP
- Lecture 4 - An infinite flock of Pigeons
- Lecture 5 - Basic Counting - the sum and product rules
- Lecture 6 - Examples of basic counting
- Lecture 7 - Examples: Product and Division rules
- Lecture 8 - Binomial theorem and bijective counting
- Lecture 9 - Counting lattice paths
- Lecture 10 - Multinomial theorem
- Lecture 11 - Applying Multinomial theorem
- Lecture 12 - Integer compositions
- Lecture 13 - Set partitions and Stirling numbers
- Lecture 14 - Stirling and Hemachandra recursions
- Lecture 15 - Integer partitions
- Lecture 16 - Young's diagram and Integer partitions
- Lecture 17 - Principle of Inclusion and Exclusion
- Lecture 18 - Applications of PIE
- Lecture 19 - The twelvefold way
- Lecture 20 - Inclusion exclusion: Linear algebra view
- Lecture 21 - Partial Orders
- Lecture 22 - Mobius Inversion Formula
- Lecture 23 - Product theorem and applications of Mobius Inversion
- Lecture 24 - Formal power series, ordinary generating functions
- Lecture 25 - Application of Ordinary generating functions
- Lecture 26 - Product of Generating functions
- Lecture 27 - Composition of generating functions
- Lecture 28 - Exponential Generating Function
- Lecture 29 - Composition of EGF

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Euler pentagonal number theorem
- Lecture 31 - Graphs - introduction
- Lecture 32 - Paths Walks, Cycles
- Lecture 33 - Digraphs and functional digraphs
- Lecture 34 - Componenets, Connectivity, Bipartite graphs
- Lecture 35 - Acyclic graphs
- Lecture 36 - Graph colouring
- Lecture 37 - Mycielski graphs
- Lecture 38 - Product of graphs
- Lecture 39 - Menger's theorem
- Lecture 40 - System of Distinct representatives
- Lecture 41 - Planar graphs
- Lecture 42 - Euler identity
- Lecture 43 - Map colouring problem - History
- Lecture 44 - The Discharging Method - Part 1
- Lecture 45 - The Discharging Method - Part 2
- Lecture 46 - Introduction to Group actions
- Lecture 47 - Colouring and symmetries - examples
- Lecture 48 - Bursides lemma
- Lecture 49 - Proof of Bursides lemma
- Lecture 50 - Polya's theorem
- Lecture 51 - Species of structures- definitions and examples
- Lecture 52 - Associated seris and Product of species
- Lecture 53 - Species: Substitution and Derivative
- Lecture 54 - Species: Pointing and countilg labelled trees
- Lecture 55 - Review and Further directions
- Lecture 56 - More on further topics
- Lecture 57 - Linear Algebra method: Ultra short introduction
- Lecture 58 - Probabiistic Method: Ultra short introduction

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Our Mathematical Senses

Subject Co-ordinator - Prof. Vijay Ravikumar

Co-ordinating Institute - Chennai Mathematical Institute

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Why do the images of parallel lines converge?
- Lecture 2 - The power of vanishing points
- Lecture 3 - Bonus material: Perspective in visual art
- Lecture 4 - Understanding Points at Infinity
- Lecture 5 - The Extended Euclidean Plane
- Lecture 6 - Harmonic tetrads
- Lecture 7 - Perspective Drawing as a Perspectivity
- Lecture 8 - Perspectivities of the Extended Euclidean Plane
- Lecture 9 - Projectivities
- Lecture 10 - Projectivities as Functions on the Real Numbers
- Lecture 11 - Proving Pappus's Theorem
- Lecture 12 - The Fundamental Theorem of Projective Geometry
- Lecture 13 - The Cross Ratio
- Lecture 14 - Applications of the Cross Ratio
- Lecture 15 - The Real Projective Plane
- Lecture 16 - Transformations of the Real Projective Plane

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Algebraic Combinatorics

Subject Co-ordinator - Prof. Amritanshu Prasad, Prof. Sankaran Viswanath

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Examples of Mobius Inversion
- Lecture 2 - Partially Ordered Sets
- Lecture 3 - Hasse Diagrams
- Lecture 4 - Isomorphisms of Posets
- Lecture 5 - Maximal, Minimal, Greatest, Least
- Lecture 6 - Induced Subposets
- Lecture 7 - Incidence Algebras
- Lecture 8 - Inversion in Incidence Algebras
- Lecture 9 - Mobius Inversion
- Lecture 10 - Examples of Mobius Functions
- Lecture 11 - Product Posets and their Mobius Functions
- Lecture 12 - Opposite of a Poset
- Lecture 13 - The Poset of Set Partitions
- Lecture 14 - Connected Structures
- Lecture 15 - Lattices
- Lecture 16 - Weisner's Theorem
- Lecture 17 - The Lattice of Non-Crossing Partitions
- Lecture 18 - The Canonical Product Decomposition for Intervals of Non-Crossing Partitions
- Lecture 19 - The Mobius Function for Non-Crossing Partitions
- Lecture 20 - Ideals in a Poset
- Lecture 21 - Mobius Function of  $J(P)$
- Lecture 22 - Young's Lattice
- Lecture 23 - Distributive Lattices
- Lecture 24 - Formal Power Series
- Lecture 25 - The Necklace Problem
- Lecture 26 - Combinatorial Classes
- Lecture 27 - Sums, Products, and Sequences of Combinatorial Classes
- Lecture 28 - Power Set, Multisets, and Sequences
- Lecture 29 - A Little Dendrology

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- Lecture 30 - Super Catalan/Little Schroeder numbers
- Lecture 31 - Regular Languages
- Lecture 32 - Finite Automata
- Lecture 33 - The Pumping Lemma
- Lecture 34 - The Dyck Language
- Lecture 35 - Permutations and their cycles
- Lecture 36 - Permutation Groups
- Lecture 37 - Orbits, fixed points, stabilizers
- Lecture 38 - The orbit counting theorem
- Lecture 39 - The Polya Enumeration Theorem
- Lecture 40 - The Cycle Index Polynomials
- Lecture 41 - Cycle Index of the Octahedral Group
- Lecture 42 - Cycle Index of the Full Permutation Group
- Lecture 43 - Combinatorial Species
- Lecture 44 - Generating Series of a Species
- Lecture 45 - Cycle Index Series of a Species
- Lecture 46 - Isomorphism of Species
- Lecture 47 - Visualization of Species
- Lecture 48 - Sum of Species
- Lecture 49 - Product of Species
- Lecture 50 - Sums and Products: More Examples
- Lecture 51 - Substitution of Species
- Lecture 52 - Derivative of a Species
- Lecture 53 - Powers and Sequences of Binomial Type
- Lecture 54 - Pointing and Cayley's Theorem
- Lecture 55 - R-enriched Trees
- Lecture 56 - R-enriched Endofunctions
- Lecture 57 - Lagrange Inversion Formula
- Lecture 58 - Motivation for the LGV Lemma
- Lecture 59 - Statement of the LGV Lemma
- Lecture 60 - Nice Applications of the LGV Lemma
- Lecture 61 - Sign-Reversing Involutions
- Lecture 62 - Proof of the LGV Lemma
- Lecture 63 - The Cauchy-Binet Formula
- Lecture 64 - Symmetric polynomials: definition and examples
- Lecture 65 - Monomial symmetric polynomials
- Lecture 66 - Elementary and Complete symmetric polynomials - Part 1
- Lecture 67 - Elementary and Complete symmetric polynomials - Part 2
- Lecture 68 - Alternating polynomials

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Labelled abaci and alternants
- Lecture 70 - Schur polynomials
- Lecture 71 - Pieri Rule - Statement and Examples
- Lecture 72 - Pieri Rule - Proof
- Lecture 73 - The second Pieri rule
- Lecture 74 - Semi-standard tableaux
- Lecture 75 - Triangularity of Kostka matrix
- Lecture 76 - Monomial expansion of Schur
- Lecture 77 - The RSK correspondence
- Lecture 78 - Jacobi Trudi identities via LGV lemma
- Lecture 79 - Formal ring of symmetric functions in infinitely many variables
- Lecture 80 - Monomial expansions and RSK
- Lecture 81 - Generating functions for  $e$ ,  $h$
- Lecture 82 - The power sum symmetric functions
- Lecture 83 - The inner product and Cauchy identity
- Lecture 84 - Skew Schur functions and the LR rule

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:An Invitation to Topology

Subject Co-ordinator - Prof. Indrava Roy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Topology
- Lecture 2 - Basic Set theory
- Lecture 3 - Mathematical Logic - Part 1
- Lecture 4 - Mathematical Logic - Part 2
- Lecture 5 - Functions
- Lecture 6 - Finite Sets - Part 1
- Lecture 7 - Finite Sets - Part 2
- Lecture 8 - Infinite Sets
- Lecture 9 - Infinite Sets and Axiom of Choice
- Lecture 10 - Definition of aTopology
- Lecture 11 - Examples of different topologies
- Lecture 12 - Basis for a topology
- Lecture 13 - Various topologies on the real line
- Lecture 14 - Comparison of topologies - Part 1: Finer and coarser topologies
- Lecture 15 - Comparison of topologies - Part 2: Comparing the various topologies on  $\mathbb{R}$
- Lecture 16 - Basis and Sub-basis for a topology
- Lecture 17 - Various topologies: the subspace topology
- Lecture 18 - The Product topology
- Lecture 19 - Topologies on arbitrary Cartesian products
- Lecture 20 - Metric topology - Part 1
- Lecture 21 - Metric topology - Part 2
- Lecture 22 - Metric topology - Part 3
- Lecture 23 - Closed Sets
- Lecture 24 - Closure and Limit points
- Lecture 25 - Continuous functions
- Lecture 26 - Construction of continuous functions
- Lecture 27 - Continuous functions on metric spaces - Part 1
- Lecture 28 - Continuous functions on metric spaces - Part 2
- Lecture 29 - Connectedness

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Some conditions for Connectedness
- Lecture 31 - Connectedness of the Real Line
- Lecture 32 - Connectedness of a Linear Continuum
- Lecture 33 - The Intermediate Value Theorem
- Lecture 34 - Path-connectedness
- Lecture 35 - Connectedness does not imply Path-connectedness - Part 1
- Lecture 36 - Connectedness does not imply Path-connectedness - Part 2
- Lecture 37 - Connected and Path-connected Components
- Lecture 38 - Local connectedness and Local Path-connectedness
- Lecture 39 - Compactness
- Lecture 40 - Properties of compact spaces
- Lecture 41 - The Heine-Borel Theorem
- Lecture 42 - Tychonoff's theorem
- Lecture 43 - Proof of Tychonoff's theorem - Part 1
- Lecture 44 - Proof of Tychonoff's theorem - Part 2
- Lecture 45 - Compactness in metric spaces
- Lecture 46 - Lebesgue Number Lemma and the Uniform Continuity theorem
- Lecture 47 - Different Kinds of Compactness
- Lecture 48 - Equivalence of various compactness properties for Metric Spaces
- Lecture 49 - Compactness and Sequential Compactness in arbitrary topological spaces
- Lecture 50 - Baire Spaces
- Lecture 51 - Properties and Examples of Baire Spaces
- Lecture 52 - The Baire Category Theorem
- Lecture 53 - Complete Metric Spaces and the Baire Category theorem - Part 1
- Lecture 54 - Complete Metric Spaces and the Baire Category theorem - Part 2
- Lecture 55 - Application of the Baire Category theorem
- Lecture 56 - Regular and Normal spaces
- Lecture 57 - Properties and examples of regular and normal spaces
- Lecture 58 - Urysohn's Lemma
- Lecture 59 - Proof of Urysohn's Lemma
- Lecture 60 - Tietze Extension theorem - Part 1
- Lecture 61 - Tietze Extension theorem - Part 2
- Lecture 62 - Compactness and Completeness in Metric spaces
- Lecture 63 - The space of continuous functions - Part 1
- Lecture 64 - The space of continuous functions - Part 2
- Lecture 65 - Equicontinuity
- Lecture 66 - Total boundedness and Equicontinuity - Part 1
- Lecture 67 - Total boundedness and Equicontinuity - Part 2
- Lecture 68 - Topology of compact convergence - Part 1



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Topology of compact convergence - Part 2
- Lecture 70 - Equicontinuity revisited - Part 1
- Lecture 71 - Equicontinuity revisited - Part 2
- Lecture 72 - Locally compact Hausdorff spaces
- Lecture 73 - The Arzelà - Ascoli theorem

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Operator Theory

Subject Co-ordinator - Prof. G. Ramesh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Semi Inner product spaces  
Lecture 2 - Inner Product Spaces  
Lecture 3 - Parallelogram law  
Lecture 4 - Hilbert Spaces  
Lecture 5 - Orthogonality  
Lecture 6 - Projection Theorem  
Lecture 7 - Linear Operator  
Lecture 8 - Bounded Operators  
Lecture 9 - Norm of a linear operator  
Lecture 10 - Examples of bounded operators  
Lecture 11 - The Adjoint Operator  
Lecture 12 - The Adjoint: Properties  
Lecture 13 - Closed range operators - 1  
Lecture 14 - Closed range operators - 2  
Lecture 15 - Self-adjoint Operators  
Lecture 16 - Normal operators  
Lecture 17 - Isometris and Unitaries  
Lecture 18 - Isometris and Unitaries  
Lecture 19 - Mutually Orthogonal Projections  
Lecture 20 - Invariant Subspaces  
Lecture 21 - Monotone Convergence Theorem  
Lecture 22 - Square root  
Lecture 23 - Polar decomposition  
Lecture 24 - Invertibility  
Lecture 25 - Spectrum  
Lecture 26 - Spectral Mapping Theorem  
Lecture 27 - The spectral radius formula  
Lecture 28 - multiplicative linear functionals  
Lecture 29 - The GKZ-theorem

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Maximal Ideal Space
- Lecture 31 - Commutative  $C^*$ -algebras
- Lecture 32 - Decomposition of spectrum
- Lecture 33 - Computing spectrum: Examples
- Lecture 34 - Approximate spectrum
- Lecture 35 - Approximate spectrum: Properties
- Lecture 36 - Numerical bounds
- Lecture 37 - Compact Operators
- Lecture 38 - Compact Operators; Properties
- Lecture 39 - Spectral Theorem: Compact Self-Adjoint Operators
- Lecture 40 - Spectral Theorem: Consequences
- Lecture 41 - Compact Normal Operators
- Lecture 42 - Compact Operators Singular value Decomposition
- Lecture 43 - Fredholm Alternative Theorem
- Lecture 44 - Orthogonal decomposition of self-adjoint operators
- Lecture 45 - Spectral family; Properties - I
- Lecture 46 - Spectral family; Properties - II
- Lecture 47 - Spectral theorem Self adjoint Operators
- Lecture 48 - Spectral theorem Examples
- Lecture 49 - Spectral theorem: Consequences
- Lecture 50 - Continuous functional Calculus
- Lecture 51 - Spectral mapping theorem

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Measure and Integration

Subject Co-ordinator - Prof. S. Kesavan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Preamble  
Lecture 2 - Algebras of sets  
Lecture 3 - Measures on rings  
Lecture 4 - Outer-measure  
Lecture 5 - Measurable sets  
Lecture 6 - Caratheodory's method  
Lecture 7 - Exercises  
Lecture 8 - Exercises  
Lecture 9 - Lebesgue measure: the ring  
Lecture 10 - Construction of the Lebesgue measure  
Lecture 11 - Errata  
Lecture 12 - The Cantor set  
Lecture 13 - Approximation  
Lecture 14 - Approximation  
Lecture 15 - Approximation  
Lecture 16 - Translation Invariance  
Lecture 17 - Non-measurable sets  
Lecture 18 - Exercises  
Lecture 19 - Measurable functions  
Lecture 20 - Measurable functions  
Lecture 21 - The Cantor function  
Lecture 22 - Exercises  
Lecture 23 - Egorov's theorem  
Lecture 24 - Convergence in measure  
Lecture 25 - Convergence in measure  
Lecture 26 - Convergence in measure  
Lecture 27 - Exercises  
Lecture 28 - Integration: Simple functions  
Lecture 29 - Non-negative functions

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- Lecture 30 - Monotone convergence theorem
- Lecture 31 - Examples
- Lecture 32 - Fatou's lemma
- Lecture 33 - Integrable functions
- Lecture 34 - Dominated convergence theorem
- Lecture 35 - Dominated convergence theorem: Applications
- Lecture 36 - Absolute continuity
- Lecture 37 - Integration on the real line
- Lecture 38 - Examples
- Lecture 39 - Weierstrass' theorem
- Lecture 40 - Exercises
- Lecture 41 - Exercises
- Lecture 42 - Vitali covering lemma
- Lecture 43 - Monotonic functions
- Lecture 44 - Functions of bounded variation
- Lecture 45 - Functions of bounded variation
- Lecture 46 - Functions of bounded variation
- Lecture 47 - Differentiation of an indefinite integral
- Lecture 48 - Absolute continuity
- Lecture 49 - Exercises
- Lecture 50 - Product spaces
- Lecture 51 - Product spaces: measurable functions
- Lecture 52 - Product measure
- Lecture 53 - Fubini's theorem
- Lecture 54 - Examples
- Lecture 55 - Examples
- Lecture 56 - Integration of radial functions
- Lecture 57 - Measure of the unit ball in N dimensions
- Lecture 58 - Exercises
- Lecture 59 - Signed measures
- Lecture 60 - Hahn and Jordan decompositions
- Lecture 61 - Upper, lower and total variations of a signed measure; Absolute continuity
- Lecture 62 - Absolute continuity
- Lecture 63 - Radon-Nikodym theorem
- Lecture 64 - Radon-Nikodym theorem
- Lecture 65 - Exercises
- Lecture 66 - Lebesgue spaces
- Lecture 67 - Examples. Inclusion questions
- Lecture 68 - Convergence in  $L^p$

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- Lecture 69 - Approximation
- Lecture 70 - Applications
- Lecture 71 - Duality
- Lecture 72 - Duality
- Lecture 73 - Convolutions
- Lecture 74 - Convolutions
- Lecture 75 - Convolutions
- Lecture 76 - Exercises
- Lecture 77 - Exercises
- Lecture 78 - Change of variable
- Lecture 79 - Change of variable

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Approximate Reasoning using Fuzzy Set Theory

Subject Co-ordinator - Prof. Balasubramaniam Jayaram

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Flow of the Course: A not-so-sneak peek
- Lecture 2 - Fuzzy Sets - The Necessity
- Lecture 3 - Fuzzy Sets - Representations
- Lecture 4 - Fuzziness vs Probability
- Lecture 5 - Fuzzy Sets - Some Important Notions
- Lecture 6 - Operations on Fuzzy Sets
- Lecture 7 - Posets on Fuzzy Sets
- Lecture 8 - Lattice of Fuzzy Sets
- Lecture 9 - Boolean Algebra of Sets
- Lecture 10 - Algebras on Fuzzy Sets
- Lecture 11 - Triangular Norms
- Lecture 12 - Triangular Norms: Analytical Aspects
- Lecture 13 - Triangular Norms: Algebraic Aspects
- Lecture 14 - T-Norms: Construction and Representations
- Lecture 15 - T-Norms:Complementation and Duality
- Lecture 16 - Fuzzy Implications
- Lecture 17 - Fuzzy Implications - Desirable Properties
- Lecture 18 - Construction of Fuzzy Implication - I
- Lecture 19 - Construction of Fuzzy Implication - II
- Lecture 20 - Construction of Fuzzy Implication - II
- Lecture 21 - Construction of Fuzzy Implication - III
- Lecture 22 - Construction of Fuzzy Implication - IV
- Lecture 23 - (N, T, I)- An Organic Relationship
- Lecture 24 - Fuzzy Relations
- Lecture 25 - Composition of Fuzzy Relations
- Lecture 26 - Similarity and Compatibility Classes
- Lecture 27 - On the Transitivity of Fuzzy Relations - I
- Lecture 28 - On the Transitivity of Fuzzy Relations - II
- Lecture 29 - Fuzzy Propositions: Some Interpretations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fuzzy If-Then Rules
- Lecture 31 - Fuzzy Relational Inference
- Lecture 32 - Fuzzy Relational Inference - MISO Case
- Lecture 33 - Fuzzy Relational Inference - Multiple Rules
- Lecture 34 - Fuzzy Inferencing Schemes - A Visual Illustration
- Lecture 35 - Similarity Based Reasoning
- Lecture 36 - SBR : Mamdani Fuzzy Systems
- Lecture 37 - Introduction to Building a Mamdani FIS
- Lecture 38 - Contrast Enhancement in Images: An FIS Approach
- Lecture 39 - Takagi-Sugeno-Kang Fuzzy Systems
- Lecture 40 - Fuzzy Inference Systems - Interpolativity
- Lecture 41 - Interpolativity of FRI - Single SISO Rule
- Lecture 42 - Fuzzy Relational Equations
- Lecture 43 - Interpolativity of FRI - Multiple SISO Rules
- Lecture 44 - Similarity Based Reasoning- Interpolativity
- Lecture 45 - FRI~SBR : FITA~FATI : Some Connections
- Lecture 46 - Continuous Models of FRI
- Lecture 47 - Continuous Models of CRI and BKS
- Lecture 48 - Continuous Models of SBR
- Lecture 49 - Extensionality of a Fuzzy Set
- Lecture 50 - Robustness of CRI
- Lecture 51 - Robustness of BKS
- Lecture 52 - Robustness of SBR
- Lecture 53 - Monotonicity of an FIS
- Lecture 54 - Monotonicity of an FRI
- Lecture 55 - Monotonicity of an SBR
- Lecture 56 - Functional (In)Equalities involving FLCs
- Lecture 57 - Suitability of BKS with Yager's Implications
- Lecture 58 - Law of Importation and Hierarchical CRI



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Probability-II with Examples Using R

Subject Co-ordinator - Prof. Siva Athreya

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Continuous Random Variables - Part 1  
Lecture 2 - Continuous Random Variables - Part 2  
Lecture 3 - R Set Up  
Lecture 4 - Exponential and Normal Random Variable  
Lecture 5 - Normal Random Variable  
Lecture 6 - Distribution Function  
Lecture 7 - Normal Distribution  
Lecture 8 - Problem Solving for Week 12 - Part 2  
Lecture 9 - Joint Distribution of Continuous Random Variables  
Lecture 10 - Marginal Density and Independence  
Lecture 11 - Uniform Distribution in  $R^2$   
Lecture 12 - Problem Solving  
Lecture 13 - Bivariate Normal - Part 1  
Lecture 14 - Problem Solving 1 - Calculating Probabilities  
Lecture 15 - Problem Solving 2 - Quadratic Equation, Random Coefficients  
Lecture 16 - Conditional Density  
Lecture 17 - Sums of Independent Random Variables  
Lecture 18 - Quotient of Independent Random Variables  
Lecture 19 - Simulating Bivariate Normal Random Variables  
Lecture 20 - Problem Solving Conditional Density  
Lecture 21 - Expectation and Variance of Continuous Random Variables  
Lecture 22 - Revisit of Variance and Expectation  
Lecture 23 - Revisit of Properties of Variance  
Lecture 24 - Covariance and Correlation  
Lecture 25 - Conditional Expectation and Conditional Variance  
Lecture 26 - Analysis of Variance Formula  
Lecture 27 - Problem Solving Expectations  
Lecture 28 - Moment Generating Function  
Lecture 29 - Moments and Moment Generating Function

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- Lecture 30 - Bivariate Normal - Part 2
- Lecture 31 - Problem Solving Conditional Expectation and Conditional Variance
- Lecture 32 - Sampling Distribution and Sample Mean
- Lecture 33 - Weak Law of Large Numbers
- Lecture 34 - Revisit Weak Law of Large Numbers
- Lecture 35 - Problem Solving
- Lecture 36 - Demoivre-Laplace Central Limit Theorem and Normal Random Variables
- Lecture 37 - Revisit Normal Random Variables
- Lecture 38 - Normal Tables, Mean and Variance
- Lecture 39 - Problem Solving
- Lecture 40 - Bivariate Normal Random Variables\_Characterisation
- Lecture 41 - Bivariate Normal Random Variables\_Independence
- Lecture 42 - Problem Solving
- Lecture 43 - Bivariate Normal Random Variables Joint Density Calculation - Part 1
- Lecture 44 - Bivariate Normal Random Variables Joint Density Calculation - Part 2
- Lecture 45 - Problem Solving - Review of Transformation of Random Variables

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Predictive Analytics - Regression and Classification

Subject Co-ordinator - Prof. Sourish Das

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Least Squares method
- Lecture 3 - Hands-on with Python - Part 1
- Lecture 4 - Hands-on with R - Part 1
- Lecture 5 - Categorical Variable as Predictor - Part 1
- Lecture 6 - Categorical Variable as Predictor - Part 2
- Lecture 7 - Hands-on with R - Part 2
- Lecture 8 - Understanding the joint probability from data perspective
- Lecture 9 - Hands-on with R - Part 3
- Lecture 10 - Regression Line as Conditional Expectation
- Lecture 11 - Normal Equations
- Lecture 12 - Gauss Markov Theorem
- Lecture 13 - Hands-on with Python - Part 2
- Lecture 14 - Geometry of Regression Model and Feature Engineering
- Lecture 15 - Sampling Distribution and Statistical Inference of Regression Coefficient
- Lecture 16 - Hands-on with R - Part 4
- Lecture 17 - Checking Model Assumptions
- Lecture 18 - Comparing Models with Predictive Accuracy
- Lecture 19 - Hands-on with Julia
- Lecture 20 - Model Complexity, Bias and Variance Tradeoff
- Lecture 21 - Feature Selection, Variable Selection
- Lecture 22 - Hands on with R - Part 5
- Lecture 23 - Understanding Multicollinearity
- Lecture 24 - Ill-Posed Problem and Regularisation, LASSO and Ridge
- Lecture 25 - Hands-on with Python - Part 3
- Lecture 26 - Time Series Forecasting with Regression Model
- Lecture 27 - Hands on with R - Part 6
- Lecture 28 - Granger Causal model
- Lecture 29 - Hands on with R - Part 7

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- Lecture 30 - Capital Asset Pricing Model
- Lecture 31 - Hands on with R for CAPM
- Lecture 32 - Bootstrap Regression
- Lecture 33 - Hands on with R for Bootstrap Regression
- Lecture 34 - Hands on with Python: Handle multicollinearity with Ridge correction
- Lecture 35 - Hands on with Julia: Implemente Chennai Temperature Analysis with Julia and CRRao
- Lecture 36 - Introduction to logistic Regression
- Lecture 37 - Maximum Likelihood Estimate for Logistic Regression
- Lecture 38 - Hands on with R for Logistic Regression
- Lecture 39 - Hands on with R: Measure Time performance of R code
- Lecture 40 - Statistical Inference of Logistic Regression
- Lecture 41 - Hands on with R with Iris Dataset
- Lecture 42 - Multi-Class Classification with Discriminant Analysis
- Lecture 43 - Hands on with R: Implement LDA
- Lecture 44 - Effect of Feature Engineer in Logistic Regression
- Lecture 45 - Logistic Regression to Deep Learning Neural Network
- Lecture 46 - Hands on with R: Feature Engineer in Logistic Regression
- Lecture 47 - Generalised Linear Model
- Lecture 48 - Hands on with R: Poisson Regression with Football Data
- Lecture 49 - Gaussian Process Regression
- Lecture 50 - Hands on with R: Implement GP Regression from scratch
- Lecture 51 - Tree Structured Regression
- Lecture 52 - Hands on with R: Implement Tree Regression and Random Forest with Simulated Data
- Lecture 53 - Hands on with R: Implement Tree Regression and Random Forest with EPL football Data
- Lecture 54 - Hands on with Python : Analysis of Bangalore House Price Data
- Lecture 55 - Hands on with R: Prediction of Bangalore House Price
- Lecture 56 - Hands on with R: More Prediction of Bangalore House Price
- Lecture 57 - Hands on with R: Some Correction with Bangalore House Price Data Prediction
- Lecture 58 - Hands on with R: Classify fake bank note with GLM
- Lecture 59 - Hands on with R: Dynamic Pricing with Cheese Data
- Lecture 60 - Hands on with Julia - Bayesian Logistic Regression with Horse Shoe Prior - Genetic Data Analysis
- Lecture 61 - Hands on with Julia - Bayesian Poisson Regression with Horse Shoe Prior English Premier League D
- Lecture 62 - Why Julia is Future for Data Science Projects ?
- Lecture 63 - Concluding Remarks
- Lecture 64 - Course Review

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Algebraic Geometry

Subject Co-ordinator - Prof. Arijit Dey

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Commutative Algebra - Part 1
- Lecture 2 - Commutative Algebra - Part 2
- Lecture 3 - Commutative Algebra - Part 3
- Lecture 4 - Commutative Algebra - Part 4
- Lecture 5 - Commutative Algebra - Part 5
- Lecture 6 - Tutorial 1 : Cayley-Hamilton Theorem, Nakayama's Lemma
- Lecture 7 - Commutative Algebra - Part 6
- Lecture 8 - Commutative Algebra - Part 7
- Lecture 9 - Commutative Algebra - Part 8
- Lecture 10 - Affine Algebraic Sets - Part 1
- Lecture 11 - Affine Algebraic Sets - Part 2
- Lecture 12 - Tutorial 2 : Noether Normalization Lemma, Some Important Results in Dimension Theory
- Lecture 13 - Regular Morphisms
- Lecture 14 - Abstract Algebraic Sets
- Lecture 15 - Zariski Topology on Affine Space
- Lecture 16 - Irreducible Affine Algebraic Sets
- Lecture 17 - Ring of Regular Functions
- Lecture 18 - Projective Space
- Lecture 19 - Tutorial 3 : Some Applications of Dimension Theory
- Lecture 20 - Zariski Topology on Projective Space
- Lecture 21 - Affine Open Cover of Projective Space
- Lecture 22 - Projective and Quasi-Projective Varieties
- Lecture 23 - Regular Functions on Quasi-Projective Varieties
- Lecture 24 - Presheaves and Sheaves
- Lecture 25 - Morphism of Presheaves/Sheaves
- Lecture 26 - Tutorial 4 : More Applications of Dimension Theory
- Lecture 27 - A Brief Overview of Sheaf Theory - Part 1
- Lecture 28 - A Brief Overview of Sheaf Theory - Part 2
- Lecture 29 - A Brief Overview of Sheaf Theory - Part 3

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- Lecture 30 - Prevarieties
- Lecture 31 - Sheaf of Regular Functions
- Lecture 32 - Ring of Germs of Regular Functions at a point, Field of Rational Functions
- Lecture 33 - Tutorial 5 : Sheafification
- Lecture 34 - Ring of Regular Functions, Local Ring at a Point, and Field of Rational Functions of an Affine Variety
- Lecture 35 - Equivalence of Categories of the Category of Affine Varieties over a Field  $k$  and the Category
- Lecture 36 - Equivalence of Categories of the Category of Affine Varieties over a Field  $k$  (Continued...)
- Lecture 37 - Some Examples, Open Immersions and Closed Immersions
- Lecture 38 - Product of Quasi-affine Varieties
- Lecture 39 - Diagonal Morphisms, Abstract Varieties
- Lecture 40 - Tutorial 6 : Normal Varieties and Normalization of a Variety
- Lecture 41 - Projective Varieties Revisited - Part 1
- Lecture 42 - Projective Varieties Revisited - Part 2
- Lecture 43 - Global Regular Functions on Projective Varieties are Constants - Part 1
- Lecture 44 - Global Regular Functions on Projective Varieties are Constants - Part 2
- Lecture 45 - Product of Prevarieties - Part 1
- Lecture 46 - Product of Prevarieties - Part 2
- Lecture 47 - Tutorial 7 : A Result on Tensor Products of  $k$ -algebras
- Lecture 48 - Morphisms of Prevarieties - Part 1
- Lecture 49 - Morphisms of Prevarieties - Part 2
- Lecture 50 - Finite Morphisms - Part 1
- Lecture 51 - Finite Morphisms - Part 2
- Lecture 52 - Fiber Products
- Lecture 53 - Tutorial 8 : Finite Morphisms
- Lecture 54 - Immersions
- Lecture 55 - Fiber Products, Separatedness
- Lecture 56 - Criterion of Separatedness
- Lecture 57 - Proper Morphisms and Complete Varieties
- Lecture 58 - Tutorial 9 : Closed Immersions and Graph of a Morphism
- Lecture 59 - Projective Varieties are Complete
- Lecture 60 - Zariski Tangent Space, Singular and Nonsingular Points
- Lecture 61 - Smooth Points Form a Non-empty Open Subset
- Lecture 62 - Blow-Ups, Rational Maps and Birational Maps
- Lecture 63 - Tutorial 10 : Zariski Tangent Space at a Point of an Affine Variety
- Lecture 64 - Blow-Ups (Continued...)
- Lecture 65 - Smooth Morphisms
- Lecture 66 - Bertini's Theorem
- Lecture 67 - Sard's Theorem
- Lecture 68 - Tutorial 11 : Dimension of fiber of a morphism

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Introduction to Affine Schemes - Spectrum of a Ring
- Lecture 70 - Introduction to Affine Schemes - Topology on Spec A
- Lecture 71 - Introduction to Affine Schemes - Topology on Spec A (Continued...)
- Lecture 72 - Introduction to Affine Schemes - Sheaf Structure on Spec A
- Lecture 73 - Abstract Non-singular Curves - Part 1
- Lecture 74 - Abstract Non-singular Curves - Part 2
- Lecture 75 - Tutorial 12 : Extension of Regular Functions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Statistics

Subject Co-ordinator - Prof. Sameen Naqvi

Co-ordinating Institute - IIT - Hyderabad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Types of variables  
Lecture 2 - Types of studies  
Lecture 3 - Types of sampling strategies  
Lecture 4 - Python - Session 1  
Lecture 5 - Python - Session 2  
Lecture 6 - Summary measures of categorical and numerical variables  
Lecture 7 - Measures of Dispersion  
Lecture 8 - Measures of Skewness  
Lecture 9 - Python - Session 3  
Lecture 10 - Python - Session 4  
Lecture 11 - Visualizing categorical and numerical data  
Lecture 12 - Visualizing numerical data  
Lecture 13 - Python - Session 5  
Lecture 14 - Python - Session 6  
Lecture 15 - Python - Session 7  
Lecture 16 - Sampling distribution of sample mean  
Lecture 17 - Central Limit Theorem  
Lecture 18 - Sampling distribution of sample variance and proportion  
Lecture 19 - Python - Session 8  
Lecture 20 - Python - Session 9  
Lecture 21 - Sampling distribution of difference of sample means - Part 1  
Lecture 22 - Sampling distribution of difference of sample means - Part 2  
Lecture 23 - Sampling distribution of ratio of sample variances and difference of sample proportions  
Lecture 24 - Python - Session 10  
Lecture 25 - Python - Session 11  
Lecture 26 - Point estimation - Part 1  
Lecture 27 - Point estimation - Part 2  
Lecture 28 - Point estimation - Part 3  
Lecture 29 - Python - Session 12

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Python - Session 13  
Lecture 31 - Unbiased estimation  
Lecture 32 - EM algorithm - Part 1  
Lecture 33 - EM algorithm - Part 2  
Lecture 34 - Python - Session 14  
Lecture 35 - Python - Session 15  
Lecture 36 - Hypothesis Testing - Part 1  
Lecture 37 - Hypothesis Testing - Part 2  
Lecture 38 - Hypothesis Testing - Part 3  
Lecture 39 - Python - Session 16  
Lecture 40 - Python - Session 17  
Lecture 41 - Hypothesis Testing for two sample problem - Part 1  
Lecture 42 - Hypothesis Testing for two sample problem - Part 2  
Lecture 43 - Hypothesis Testing for two sample problem - Part 3  
Lecture 44 - Python - Session 18  
Lecture 45 - Python - Session 19  
Lecture 46 - Bootstrap Hypothesis Testing - Part 1  
Lecture 47 - Python - Session 20  
Lecture 48 - Python - Session 21  
Lecture 49 - Bootstrap Hypothesis Testing - Part 2  
Lecture 50 - Python - Session 22  
Lecture 51 - Confidence Interval Estimation - Part 1  
Lecture 52 - Confidence Interval Estimation - Part 2  
Lecture 53 - Confidence Interval Estimation - Part 3  
Lecture 54 - Python - Session 23  
Lecture 55 - Python - Session 24  
Lecture 56 - Confidence interval for two sample problem  
Lecture 57 - Python - Session 25  
Lecture 58 - Bootstrap Confidence Interval  
Lecture 59 - Python - Session 26  
Lecture 60 - Python - Session 27

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Discrete Mathematics

Subject Co-ordinator - Dr. Aditi Gangopadhyay, Dr. Sugata Gangopadhyay, Dr. Tanuja Srivastava

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the theory of sets
- Lecture 2 - Set operation and laws of set operation
- Lecture 3 - The principle of inclusion and exclusion
- Lecture 4 - Application of the principle of inclusion and exclusion
- Lecture 5 - Fundamentals of logic
- Lecture 6 - Logical Inferences
- Lecture 7 - Methods of proof of an implication
- Lecture 8 - First order logic (1)
- Lecture 9 - First order logic (2)
- Lecture 10 - Rules of inference for quantified propositions
- Lecture 11 - Mathematical Induction (1)
- Lecture 12 - Mathematical Induction (2)
- Lecture 13 - Sample space, events
- Lecture 14 - Probability, conditional probability
- Lecture 15 - Independent events, Bayes theorem
- Lecture 16 - Information and mutual information
- Lecture 17 - Basic definition
- Lecture 18 - Isomorphism and sub graphs
- Lecture 19 - Walks, paths and circuits operations on graphs
- Lecture 20 - Euler graphs, Hamiltonian circuits
- Lecture 21 - Shortest path problem
- Lecture 22 - Planar graphs
- Lecture 23 - Basic definition
- Lecture 24 - Properties of relations
- Lecture 25 - Graph of relations
- Lecture 26 - Matrix of relation
- Lecture 27 - Closure of relation (1)
- Lecture 28 - Closure of relation (2)
- Lecture 29 - Warshall's algorithm

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Partially ordered relation
- Lecture 31 - Partially ordered sets
- Lecture 32 - Lattices
- Lecture 33 - Boolean algebra
- Lecture 34 - Boolean function (1)
- Lecture 35 - Boolean function (2)
- Lecture 36 - Discrete numeric function
- Lecture 37 - Generating function
- Lecture 38 - Introduction to recurrence relations
- Lecture 39 - Second order recurrence relation with constant coefficients (1)
- Lecture 40 - Second order recurrence relation with constant coefficients (2)
- Lecture 41 - Application of recurrence relation

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Mathematical Methods and its Applications

Subject Co-ordinator - Prof. P.N. Agarwal, S. K. Gupta

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to linear differential equations
- Lecture 2 - Linear dependence, independence and Wronskian of functions
- Lecture 3 - Solution of second-order homogenous linear differential equations with constant coefficients - I
- Lecture 4 - Solution of second-order homogenous linear differential equations with constant coefficients - II
- Lecture 5 - Method of undetermined coefficients
- Lecture 6 - Methods for finding Particular Integral for second-order linear differential equations with constant coefficients
- Lecture 7 - Methods for finding Particular Integral for second-order linear differential equations with constant coefficients
- Lecture 8 - Methods for finding Particular Integral for second-order linear differential equations with constant coefficients
- Lecture 9 - Euler-Cauchy equations
- Lecture 10 - Method of reduction for second-order linear differential equations
- Lecture 11 - Method of variation of parameters
- Lecture 12 - Solution of second order differential equations by changing dependent variable
- Lecture 13 - Solution of second order differential equations by changing independent variable
- Lecture 14 - Solution of higher-order homogenous linear differential equations with constant coefficients
- Lecture 15 - Methods for finding Particular Integral for higher-order linear differential equations
- Lecture 16 - Formulation of Partial differential equations
- Lecture 17 - Solution of Lagrange's equation - I
- Lecture 18 - Solution of Lagrange's equation - II
- Lecture 19 - Solution of first order nonlinear equations - I
- Lecture 20 - Solution of first order nonlinear equations - II
- Lecture 21 - Solution of first order nonlinear equations - III
- Lecture 22 - Solution of first order nonlinear equations - IV
- Lecture 23 - Introduction to Laplace transforms
- Lecture 24 - Laplace transforms of some standard functions
- Lecture 25 - Existence theorem for Laplace transforms
- Lecture 26 - Properties of Laplace transforms - I
- Lecture 27 - Properties of Laplace transforms - II
- Lecture 28 - Properties of Laplace transforms - III
- Lecture 29 - Properties of Laplace transforms - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Convolution theorem for Laplace transforms - I
- Lecture 31 - Convolution theorem for Laplace transforms - II
- Lecture 32 - Initial and final value theorems for Laplace transforms
- Lecture 33 - Laplace transforms of periodic functions
- Lecture 34 - Laplace transforms of Heaviside unit step function
- Lecture 35 - Laplace transforms of Dirac delta function
- Lecture 36 - Applications of Laplace transforms - I
- Lecture 37 - Applications of Laplace transforms - II
- Lecture 38 - Applications of Laplace transforms - III
- Lecture 39 - Z<sup>-1</sup> transform and inverse Z-transform of elementary functions
- Lecture 40 - Properties of Z-transforms - I
- Lecture 41 - Properties of Z-transforms - II
- Lecture 42 - Initial and final value theorem for Z-transforms
- Lecture 43 - Convolution theorem for Z-transforms
- Lecture 44 - Applications of Z-transforms - I
- Lecture 45 - Applications of Z-transforms - II
- Lecture 46 - Applications of Z-transforms - III
- Lecture 47 - Fourier series and its convergence - I
- Lecture 48 - Fourier series and its convergence - II
- Lecture 49 - Fourier series of even and odd functions
- Lecture 50 - Fourier half-range series
- Lecture 51 - Parseval's Identity
- Lecture 52 - Complex form of Fourier series
- Lecture 53 - Fourier integrals
- Lecture 54 - Fourier sine and cosine integrals
- Lecture 55 - Fourier transforms
- Lecture 56 - Fourier sine and cosine transforms
- Lecture 57 - Convolution theorem for Fourier transforms
- Lecture 58 - Applications of Fourier transforms to BVP - I
- Lecture 59 - Applications of Fourier transforms to BVP - II
- Lecture 60 - Applications of Fourier transforms to BVP - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC: Integral Equations, Calculus of Variations and its Applications

Subject Co-ordinator - Prof.D. N Pandey, Prof. P.N. Agarwal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition and classification of linear integral equations
- Lecture 2 - Conversion of IVP into integral equations
- Lecture 3 - Conversion of BVP into an integral equations
- Lecture 4 - Conversion of integral equations into differential equations
- Lecture 5 - Integro-differential equations
- Lecture 6 - Fredholm integral equation with separable kernel
- Lecture 7 - Fredholm integral equation with separable kernel
- Lecture 8 - Solution of integral equations by successive substitutions
- Lecture 9 - Solution of integral equations by successive approximations
- Lecture 10 - Solution of integral equations by successive approximations
- Lecture 11 - Fredholm integral equations with symmetric kernels
- Lecture 12 - Fredholm integral equations with symmetric kernels
- Lecture 13 - Fredholm integral equations with symmetric kernels
- Lecture 14 - Construction of Green function - I
- Lecture 15 - Construction of Green function - II
- Lecture 16 - Green function for self adjoint linear differential equations
- Lecture 17 - Green function for non-homogeneous boundary value problem
- Lecture 18 - Fredholm alternative theorem - I
- Lecture 19 - Fredholm alternative theorem - II
- Lecture 20 - Fredholm method of solutions
- Lecture 21 - Classical Fredholm theory
- Lecture 22 - Classical Fredholm theory
- Lecture 23 - Classical Fredholm theory
- Lecture 24 - Method of successive approximations
- Lecture 25 - Neumann series and resolvent kernels - I
- Lecture 26 - Neumann series and resolvent kernels - II
- Lecture 27 - Equations with convolution type kernels - I
- Lecture 28 - Equations with convolution type kernels - II
- Lecture 29 - Singular integral equations - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Singular integral equations - II
- Lecture 31 - Cauchy type integral equations - I
- Lecture 32 - Cauchy type integral equations - II
- Lecture 33 - Cauchy type integral equations - III
- Lecture 34 - Cauchy type integral equations - IV
- Lecture 35 - Cauchy type integral equations - V
- Lecture 36 - Solution of integral equations using Fourier transform
- Lecture 37 - Solution of integral equations using Hilbert transform - I
- Lecture 38 - Solution of integral equations using Hilbert transform - II
- Lecture 39 - Calculus of variations
- Lecture 40 - Calculus of variations
- Lecture 41 - Calculus of variations
- Lecture 42 - Calculus of variations
- Lecture 43 - Euler equation
- Lecture 44 - Euler equation
- Lecture 45 - Brachistochrone problem and Euler equation - I
- Lecture 46 - Euler's equation - II
- Lecture 47 - Functions of several independent variables
- Lecture 48 - Variational problems in parametric form
- Lecture 49 - Variational problems of general type
- Lecture 50 - Variational derivative and invariance of Euler's equation
- Lecture 51 - Invariance of Euler's equation and isoperimetric problem - I
- Lecture 52 - Isoperimetric problem - II
- Lecture 53 - Variational problem involving a conditional extremum - I
- Lecture 54 - Variational problem involving a conditional extremum - II
- Lecture 55 - Variational problems with moving boundaries - I
- Lecture 56 - Variational problems with moving boundaries - II
- Lecture 57 - Variational problems with moving boundaries - III
- Lecture 58 - Variational problems with moving boundaries; One sided variation
- Lecture 59 - Variational problem with a movable boundary for a functional dependent on two functions
- Lecture 60 - Hamilton's principle

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Nonlinear Programming

Subject Co-ordinator - S. K. Gupta

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Convex Sets and Functions

Lecture 2 - Properties of Convex Functions - I

Lecture 3 - Properties of Convex Functions - II

Lecture 4 - Properties of Convex Functions- III

Lecture 5 - Convex Programming Problems

Lecture 6 - KKT optimality conditions

Lecture 7 - Quadratic Programming Problems - I

Lecture 8 - Quadratic Programming Problems - II

Lecture 9 - Separable Programming - I

Lecture 10 - Separable Programming - II

Lecture 11 - Geometric Programming - I

Lecture 12 - Geometric Programming - II

Lecture 13 - Geometric Programming - III

Lecture 14 - Dynamic Programming - I

Lecture 15 - Dynamic Programming - II

Lecture 16 - Dynamic programming approach to find shortest path in any network

Lecture 17 - Dynamic Programming - IV

Lecture 18 - Search Techniques - I

Lecture 19 - Search Techniques - II

Lecture 20 - Search Techniques - III



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Numerical Methods

Subject Co-ordinator - Prof. Sanjeev Kumar, Prof. Ameeya Kumar Nayak

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to error analysis and linear systems
- Lecture 2 - Gaussian elimination with Partial pivoting
- Lecture 3 - LU decomposition
- Lecture 4 - Jacobi and Gauss Seidel methods
- Lecture 5 - Iterative methods-II
- Lecture 6 - Introduction to Non-linear equations and Bisection method
- Lecture 7 - Regula Falsi and Secant methods
- Lecture 8 - Newton-Raphson method
- Lecture 9 - Fixed point iteration method
- Lecture 10 - System of Nonlinear equations
- Lecture 11 - Introduction to Eigenvalues and Eigenvectors
- Lecture 12 - Similarity Transformations and Gershgorin Theorem
- Lecture 13 - Jacobi's Method for Computing Eigenvalues
- Lecture 14 - Power Method
- Lecture 15 - Inverse Power Method
- Lecture 16 - Interpolation - Part I (Introduction to Interpolation)
- Lecture 17 - Interpolation - Part II (Some basic operators and their properties)
- Lecture 18 - Interpolation - Part III (Newton's Forward/ Backward difference and derivation of general error formula)
- Lecture 19 - Interpolation - Part IV (Error in approximating a function by a polynomial using Newton's Forward/ Backward difference formula)
- Lecture 20 - Interpolation - Part V (Solving problems using Newton's Forward and Backward difference formula)
- Lecture 21 - Interpolation - Part VI (Central difference formula)
- Lecture 22 - Interpolation - Part VII (Lagrange interpolation formula with examples)
- Lecture 23 - Interpolation - Part VIII (Divided difference interpolation with examples)
- Lecture 24 - Interpolation - Part IX (Hermite's interpolation with examples)
- Lecture 25 - Numerical differentiation - Part I (Introduction to numerical differentiation by interpolation formula)
- Lecture 26 - Numerical differentiation - Part II (Numerical differentiation based on Lagrange's interpolation formula)
- Lecture 27 - Numerical differentiation - Part III (Numerical differentiation based on Divided difference formula)
- Lecture 28 - Numerical differentiation - Part IV (Maxima and minima of a tabulated function and differentiation by finite difference operators)
- Lecture 29 - Numerical differentiation - Part V (Differentiation based on finite difference operators)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Numerical differentiation - Part VI (Method of undetermined coefficients and Derivatives with un
- Lecture 31 - Numerical Integration - Part I (Methodology of Numerical Integration and Rectangular rule )
- Lecture 32 - Numerical Integration - Part II (Quadrature formula and Trapezoidal rule with associated errors)
- Lecture 33 - Numerical Integration - Part III (Simpsons 1/3rd rule with associated errors)
- Lecture 34 - Numerical Integration - Part IV (Composite Simpsons 1/3rd rule and Simpsons 3/8th rule with exam
- Lecture 35 - Numerical Integration - Part V (Gauss Legendre 2-point and 3-point formula with examples)
- Lecture 36 - Introduction to Ordinary Differential equations
- Lecture 37 - Numerical methods for ODE-1
- Lecture 38 - Numerical Methods - II
- Lecture 39 - R-K Methods for solving ODEs
- Lecture 40 - Multi-step Method for solving ODEs

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Numerical Linear Algebra

Subject Co-ordinator - Prof.D. N Pandey, Prof. P.N. Agrawal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Matrix Operations and Types of Matrices  
Lecture 2 - Determinant of a Matrix  
Lecture 3 - Rank of a Matrix  
Lecture 4 - Vector Space - I  
Lecture 5 - Vector Space - II  
Lecture 6 - Linear dependence and independence  
Lecture 7 - Bases and Dimension - I  
Lecture 8 - Bases and Dimension - II  
Lecture 9 - Linear Transformation - I  
Lecture 10 - Linear Transformation - II  
Lecture 11 - Orthogonal Subspaces  
Lecture 12 - Row Space, Column Space and Null Space  
Lecture 13 - Eigen Values and Eigen Vectors - I  
Lecture 14 - Eigen Values and Eigen Vectors - II  
Lecture 15 - Diagonalizable Matrices  
Lecture 16 - Orthogonal Sets  
Lecture 17 - Gram Schmidt orthogonalization and orthogonal bases  
Lecture 18 - Introduction to Matlab  
Lecture 19 - Sign Integer Representation  
Lecture 20 - Computer Representation of Numbers  
Lecture 21 - Floating Point Representation  
Lecture 22 - Round-off Error  
Lecture 23 - Error Propagation in Computer Arithmetic  
Lecture 24 - Addition and Multiplication of Floating Point Numbers  
Lecture 25 - Conditioning and Condition Numbers - I  
Lecture 26 - Conditioning and Condition Numbers - II  
Lecture 27 - Stability of Numerical Algorithms - I  
Lecture 28 - Stability of Numerical Algorithms - II  
Lecture 29 - Vector Norms - I

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Vector Norms - II
- Lecture 31 - Matrix Norms - I
- Lecture 32 - Matrix Norms - II
- Lecture 33 - Convergent Matrices - I
- Lecture 34 - Convergent Matrices - II
- Lecture 35 - Stability of non linear system
- Lecture 36 - Condition number of a matrix
- Lecture 37 - Sensitivity Analysis - I
- Lecture 38 - Sensitivity Analysis - II
- Lecture 39 - Residual Theorem
- Lecture 40 - Nearness to Singularity
- Lecture 41 - Estimation of the Condition Number
- Lecture 42 - Singular value decomposition of a matrix - I
- Lecture 43 - Singular value decomposition of a matrix - II
- Lecture 44 - Orthonormal Projections
- Lecture 45 - Algebraic and geometric properties of SVD
- Lecture 46 - SVD and their applications
- Lecture 47 - Perturbation theorem for singular values
- Lecture 48 - Outer product expansion of a matrix
- Lecture 49 - Least square solutions - I
- Lecture 50 - Least square solutions - II
- Lecture 51 - Householder matrices
- Lecture 52 - Householder matrices and their applications
- Lecture 53 - Householder QR factorization - I
- Lecture 54 - Householder QR factorization - II
- Lecture 55 - Basic theorems on eigenvalues and QR method
- Lecture 56 - Power Method
- Lecture 57 - Rate of Convergence of Power Method
- Lecture 58 - Applications of Power Method with Shift
- Lecture 59 - Jacobi Method - I
- Lecture 60 - Jacobi Method - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Numerical Methods - Finite Difference Approach

Subject Co-ordinator - Prof. Ameeya Kumar Nayak

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Numerical solutions

Lecture 2 - Numerical Solution of ODE

Lecture 3 - Numerical solution of PDE

Lecture 4 - Finite difference approximation

Lecture 5 - Polynomial fitting and one-sided approximation

Lecture 6 - Solution of parabolic equation

Lecture 7 - Implicit and C-N scheme for solving 1D parabolic equation

Lecture 8 - Stability analysis of Explicit scheme for solving parabolic equation

Lecture 9 - Stability of Crank-Nicolson's scheme

Lecture 10 - Approximation of derivative boundary conditions

Lecture 11 - Solution of two-dimensional parabolic equation

Lecture 12 - Solution of 2D parabolic equation using ADI scheme

Lecture 13 - Solution of Elliptic Equation

Lecture 14 - Solution of Elliptic equation using SOR method

Lecture 15 - Solution of Elliptic equation using ADI scheme

Lecture 16 - Solution of Hyperbolic equation

Lecture 17 - Stability analysis for Hyperbolic equations

Lecture 18 - Characteristics of PDE

Lecture 19 - Lax-Wendroff's method

Lecture 20 - Wendroff's method

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Multivariable Calculus

Subject Co-ordinator - Dr. Sanjeev Kumar, S. K. Gupta

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Functions of several variables  
Lecture 2 - Limits for multivariable functions - I  
Lecture 3 - Limits for multivariable functions - II  
Lecture 4 - Continuity of multivariable functions  
Lecture 5 - Partial Derivatives - I  
Lecture 6 - Partial Derivatives - II  
Lecture 7 - Differentiability - I  
Lecture 8 - Differentiability - II  
Lecture 9 - Chain rule - I  
Lecture 10 - Chain rule - II  
Lecture 11 - Change of variables  
Lecture 12 - Euler's theorem for homogeneous functions  
Lecture 13 - Tangent planes and Normal lines  
Lecture 14 - Extreme values - I  
Lecture 15 - Extreme values - II  
Lecture 16 - Lagrange multipliers  
Lecture 17 - Taylor's theorem  
Lecture 18 - Error approximation  
Lecture 19 - Polar-curves  
Lecture 20 - Multiple Integrals  
Lecture 21 - Change Of Order Of Integration  
Lecture 22 - Change of Variables in Multiple Integral  
Lecture 23 - Introduction to Gamma Function  
Lecture 24 - Introduction to Beta Function  
Lecture 25 - Properties of Beta and Gamma Functions - I  
Lecture 26 - Properties of Beta and Gamma Functions - II  
Lecture 27 - Dirichlet's Integral  
Lecture 28 - Applications of Multiple Integrals  
Lecture 29 - Vector Differentiation

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- Lecture 30 - Gradient of a Scalar Field and Directional Derivative
- Lecture 31 - Normal Vector and Potential field
- Lecture 32 - Gradient (Identities), Divergence and Curl (Identities)
- Lecture 33 - Some Identities on Divergence and Curl
- Lecture 34 - Line Integral (I)
- Lecture 35 - Applications of Line Integrals
- Lecture 36 - Green's Theorem
- Lecture 37 - Surface Area
- Lecture 38 - Surface Integral
- Lecture 39 - Divergence Theorem of Gauss
- Lecture 40 - Stoke's Theorem

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Ordinary and Partial Differential Equations and Applications

Subject Co-ordinator - Prof.D. N Pandey, Prof. P.N. Agrawal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to differential equations - I
- Lecture 2 - Introduction to differential equations - II
- Lecture 3 - Existence and uniqueness of solutions of differential equations - I
- Lecture 4 - Existence and uniqueness of solutions of differential equations - II
- Lecture 5 - Existence and uniqueness of solutions of differential equations - III
- Lecture 6 - Existence and uniqueness of solutions of a system of differential equations
- Lecture 7 - Linear System
- Lecture 8 - Properties of Homogeneous Systems
- Lecture 9 - Solution of Homogeneous Linear System with Constant Coefficients - I
- Lecture 10 - Solution of Homogeneous Linear System with Constant Coefficients - II
- Lecture 11 - Solution of Homogeneous Linear System with Constant Coefficients - III
- Lecture 12 - Solution of Non-Homogeneous Linear System with Constant Coefficients
- Lecture 13 - Power Series
- Lecture 14 - Uniform Convergence of Power Series
- Lecture 15 - Power Series Solution of Second Order Homogeneous Equations
- Lecture 16 - Regular singular points - I
- Lecture 17 - Regular singular points - II
- Lecture 18 - Regular singular points - III
- Lecture 19 - Regular singular points - IV
- Lecture 20 - Regular singular points - V
- Lecture 21 - Critical points
- Lecture 22 - Stability of Linear Systems - I
- Lecture 23 - Stability of Linear Systems - II
- Lecture 24 - Stability of Linear Systems - III
- Lecture 25 - Critical Points and Paths of Non-linear Systems
- Lecture 26 - Boundary value problems for second order differential equations
- Lecture 27 - Self - adjoint Forms
- Lecture 28 - Sturm - Liouville problem and its properties
- Lecture 29 - Sturm - Liouville problem and its applications

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Green's function and its applications - I
- Lecture 31 - Green's function and its applications - II
- Lecture 32 - Origins and Classification of First Order PDE
- Lecture 33 - Initial Value Problem for Quasi-linear First Order Equations
- Lecture 34 - Existence and Uniqueness of Solutions
- Lecture 35 - Surfaces orthogonal to a given system of surfaces
- Lecture 36 - Nonlinear PDE of first order
- Lecture 37 - Cauchy method of characteristics - I
- Lecture 38 - Cauchy method of characteristics - II
- Lecture 39 - Compatible systems of first order equations
- Lecture 40 - Charpit's method - I
- Lecture 41 - Charpit's method - II
- Lecture 42 - Second Order PDE with Variable Coefficients
- Lecture 43 - Classification and Canonical Form of Second Order PDE - I
- Lecture 44 - Classification and Canonical Form of Second Order PDE - II
- Lecture 45 - Classification and Characteristic Curves of Second Order PDEs
- Lecture 46 - Review of Integral Transforms - I
- Lecture 47 - Review of Integral Transforms - II
- Lecture 48 - Review of Integral Transforms - II
- Lecture 49 - Review of Integral Transforms - III
- Lecture 50 - Laplace Equation - I
- Lecture 51 - Laplace Equation - II
- Lecture 52 - Laplace and Poisson Equations
- Lecture 53 - One dimensional wave equation and its solution - I
- Lecture 54 - One dimensional wave equation and its solution - II
- Lecture 55 - One dimensional wave equation and its solution - III
- Lecture 56 - Two dimensional wave equation and its solution - I
- Lecture 57 - Solution of non-homogeneous wave equation
- Lecture 58 - Solution of homogeneous diffusion equation - I
- Lecture 59 - Solution of homogeneous diffusion equation - II
- Lecture 60 - Duhamel's principle

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Matrix Analysis with Applications

Subject Co-ordinator - Dr. Sanjeev Kumar, S. K. Gupta

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Elementary row operations
- Lecture 2 - Echelon form of a matrix
- Lecture 3 - Rank of a matrix
- Lecture 4 - System of Linear Equations - I
- Lecture 5 - System of Linear Equations - II
- Lecture 6 - Introduction to Vector Spaces
- Lecture 7 - Subspaces
- Lecture 8 - Basis and Dimension
- Lecture 9 - Linear Transformations
- Lecture 10 - Rank and Nullity
- Lecture 11 - Inverse of a Linear Transformation
- Lecture 12 - Matrix Associated with a LT
- Lecture 13 - Eigenvalues and Eigenvectors
- Lecture 14 - Cayley-Hamilton Theorem and Minimal Polynomial
- Lecture 15 - Diagonalization
- Lecture 16 - Special Matrices
- Lecture 17 - More on Special Matrices and Gerschgorin Theorem
- Lecture 18 - Inner Product Spaces
- Lecture 19 - Vector and Matrix Norms
- Lecture 20 - Gram Schmidt Process
- Lecture 21 - Normal Matrices
- Lecture 22 - Positive Definite Matrices
- Lecture 23 - Positive Definite and Quadratic Forms
- Lecture 24 - Gram Matrix and Minimization of Quadratic Forms
- Lecture 25 - Generalized Eigenvectors and Jordan Canonical Form
- Lecture 26 - Evaluation of Matrix Functions
- Lecture 27 - Least Square Approximation
- Lecture 28 - Singular Value Decomposition
- Lecture 29 - Pseudo-Inverse and SVD

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Ill-Conditioned Systems
- Lecture 31 - Regularization of Ill-Conditioned Systems
- Lecture 32 - Linear Systems
- Lecture 33 - Linear Systems
- Lecture 34 - Non-Stationary Iterative Methods
- Lecture 35 - Non-Stationary Iterative Methods
- Lecture 36 - Krylov Subspace Iterative Methods (Conjugate Gradient Method)
- Lecture 37 - Krylov Subspace Iterative Methods (CG and Pre-Conditioning)
- Lecture 38 - Introduction to Positive Matrices
- Lecture 39 - Positive Matrices, Positive Eigenpair, Perron Root and vector, Example
- Lecture 40 - Polar Decomposition

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Mathematical Modelling: Analysis and Applications

Subject Co-ordinator - Prof. Ameeya Kumar Nayak

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Mathematical Modeling
- Lecture 2 - Discrete Time Linear Models in Population Dynamics - I
- Lecture 3 - Discrete Time Linear Models in Population Dynamics - II
- Lecture 4 - Discrete Time Linear Age Structured Models
- Lecture 5 - Numerical Methods to Compute Eigen Values
- Lecture 6 - Discrete Time Non-Linear Models in Population Dynamics - II
- Lecture 7 - Analysis on Logistic Difference Equation
- Lecture 8 - Classifications of Bifurcation
- Lecture 9 - Discrete Time Non - Linear Models in Population Dynamics - II
- Lecture 10 - Discrete Time Prey - Predator Model
- Lecture 11 - Introduction to Continuous Time Models
- Lecture 12 - Solution of First Order First Degree Differential Equations
- Lecture 13 - Continuous Time Models in Population Dynamics - I
- Lecture 14 - Continuous Time Models in Population Dynamics - II
- Lecture 15 - Stability and Linearization of System of Ordinary Differential Equations
- Lecture 16 - Continuous Time Single Species Models
- Lecture 17 - Qualitative Solution of Differential Equations - Phase Diagrams - I
- Lecture 18 - Qualitative Solution of Differential Equations - Phase Diagrams - II
- Lecture 19 - Continuous Time Lotka - Volterra Competition Model
- Lecture 20 - Continuous Time Prey - Predator Model

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Dynamical System and Control

Subject Co-ordinator - Prof.D. N Pandey, Dr. N. Sukavanam

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Formulation of Dynamical Systems - I  
Lecture 2 - Formulation of Dynamical Systems - II  
Lecture 3 - Existence and Uniqueness Theorem - I  
Lecture 4 - Existence and Uniqueness Theorem - II  
Lecture 5 - Linear Systems - I  
Lecture 6 - Linear Systems - II  
Lecture 7 - Solutions of Linear Systems - I  
Lecture 8 - Solutions of Linear Systems - II  
Lecture 9 - Solutions of Linear Systems - III  
Lecture 10 - Fundamental Matrix - I  
Lecture 11 - Fundamental Matrix - II  
Lecture 12 - Fundamental Matrix for Non-Autonomous systems  
Lecture 13 - Solutions of Non-Homogeneous Systems  
Lecture 14 - Stability of Systems  
Lecture 15 - Stability of Linear Autonomous Systems - I  
Lecture 16 - Stability of Linear Autonomous Systems - II  
Lecture 17 - Stability of Linear Autonomous Systems - III  
Lecture 18 - Stability of Weakly Non-Linear Systems - I  
Lecture 19 - Stability of Weakly Non-Linear Systems - II  
Lecture 20 - Stability of Non-Linear Systems using Linearization  
Lecture 21 - Properties of Phase Portrait  
Lecture 22 - Properties of Orbits  
Lecture 23 - Phase Portrait  
Lecture 24 - Phase Portrait of Linear Differential Equations - I  
Lecture 25 - Phase Portrait of Linear Differential Equations - II  
Lecture 26 - Phase Portrait of Linear Differential Equations - III  
Lecture 27 - Poincare Bendixson Theorem  
Lecture 28 - Limit Cycle  
Lecture 29 - Lyapunov Stability - I

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- Lecture 30 - Lyapunov Stability - II
- Lecture 31 - Introduction to Control Systems - I
- Lecture 32 - Introduction to Control Systems - II
- Lecture 33 - Controllability of Autonomous Systems
- Lecture 34 - Controllability of Non-autonomous Systems
- Lecture 35 - Observability - I
- Lecture 36 - Observability - II
- Lecture 37 - Results on Controllability and Observability
- Lecture 38 - Companion Form
- Lecture 39 - Feedback Control - I
- Lecture 40 - Feedback Control - II
- Lecture 41 - Feedback Control - III
- Lecture 42 - Feedback Control - IV
- Lecture 43 - State Observer
- Lecture 44 - Stabilizability
- Lecture 45 - Introduction to Discrete Systems - I
- Lecture 46 - Introduction to Discrete Systems - II
- Lecture 47 - Lyapunov Stability Theory - I
- Lecture 48 - Lyapunov Stability Theory - II
- Lecture 49 - Lyapunov Stability Theory - III
- Lecture 50 - Optimal Control - I
- Lecture 51 - Optimal Control - II
- Lecture 52 - Optimal Control - III
- Lecture 53 - Optimal Control - IV
- Lecture 54 - Optimal Control for Discrete Systems - I
- Lecture 55 - Optimal Control for Discrete Systems - II
- Lecture 56 - Controllability of Discrete Systems
- Lecture 57 - Observability of Discrete Systems
- Lecture 58 - Stability for Discrete Systems
- Lecture 59 - Relation between Continuous and Discrete Systems - I
- Lecture 60 - Relation between Continuous and Discrete Systems - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Advanced Engineering Mathematics

Subject Co-ordinator - Prof. P.N. Agarwal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Analytic Function

Lecture 2 - Cauchy-Riemann Equations

Lecture 3 - Harmonic Functions, Harmonic Conjugates and Milne's Method

Lecture 4 - Applications to the Problems of Potential Flow - I

Lecture 5 - Applications to the Problems of Potential Flow - II

Lecture 6 - Complex Integration

Lecture 7 - Cauchy's Theorem - I

Lecture 8 - Cauchy's Theorem - II

Lecture 9 - Cauchy's Integral Formula for the Derivatives of Analytic Function

Lecture 10 - Morera's Theorem, Liouville's Theorem and Fundamental Theorem of Algebra

Lecture 11 - Winding Number and Maximum Modulus Principle

Lecture 12 - Sequences and Series

Lecture 13 - Uniform Convergence of Series

Lecture 14 - Power Series

Lecture 15 - Taylor Series

Lecture 16 - Laurent Series

Lecture 17 - Zeros and Singularities of an Analytic Function

Lecture 18 - Residue at a Singularity

Lecture 19 - Residue Theorem

Lecture 20 - Meromorphic Functions

Lecture 21 - Evaluation of real integrals using residues - I

Lecture 22 - Evaluation of real integrals using residues - II

Lecture 23 - Evaluation of real integrals using residues - III

Lecture 24 - Evaluation of real integrals using residues - IV

Lecture 25 - Evaluation of real integrals using residues - V

Lecture 26 - Bilinear Transformations

Lecture 27 - Cross Ratio

Lecture 28 - Conformal Mapping - I

Lecture 29 - Conformal Mapping - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Conformal mapping from half plane to disk and half plane to half plane - I
- Lecture 31 - Conformal mapping from disk to disk and angular region to disk
- Lecture 32 - Application of Conformal Mapping to Potential Theory
- Lecture 33 - Review of Z-transforms - I
- Lecture 34 - Review of Z-transforms - II
- Lecture 35 - Review of Z-transforms - III
- Lecture 36 - Review of Bilateral Z-transforms
- Lecture 37 - Finite Fourier Transforms
- Lecture 38 - Fourier Integral and Fourier Transforms
- Lecture 39 - Fourier Series
- Lecture 40 - Discrete Fourier Transforms - I
- Lecture 41 - Discrete Fourier Transforms - II
- Lecture 42 - Basic Concepts of Probability
- Lecture 43 - Conditional Probability
- Lecture 44 - Bayes Theorem and Probability Networks
- Lecture 45 - Discrete Probability Distribution
- Lecture 46 - Binomial Distribution
- Lecture 47 - Negative Binomial Distribution and Poisson Distribution
- Lecture 48 - Continuous Probability Distribution
- Lecture 49 - Poisson Process
- Lecture 50 - Exponential Distribution
- Lecture 51 - Normal Distribution
- Lecture 52 - Joint Probability Distribution - I
- Lecture 53 - Joint Probability Distribution - II
- Lecture 54 - Joint Probability Distribution - III
- Lecture 55 - Correlation and Regression - I
- Lecture 56 - Correlation and Regression - II
- Lecture 57 - Testing of Hypotheses - I
- Lecture 58 - Testing of Hypotheses - II
- Lecture 59 - Testing of Hypotheses - III
- Lecture 60 - Application to Queuing Theory and Reliability Theory



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Higher Engineering Mathematics

Subject Co-ordinator - Prof. P.N. Agarwal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Symbolic Representation of Statements - I  
Lecture 2 - Symbolic Representation of Statements - II  
Lecture 3 - Tautologies and Contradictions  
Lecture 4 - Predicates and Quantifiers - I  
Lecture 5 - Predicates and Quantifiers - II  
Lecture 6 - Validity of Arguments  
Lecture 7 - Language and Grammars - I  
Lecture 8 - Language and Grammars - II  
Lecture 9 - Language and Grammars - III  
Lecture 10 - Finite- State Machines  
Lecture 11 - Partially Ordered Sets - I  
Lecture 12 - Partially Ordered Sets - II  
Lecture 13 - Partially Ordered Sets - III  
Lecture 14 - Lattices - I  
Lecture 15 - Lattices - II  
Lecture 16 - Lattices - III  
Lecture 17 - Lattices - IV  
Lecture 18 - Lattices - V  
Lecture 19 - Boolean Algebra - I  
Lecture 20 - Boolean Algebra - II  
Lecture 21 - Boolean Algebra - III  
Lecture 22 - Boolean Algebra - IV  
Lecture 23 - Logic Gates  
Lecture 24 - Karnaugh Map - I  
Lecture 25 - Karnaugh Map - II  
Lecture 26 - Various type of Graphs - I  
Lecture 27 - Various types of Graphs - II  
Lecture 28 - Paths and Connectivity  
Lecture 29 - Subgraphs and Traversable Multigraphs

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- Lecture 30 - Undirected and Directed Graphs
- Lecture 31 - Eulerian and Hamiltonian Graphs
- Lecture 32 - Planar Graphs
- Lecture 33 - Representation of Graphs
- Lecture 34 - Isomorphic and Homeomorphic Graphs
- Lecture 35 - Kuratowski's Theorem
- Lecture 36 - Dual of a Graph
- Lecture 37 - Coloring of Graphs - I
- Lecture 38 - Coloring of Graphs - II
- Lecture 39 - Tree - I
- Lecture 40 - Tree - II
- Lecture 41 - Graphical Method - I
- Lecture 42 - Graphical Method - II
- Lecture 43 - General Linear Programming Problem
- Lecture 44 - Simplex Method - I
- Lecture 45 - Simplex Method - II
- Lecture 46 - Big - M Method - I
- Lecture 47 - Big - M Method - II (Special Cases)
- Lecture 48 - Two Phase Method - I
- Lecture 49 - Two Phase method - II
- Lecture 50 - Duality - I
- Lecture 51 - Duality - II
- Lecture 52 - Dual Simplex Method
- Lecture 53 - Transportation Problem - I
- Lecture 54 - Transportation Problem - II
- Lecture 55 - Assignment Problem - I
- Lecture 56 - Assignment Problem - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Operations Research

Subject Co-ordinator - Prof. Kusumdeep

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to OR Models  
Lecture 2 - More OR Models  
Lecture 3 - Graphical Method for LPP  
Lecture 4 - Convex sets  
Lecture 5 - Simplex Method  
Lecture 6 - Big M Method  
Lecture 7 - Two Phase  
Lecture 8 - Multiple solutions of LPP  
Lecture 9 - Unbounded solution of LPP  
Lecture 10 - Infeasible solution of LPP  
Lecture 11 - Revised Simplex Method  
Lecture 12 - Case studies and Exercises - I  
Lecture 13 - Case studies and Exercises - II  
Lecture 14 - Case studies and Exercises - III  
Lecture 15 - Primal Dual Construction  
Lecture 16 - Weak Duality Theorem  
Lecture 17 - More Duality Theorems  
Lecture 18 - Primal-Dual relationship of solutions  
Lecture 19 - Dual Simplex Method  
Lecture 20 - Sensitivity Analysis - I  
Lecture 21 - Sensitivity Analysis - II  
Lecture 22 - Case studies and Exercises - I  
Lecture 23 - Case studies and Exercises - II  
Lecture 24 - Integer Programming  
Lecture 25 - Goal Programming  
Lecture 26 - Multi-Objective Programming  
Lecture 27 - Dynamic Programming  
Lecture 28 - Transportation Problem  
Lecture 29 - Assignment Problem

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- Lecture 30 - Case studies and Exercises
- Lecture 31 - Processing  $n$  Jobs on Two Machines
- Lecture 32 - Processing  $n$  Jobs through Three Machines
- Lecture 33 - Processing two jobs through  $m$  machines
- Lecture 34 - Processing  $n$  jobs through  $m$  machines
- Lecture 35 - Case studies and Exercises
- Lecture 36 - Two Person Zero-Sum Game
- Lecture 37 - Theorems of Game Theory
- Lecture 38 - Solution of Mixed Strategy Games
- Lecture 39 - Linear Programming method for solving games
- Lecture 40 - Case studies and Exercises

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Essential Mathematics for Machine Learning

Subject Co-ordinator - Prof. S.K. Gupta, Dr. Sanjeev Kumar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Vectors in Machine Learning
- Lecture 2 - Basics of Matrix Algebra
- Lecture 3 - Vector Space: Definition and Examples
- Lecture 4 - Vector Subspace: Examples and Properties
- Lecture 5 - Basis and Dimension
- Lecture 6 - Linear Transformations
- Lecture 7 - Norms and Spaces
- Lecture 8 - Orthogonal Complement and Projection Mapping
- Lecture 9 - Eigenvalues and Eigenvectors
- Lecture 10 - Special matrices and Properties
- Lecture 11 - Spectral Decomposition
- Lecture 12 - Singular Value Decomposition
- Lecture 13 - SVD: Properties and Applications
- Lecture 14 - Low Rank Approximations
- Lecture 15 - Python Implementation of SVD and Low - rank Approximation
- Lecture 16 - Principal Component Analysis - I
- Lecture 17 - PCA: Derivation and Examples
- Lecture 18 - Python Implementation of PCA
- Lecture 19 - Linear Discriminant Analysis
- Lecture 20 - Python Implementation of LDA
- Lecture 21 - Least Square Approximation and Minimum Normed Solution
- Lecture 22 - Linear and Multiple Regression - I
- Lecture 23 - Linear and Multiple Regression - II
- Lecture 24 - Logistic Regression - I
- Lecture 25 - Logistic Regression - II
- Lecture 26 - Classification Metrics
- Lecture 27 - Gram Schmidt Process
- Lecture 28 - Polar Decomposition
- Lecture 29 - Minimal Polynomial and Jordan Canonical Form - I

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- Lecture 30 - Minimal Polynomial and Jordan Canonical Form - II
- Lecture 31 - Basic Concepts of Calculus - I
- Lecture 32 - Basic Concepts of Calculus - II
- Lecture 33 - Basic Concepts of Calculus - III
- Lecture 34 - Basic Concepts of Calculus - IV
- Lecture 35 - Basic Concepts of Calculus - V
- Lecture 36 - Calculus in Python
- Lecture 37 - Convex Sets and Functions
- Lecture 38 - Properties of convex functions - I
- Lecture 39 - Properties of Convex functions - II
- Lecture 40 - Introduction to Optimization
- Lecture 41 - Unconstrained Optimization
- Lecture 42 - Constrained Optimization - I
- Lecture 43 - Constrained Optimization - II
- Lecture 44 - Steepest Descent method
- Lecture 45 - Newton's and Penalty function method
- Lecture 46 - Optimization using Python
- Lecture 47 - Operations on Sets
- Lecture 48 - Review on Probability
- Lecture 49 - Bayes' theorem and Random variables
- Lecture 50 - Expectation and Variance
- Lecture 51 - Discrete probability distributions
- Lecture 52 - Continuous probability distributions
- Lecture 53 - Joint probability distribution and covariance
- Lecture 54 - Introduction to SVM
- Lecture 55 - Error Minimizing LPP
- Lecture 56 - Concepts of Duality
- Lecture 57 - Hard Margin classifier
- Lecture 58 - Soft margin classifier
- Lecture 59 - SVM using Python - I
- Lecture 60 - SVM using Python - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Advanced Linear Algebra

Subject Co-ordinator - Prof. Premananda Bera

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - System of Linear Equations
- Lecture 2 - Elementary Row Operations
- Lecture 3 - Row-Reduced Echelon Form and its Applications
- Lecture 4 - Vector Spaces - I
- Lecture 5 - Vector Spaces - II
- Lecture 6 - Basis and Dimensions - I
- Lecture 7 - Basis and Dimensions - II
- Lecture 8 - Change of Ordered Basis in F. D. V. S.
- Lecture 9 - Row Space of a Matrix
- Lecture 10 - Computations concerning Subspaces
- Lecture 11 - Linear Transformations
- Lecture 12 - Concept of Rank
- Lecture 13 - Algebra of Linear Transformations - I
- Lecture 14 - Algebra of Linear Transformations - II
- Lecture 15 - Algebra of Linear Transformations - III
- Lecture 16 - Matrix Representation of Linear Transformations - I
- Lecture 17 - Matrix Representation of Linear Transformations - II
- Lecture 18 - Linear Functional - I
- Lecture 19 - Linear Functional - II
- Lecture 20 - Linear Functional - III
- Lecture 21 - Linear Functional and Transpose of L.T. - I
- Lecture 22 - Linear Functional and Transpose of L.T. - II
- Lecture 23 - Eigenvalue and Eigenvector of Linear Operator - I
- Lecture 24 - Eigenvalue and Eigenvector of Linear Operator - II
- Lecture 25 - Eigenvalue and Eigenvector of Digonalizable L.O.
- Lecture 26 - Annihilating Polynomial of Linear Operator
- Lecture 27 - Cayley-Hamilton Theorem and Its Applications - I
- Lecture 28 - Cayley-Hamilton Theorem and its Applications - II
- Lecture 29 - Invariant Subspaces - I

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- Lecture 30 - Invariant Subspaces - II
- Lecture 31 - Application of Invariant Subspaces - I
- Lecture 32 - Application of Invariant Subspaces - II
- Lecture 33 - Direct Sum Decompositions - I
- Lecture 34 - Direct Sum Decompositions - II
- Lecture 35 - Invariant Direct Sums - I
- Lecture 36 - Invariant Direct Sums - II
- Lecture 37 - Decomposition of space and Operator - I
- Lecture 38 - Decomposition of Space and Operator - II
- Lecture 39 - Applications of Primary Decomposition Theorem - I
- Lecture 40 - Applications of Primary Decomposition Theorem - II
- Lecture 41 - Applications of Primary Decomposition Theorem - III
- Lecture 42 - Inner Products - I
- Lecture 43 - Inner Products - II
- Lecture 44 - Inner Product Spaces - I
- Lecture 45 - Inner Product Spaces - II
- Lecture 46 - Best Approximation in I.P.S.
- Lecture 47 - Orthogonal Projection in I.P.S.
- Lecture 48 - Linear Functionals and Adjoints - I
- Lecture 49 - Linear Functionals and Adjoints - II
- Lecture 50 - Linear Functionals and Adjoints - III
- Lecture 51 - Linear Functionals and Adjoints - IV
- Lecture 52 - Isomorphism in Inner Product Spaces
- Lecture 53 - Unitary Operators - I
- Lecture 54 - Unitary Operators - II
- Lecture 55 - Application of Unitary O. and Initiation of Normal Operator
- Lecture 56 - Normal Operator - I
- Lecture 57 - Normal Operator - II
- Lecture 58 - Normal Operator and It's Spectral Resolution
- Lecture 59 - Singular Value Decomposition of a Matrix
- Lecture 60 - Forms on Inner product Spaces



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Advanced Matrix Theory and Linear Algebra for Engineers

Subject Co-ordinator - Prof. Vittal Rao

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Prologue - Part 1  
Lecture 2 - Prologue - Part 2  
Lecture 3 - Prologue - Part 3  
Lecture 4 - Linear Systems - Part 1  
Lecture 5 - Linear Systems - Part 2  
Lecture 6 - Linear Systems - Part 3  
Lecture 7 - Linear Systems - Part 4  
Lecture 8 - Vector Spaces - Part 1  
Lecture 9 - Vector Spaces - Part 2  
Lecture 10 - Linear Independence and Subspaces - Part 1  
Lecture 11 - Linear Independence and Subspaces - Part 2  
Lecture 12 - Linear Independence and Subspaces - Part 3  
Lecture 13 - Linear Independence and Subspaces - Part 4  
Lecture 14 - Basis - Part 1  
Lecture 15 - Basis - Part 2  
Lecture 16 - Basis - Part 3  
Lecture 17 - Linear Transformations - Part 1  
Lecture 18 - Linear Transformations - Part 2  
Lecture 19 - Linear Transformations - Part 3  
Lecture 20 - Linear Transformations - Part 4  
Lecture 21 - Linear Transformations - Part 5  
Lecture 22 - Inner Product and Orthogonality - Part 1  
Lecture 23 - Inner Product and Orthogonality - Part 2  
Lecture 24 - Inner Product and Orthogonality - Part 3  
Lecture 25 - Inner Product and Orthogonality - Part 4  
Lecture 26 - Inner Product and Orthogonality - Part 5  
Lecture 27 - Inner Product and Orthogonality - Part 6  
Lecture 28 - Diagonalization - Part 1  
Lecture 29 - Diagonalization - Part 2

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- Lecture 30 - Diagonalization - Part 3
- Lecture 31 - Diagonalization - Part 4
- Lecture 32 - Hermitian and Symmetric matrices - Part 1
- Lecture 33 - Hermitian and Symmetric matrices - Part 2
- Lecture 34 - Hermitian and Symmetric matrices - Part 3
- Lecture 35 - Hermitian and Symmetric matrices - Part 4
- Lecture 36 - Singular Value Decomposition (SVD) - Part 1
- Lecture 37 - Singular Value Decomposition (SVD) - Part 2
- Lecture 38 - Back To Linear Systems - Part 1
- Lecture 39 - Back To Linear Systems - Part 2
- Lecture 40 - Epilogue

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Ordinary Differential Equations and Applications

Subject Co-ordinator - Prof. A.K. Nandakumaran, Prof. Raju K. George, Prof. P.S. Datti

Co-ordinating Institute - IISc - Bangalore | IIST - Trivandrum | TIFR-CAM - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - General Introduction

Lecture 2 - Examples

Lecture 3 - Examples (Continued - I)

Lecture 4 - Examples (Continued - II)

Lecture 5 - Linear Algebra

Lecture 6 - Linear Algebra (Continued - I)

Lecture 7 - Linear Algebra (Continued - II)

Lecture 8 - Analysis

Lecture 9 - Analysis (Continued...)

Lecture 10 - First Order Linear Equations

Lecture 11 - Exact Equations

Lecture 12 - Second Order Linear Equations

Lecture 13 - Second Order Linear Equations (Continued - I)

Lecture 14 - Second Order Linear Equations (Continued - II)

Lecture 15 - Well-posedness and Examples of IVP

Lecture 16 - Gronwall's Lemma

Lecture 17 - Basic Lemma and Uniqueness Theorem

Lecture 18 - Picard's Existence and Uniqueness Theorem

Lecture 19 - Picard's Existence and Uniqueness (Continued...)

Lecture 20 - Cauchy Peano Existence Theorem

Lecture 21 - Existence using Fixed Point Theorem

Lecture 22 - Continuation of Solutions

Lecture 23 - Series Solution

Lecture 24 - General System and Diagonalizability

Lecture 25 - 2 by 2 systems and Phase Plane Analysis

Lecture 26 - 2 by 2 systems and Phase Plane Analysis (Continued...)

Lecture 27 - General Systems

Lecture 28 - General Systems (Continued...) and Non-homogeneous Systems

Lecture 29 - Basic Definitions and Examples

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- Lecture 30 - Stability Equilibrium Points
- Lecture 31 - Stability Equilibrium Points (Continued - I)
- Lecture 32 - Stability Equilibrium Points (Continued - II)
- Lecture 33 - Second Order Linear Equations (Continued - III)
- Lecture 34 - Lyapunov Function
- Lecture 35 - Lyapunov Function (Continued...)
- Lecture 36 - Periodic Orbits and Poincare Bendixon Theory
- Lecture 37 - Periodic Orbits and Poincare Bendixon Theory (Continued...)
- Lecture 38 - Linear Second Order Equations
- Lecture 39 - General Second Order Equations
- Lecture 40 - General Second Order Equations (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Linear Algebra

Subject Co-ordinator - Prof. Dilip P. Patil

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Algebraic Structures - Rings and Fields
- Lecture 2 - Definition of Vector Spaces
- Lecture 3 - Examples of Vector Spaces
- Lecture 4 - Definition of subspaces
- Lecture 5 - Examples of subspaces
- Lecture 6 - Examples of subspaces (Continued...)
- Lecture 7 - Sum of subspaces
- Lecture 8 - System of linear equations
- Lecture 9 - Gauss elimination
- Lecture 10 - Generating system, linear independence and bases
- Lecture 11 - Examples of a basis of a vector space
- Lecture 12 - Review of univariate polynomials
- Lecture 13 - Examples of univariate polynomials and rational functions
- Lecture 14 - More examples of a basis of vector spaces
- Lecture 15 - Vector spaces with finite generating system
- Lecture 16 - Steinitz's exchange theorem and examples
- Lecture 17 - Examples of finite dimensional vector spaces
- Lecture 18 - Dimension formula and its examples
- Lecture 19 - Existence of a basis
- Lecture 20 - Existence of a basis (Continued...)
- Lecture 21 - Existence of a basis (Continued...)
- Lecture 22 - Introduction to Linear Maps
- Lecture 23 - Examples of Linear Maps
- Lecture 24 - Linear Maps and Bases
- Lecture 25 - Pigeonhole principle in Linear Algebra
- Lecture 26 - Interpolation and the rank theorem
- Lecture 27 - Examples
- Lecture 28 - Direct sums of vector spaces
- Lecture 29 - Projections

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- Lecture 30 - Direct sum decomposition of a vector space
- Lecture 31 - Dimension equality and examples
- Lecture 32 - Dual spaces
- Lecture 33 - Dual spaces (Continued...)
- Lecture 34 - Quotient spaces
- Lecture 35 - Homomorphism theorem of vector spaces
- Lecture 36 - Isomorphism theorem of vector spaces
- Lecture 37 - Matrix of a linear map
- Lecture 38 - Matrix of a linear map (Continued...)
- Lecture 39 - Matrix of a linear map (Continued...)
- Lecture 40 - Change of bases
- Lecture 41 - Computational rules for matrices
- Lecture 42 - Rank of a matrix
- Lecture 43 - Computation of the rank of a matrix
- Lecture 44 - Elementary matrices
- Lecture 45 - Elementary operations on matrices
- Lecture 46 - LR decomposition
- Lecture 47 - Elementary Divisor Theorem
- Lecture 48 - Permutation groups
- Lecture 49 - Canonical cycle decomposition of permutations
- Lecture 50 - Signature of a permutation
- Lecture 51 - Introduction to multilinear maps
- Lecture 52 - Multilinear maps (Continued...)
- Lecture 53 - Introduction to determinants
- Lecture 54 - Determinants (Continued...)
- Lecture 55 - Computational rules for determinants
- Lecture 56 - Properties of determinants and adjoint of a matrix
- Lecture 57 - Adjoint-determinant theorem
- Lecture 58 - The determinant of a linear operator
- Lecture 59 - Determinants and Volumes
- Lecture 60 - Determinants and Volumes (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:An Introduction to Smooth Manifolds

Subject Co-ordinator - Prof. Harish Seshadri

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic linear algebra  
Lecture 2 - Multivariable calculus - 1  
Lecture 3 - Multivariable calculus - 2  
Lecture 4 - The derivative map  
Lecture 5 - Inverse Function Theorem  
Lecture 6 - Constant Rank Theorem  
Lecture 7 - Smooth functions with compact support  
Lecture 8 - Smooth manifold  
Lecture 9 - Examples of smooth manifolds  
Lecture 10 - Higher dimensional spheres as smooth manifolds  
Lecture 11 - Smooth maps  
Lecture 12 - Examples of smooth maps  
Lecture 13 - Tangent spaces - 1  
Lecture 14 - Tangent spaces - 2  
Lecture 15 - Derivatives of smooth maps  
Lecture 16 - Chain rule on manifolds  
Lecture 17 - Dimension of tangent space - 1  
Lecture 18 - Dimension of tangent space - 2  
Lecture 19 - Derivative of inclusion map  
Lecture 20 - Basis of tangent space  
Lecture 21 - Inverse Function Theorem for manifolds  
Lecture 22 - Submanifolds  
Lecture 23 - Tangent space of a submanifold  
Lecture 24 - Regular Value Theorem  
Lecture 25 - Special linear group as a submanifold of the set of all square matrices  
Lecture 26 - Hypersurfaces  
Lecture 27 - Tangent spaces to level sets  
Lecture 28 - Vector fields - 1  
Lecture 29 - Vector fields - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Vector fields - 3
- Lecture 31 - Lie groups - 1
- Lecture 32 - Lie groups - 2
- Lecture 33 - Integral curve and flows - 1
- Lecture 34 - Integral curve and flows - 2
- Lecture 35 - Integral curve and flows - 3
- Lecture 36 - Complete vector fields
- Lecture 37 - Vector fields and smooth maps
- Lecture 38 - Lie Brackets - 1
- Lecture 39 - Lie brackets - 2
- Lecture 40 - Lie brackets - 3
- Lecture 41 - Lie algebras of matrix groups - 1
- Lecture 42 - Lie algebras of matrix groups - 2
- Lecture 43 - Exponential map
- Lecture 44 - Frobenius theorems
- Lecture 45 - Tensors and differential forms - 1
- Lecture 46 - Tensors and differential forms - 2
- Lecture 47 - Pull-back form
- Lecture 48 - Symmetric Tensors
- Lecture 49 - Alternating Tensors - 1
- Lecture 50 - Alternating Tensors - 2
- Lecture 51 - Alternating Tensors - 3
- Lecture 52 - Alternating Tensors - 4
- Lecture 53 - Alternating Tensors - 5
- Lecture 54 - Alternating Tensors - 6
- Lecture 55 - Alternating Tensors - 7
- Lecture 56 - Alternating Tensors - 8
- Lecture 57 - Alternating Tensors - 9
- Lecture 58 - Differential forms on manifolds - 1
- Lecture 59 - Differential forms on manifolds - 2
- Lecture 60 - The Exterior derivative - 1
- Lecture 61 - The Exterior derivative - 2
- Lecture 62 - The Exterior derivative - 3
- Lecture 63 - The Exterior derivative - 4
- Lecture 64 - The Exterior derivative - 5
- Lecture 65 - Special classes of forms
- Lecture 66 - Orientation on manifolds - 1
- Lecture 67 - Orientation on manifolds - 2
- Lecture 68 - Orientation on manifolds - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Measure Theory (Prof. E. K. Narayanan)

Subject Co-ordinator - Prof. E. K. Narayanan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Review of Riemann integration and introduction to sigma algebras

Lecture 2 - Sigma algebras and measurability

Lecture 3 - Measurable functions and approximation by simple functions

Lecture 4 - Properties of countably additive measures

Lecture 5 - Integration of positive measurable functions

Lecture 6 - Some properties of integrals of positive simple functions

Lecture 7 - Monotone convergence theorem and Fatou's lemma

Lecture 8 - Integration of complex valued measurable functions

Lecture 9 - Dominated convergence theorem

Lecture 10 - Sets of measure zero and completion

Lecture 11 - Consequences of MCT, Fatou's lemma and DCT

Lecture 12 - Rectangles in  $\mathbb{R}^n$  and some properties

Lecture 13 - Outer measure on  $\mathbb{R}^n$

Lecture 14 - Properties of outer measure on  $\mathbb{R}^n$

Lecture 15 - Lebesgue measurable sets and Lebesgue measure on  $\mathbb{R}^n$

Lecture 16 - Lebesgue sigma algebra

Lecture 17 - Lebesgue measure

Lecture 18 - Fine properties of measurable sets

Lecture 19 - Invariance properties of Lebesgue measure

Lecture 20 - Non measurable set

Lecture 21 - Measurable functions

Lecture 22 - Riemann and Lebesgue integrals

Lecture 23 - Locally compact Hausdorff spaces

Lecture 24 - Riesz representation theorem

Lecture 25 - Positive Borel measures

Lecture 26 - Lebesgue measure via Riesz representation theorem

Lecture 27 - Construction of Lebesgue measure

Lecture 28 - Invariance properties of Lebesgue measure

Lecture 29 - Linear transformations and Lebesgue measure

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cantor set
- Lecture 31 - Cantor function
- Lecture 32 - Lebesgue set which is not Borel
- Lecture 33 -  $L^p$  spaces
- Lecture 34 -  $L^p$  norm
- Lecture 35 - Completeness of  $L^p$
- Lecture 36 - Properties of  $L^p$  spaces
- Lecture 37 - Examples of  $L^p$  spaces
- Lecture 38 - Product sigma algebra
- Lecture 39 - Product measures - I
- Lecture 40 - Product measures - II
- Lecture 41 - Fubini's theorem - I
- Lecture 42 - Fubini's theorem - II
- Lecture 43 - Completeness of product measures
- Lecture 44 - Polar coordinates
- Lecture 45 - Applications of Fubini's theorem
- Lecture 46 - Complex measures - I
- Lecture 47 - Complex measures - II
- Lecture 48 - Absolutely continuous measures
- Lecture 49 -  $L^2$  space
- Lecture 50 - Continuous linear functionals
- Lecture 51 - Radon-Nikodym theorem - I
- Lecture 52 - Radon Nikodym theorem - II
- Lecture 53 - Consequences of Radon-Nikodym theorem - I
- Lecture 54 - Consequences of Radon-Nikodym theorem - II
- Lecture 55 - Continuous linear functionals on  $L^p$  spaces - I
- Lecture 56 - Continuous linear functionals on  $L^p$  spaces - II
- Lecture 57 - Riesz representation theorem - I
- Lecture 58 - Riesz representation theorem - II
- Lecture 59 - Hardy-Littlewood maximal function
- Lecture 60 - Lebesgue differentiation theorem
- Lecture 61 - Absolutely continuous functions - I
- Lecture 62 - Absolutely continuous functions - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Algebraic Geometry and Commutative Algebra

Subject Co-ordinator - Prof. Dilip P. Patil

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation for K-algebraic sets
- Lecture 2 - Definitions and examples of Affine Algebraic Set
- Lecture 3 - Rings and Ideals
- Lecture 4 - Operation on Ideals
- Lecture 5 - Prime Ideals and Maximal Ideals
- Lecture 6 - Krull's Theorem and consequences
- Lecture 7 - Module, submodules and quotient modules
- Lecture 8 - Algebras and polynomial algebras
- Lecture 9 - Universal property of polynomial algebra and examples
- Lecture 10 - Finite and Finite type algebras
- Lecture 11 - K-Spectrum (K-rational points)
- Lecture 12 - Identity theorem for Polynomial functions
- Lecture 13 - Basic properties of K-algebraic sets
- Lecture 14 - Examples of K-algebraic sets
- Lecture 15 - K-Zariski Topology
- Lecture 16 - The map  $V \rightarrow L$
- Lecture 17 - Noetherian and Artinian Ordered sets
- Lecture 18 - Noetherian induction and Transfinite induction
- Lecture 19 - Modules with Chain Conditions
- Lecture 20 - Properties of Noetherian and Artinian Modules
- Lecture 21 - Examples of Artinian and Noetherian Modules
- Lecture 22 - Finite modules over Noetherian Rings
- Lecture 23 - Hilbert's Basis Theorem (HBT)
- Lecture 24 - Consequences of HBT
- Lecture 25 - Free Modules and rank
- Lecture 26 - More on Noetherian and Artinian modules
- Lecture 27 - Ring of Fractions (Localization)
- Lecture 28 - Nil radical, contraction of ideals
- Lecture 29 - Universal property of  $S^{-1}A$

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ideal structure in  $S^{-1}A$
- Lecture 31 - Consequences of the Correspondence of Ideals
- Lecture 32 - Consequences of the Correspondence of Ideals (Continued...)
- Lecture 33 - Modules of Fraction and universal properties
- Lecture 34 - Exactness of the functor  $S^{-1}$
- Lecture 35 - Universal property of Modules of Fractions
- Lecture 36 - Further properties of Modules and Module of Fractions
- Lecture 37 - Local-Global Principle
- Lecture 38 - Consequences of Local-Global Principle
- Lecture 39 - Properties of Artinian Rings
- Lecture 40 - Krull-Nakayama Lemma
- Lecture 41 - Properties of  $I, K$  and  $V, L$  maps
- Lecture 42 - Hilbert's Nullstellensatz
- Lecture 43 - Hilbert's Nullstellensatz (Continued...)
- Lecture 44 - Proof of Zariski's Lemma (HNS 3)
- Lecture 45 - Consequences of HNS
- Lecture 46 - Consequences of HNS (Continued...)
- Lecture 47 - Jacobson Ring and examples
- Lecture 48 - Irreducible subsets of Zariski Topology (Finite type  $K$ -algebra)
- Lecture 49 - Spec functor on Finite type  $K$ -algebras
- Lecture 50 - Properties of Irreducible topological spaces
- Lecture 51 - Zariski Topology on arbitrary commutative rings
- Lecture 52 - Spec functor on arbitrary commutative rings
- Lecture 53 - Topological properties of  $\text{Spec } A$
- Lecture 54 - Example to support the term Spectrum
- Lecture 55 - Integral Extensions
- Lecture 56 - Elementwise characterization of Integral extensions
- Lecture 57 - Properties and examples of Integral extensions
- Lecture 58 - Prime and Maximal ideals in integral extensions
- Lecture 59 - Lying over Theorem
- Lecture 60 - Cohen-Siegelberg Theorem

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:First Course on Partial Differential Equations-I

Subject Co-ordinator - Prof. P. S. Datti, Prof. A. K. Nandakumaran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - 1  
Lecture 2 - Introduction - 2  
Lecture 3 - Priliminaries - 1  
Lecture 4 - Priliminaries - 2  
Lecture 5 - Priliminaries - 3  
Lecture 6 - Priliminaries - 4  
Lecture 7 - First order equations in two variables - 1  
Lecture 8 - First order equations in two variables - 2  
Lecture 9 - First order equations in two variables - 3  
Lecture 10 - First order equations in two variables - 4  
Lecture 11 - First order equations in two variables - 5  
Lecture 12 - First order equations in more than two variables - 6  
Lecture 13 - First order equations in more than two variables - 7  
Lecture 14 - First order equations in more than two variables - 8  
Lecture 15 - Classification - 1  
Lecture 16 - Classification - 2  
Lecture 17 - Classification - 3  
Lecture 18 - Laplace and Poisson equations - 1  
Lecture 19 - Laplace and Poisson equations - 2  
Lecture 20 - Laplace and Poisson equations - 3  
Lecture 21 - Laplace and Poisson equations - 4  
Lecture 22 - Laplace and Poisson equations - 5  
Lecture 23 - Laplace and Poisson equations - 6  
Lecture 24 - Laplace and Poisson equations - 7  
Lecture 25 - Laplace and Poisson equations - 8  
Lecture 26 - Laplace and Poisson equations - 9  
Lecture 27 - Laplace and Poisson equations - 10  
Lecture 28 - One dimensional heat equation - 1  
Lecture 29 - One dimensional heat equation - 2

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Lecture 30	- One dimensional heat equation	- 3
Lecture 31	- One dimensional heat equation	- 4
Lecture 32	- One dimensional heat equation	- 5
Lecture 33	- One dimensional heat equation	- 6
Lecture 34	- One dimensional wave equation	- 1
Lecture 35	- One dimensional wave equation	- 2
Lecture 36	- One dimensional wave equation	- 3
Lecture 37	- One dimensional wave equation	- 4
Lecture 38	- One dimensional wave equation	- 5
Lecture 39	- One dimensional wave equation	- 6
Lecture 40	- One dimensional wave equation	- 7
Lecture 41	- One dimensional wave equation	- 8

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:First Course on Partial Differential Equations - II

Subject Co-ordinator - Prof. A. K. Nandakumaran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - HJE 1  
Lecture 3 - HJE 2  
Lecture 4 - HJE 3  
Lecture 5 - HJE 4  
Lecture 6 - HJE 5  
Lecture 7 - HJE 6  
Lecture 8 - CL1  
Lecture 9 - CL2  
Lecture 10 - CL3  
Lecture 11 - CL4  
Lecture 12 - CL5  
Lecture 13 - CL6  
Lecture 14 - Perron Method - 1  
Lecture 15 - Perron Method - 2  
Lecture 16 - Perron Method - 3  
Lecture 17 - Perron Method - 4  
Lecture 18 - Newtonian Potential - 1  
Lecture 19 - Newtonian Potential - 2  
Lecture 20 - Newtonian Potential - 3  
Lecture 21 - Newtonian Potential - 4  
Lecture 22 - Newtonian Potential - 5  
Lecture 23 - Eigen Value Problem - 1  
Lecture 24 - Eigen Value Problem - 2  
Lecture 25 - Heat Equation - 1  
Lecture 26 - Heat Equation - 2  
Lecture 27 - Heat Equation - 3  
Lecture 28 - Heat Equation - 4  
Lecture 29 - Heat Equation - 5

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Lecture 30 - Wave Equation - 1  
Lecture 31 - Wave Equation - 2  
Lecture 32 - Wave Equation - 3  
Lecture 33 - Wave Equation - 4  
Lecture 34 - Wave Equation - 5  
Lecture 35 - Wave Equation - 6  
Lecture 36 - Wave Equation - 7  
Lecture 37 - Weak Solutions - 1  
Lecture 38 - Weak Solutions - 2  
Lecture 39 - Weak Solutions - 3  
Lecture 40 - Weak Solutions - 4  
Lecture 41 - Weak Solutions - 5



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - Matrix Theory

Subject Co-ordinator - Prof. Chandra Murthy

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course introduction and properties of matrices

Lecture 2 - Vector spaces

Lecture 3 - Basis, dimension

Lecture 4 - Linear transforms

Lecture 5 - Fundamental subspaces of a matrix

Lecture 6 - Fundamental theorem of linear algebra

Lecture 7 - Properties of rank

Lecture 8 - Inner product

Lecture 9 - Gram-schmidt algorithm

Lecture 10 - Orthonormal matrices definition

Lecture 11 - Determinant

Lecture 12 - Properties of determinants

Lecture 13 - Introduction to norms and inner products

Lecture 14 - Vector norms and their properties

Lecture 15 - Applications and equivalence of vector norms

Lecture 16 - Summary of equivalence of norms

Lecture 17 - Dual norms

Lecture 18 - Properties and examples of dual norms

Lecture 19 - Matrix norms

Lecture 20 - Matrix norms: Properties

Lecture 21 - Induced norms

Lecture 22 - Induced norms and examples

Lecture 23 - Spectral radius

Lecture 24 - Properties of spectral radius

Lecture 25 - Convergent matrices, Banach lemma

Lecture 26 - Recap of matrix norms and Levy-Desplanques theorem

Lecture 27 - Equivalence of matrix norms and error in inverses of linear systems

Lecture 28 - Errors in inverses of matrices

Lecture 29 - Errors in solving systems of linear equations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to eigenvalues and eigenvectors
- Lecture 31 - The characteristic polynomial
- Lecture 32 - Solving characteristic polynomials, eigenvectors properties
- Lecture 33 - Similarity
- Lecture 34 - Diagonalization
- Lecture 35 - Relationship between eigenvalues of BA and AB
- Lecture 36 - Eigenvector and principle of biorthogonality
- Lecture 37 - Unitary matrices
- Lecture 38 - Properties of unitary matrices
- Lecture 39 - Unitary equivalence
- Lecture 40 - Schur's triangularization theorem
- Lecture 41 - Cayley-Hamilton theorem
- Lecture 42 - Uses of cayley-hamilton theorem and diagonalizability revisited
- Lecture 43 - Normal matrices: Definition and fundamental properties
- Lecture 44 - Fundamental properties of normal matrices
- Lecture 45 - QR decomposition and canonical forms
- Lecture 46 - Jordan canonical form
- Lecture 47 - Determining the Jordan form of a matrix
- Lecture 48 - Properties of the Jordan canonical form - Part 1
- Lecture 49 - Properties of the Jordan canonical form - Part 2
- Lecture 50 - Properties of convergent matrices
- Lecture 51 - Polynomials and matrices
- Lecture 52 - Other canonical forms and factorization of matrices: Gaussian elimination and LU factorization
- Lecture 53 - LU decomposition
- Lecture 54 - LU decomposition with pivoting
- Lecture 55 - Solving pivoted system and LDM decomposition
- Lecture 56 - Cholesky decomposition and uses
- Lecture 57 - Hermitian and symmetric matrix
- Lecture 58 - Properties of hermitian matrices
- Lecture 59 - Variational characterization of Eigenvalues: Rayleigh-Ritz theorem
- Lecture 60 - Variational characterization of eigenvalues (Continued...)
- Lecture 61 - Courant-Fischer theorem
- Lecture 62 - Summary of Rayliegh-Ritz and Courant-Fischer theorems
- Lecture 63 - Weyl's theorem
- Lecture 64 - Positive semi-definite matrix, monotonicity theorem and interlacing theorems
- Lecture 65 - Interlacing theorem - I
- Lecture 66 - Interlacing theorem - II (Converse)
- Lecture 67 - Interlacing theorem (Continued...)
- Lecture 68 - Eigenvalues: Majorization theorem and proof

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Location and perturbation of Eigenvalues - Part 1: Dominant diagonal theorem
- Lecture 70 - Location and perturbation of Eigenvalues - Part 2: Gersgorin's theorem
- Lecture 71 - Implications of Gersgorin disc theorem, condition of eigenvalues
- Lecture 72 - Condition of eigenvalues for diagonalizable matrices
- Lecture 73 - Perturbation of eigenvalues Birkhoff's theorem Hoffman-Weiland theorem
- Lecture 74 - Singular value definition and some remarks
- Lecture 75 - Proof of singular value decomposition theorem
- Lecture 76 - Partitioning the SVD
- Lecture 77 - Properties of SVD
- Lecture 78 - Generalized inverse of matrices
- Lecture 79 - Least squares
- Lecture 80 - Constrained least squares

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:C\* Algebras and Spectral Theorem

Subject Co-ordinator - Prof. E K Narayanan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Finite dimensional Spectral theorem

Lecture 2 - Compact operators

Lecture 3 - Spectral theorem for Compact self-adjoint operators

Lecture 4 - Spectral theorem for Compact Normal operators

Lecture 5 - Banach algebras

Lecture 6 - Gelfand-Mazur theorem

Lecture 7 - Spectral radius

Lecture 8 - Multiplicative functionals

Lecture 9 - Gelfand transform - I

Lecture 10 - Gelfand transform - II

Lecture 11 - C\* algebras

Lecture 12 - Examples and Wiener's theorem

Lecture 13 - Gelfand-Naimark theorem

Lecture 14 - Non-unital Banach algebras

Lecture 15 - Non-unital C\* algebra

Lecture 16 - Gelfand transform of non-unital C\*algebras

Lecture 17 - Gelfand-Naimark theorem for non-unital C\* algebras

Lecture 18 - Continuous functional calculus

Lecture 19 - Bounded functional calculus - I

Lecture 20 - Bounded functional calculus - II

Lecture 21 - Projection valued measures

Lecture 22 - Bounded functional calculus with respect to a projection valued measure

Lecture 23 - Spectral Theorem - I

Lecture 24 - Spectral theorem - II

Lecture 25 - Some applications

Lecture 26 - Spectral theorem for a bounded normal operator

Lecture 27 - Resolution of identity - I

Lecture 28 - Resolution of identity - II

Lecture 29 - Resolution of identity - III

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- Lecture 30 - Resolution of identity - IV
- Lecture 31 - Equivalence of various forms of spectral theorems - I
- Lecture 32 - Equivalence of various forms of spectral theorems - II
- Lecture 33 - Spectrum of a self-adjoint operator - I
- Lecture 34 - Spectrum of a self-adjoint operator - II
- Lecture 35 - Commuting family of self-adjoint operators
- Lecture 36 - Continuous functional calculus for commuting family of self-adjoint operators - I
- Lecture 37 - Continuous functional calculus for commuting family of self-adjoint operators - II
- Lecture 38 - Fuglede's theorem
- Lecture 39 - Spectral theorem for commuting finite family of normal operators
- Lecture 40 - Multiplicity theory

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Advanced Partial Differential Equations (Part I: Distributions and Sobolev Spaces)

Subject Co-ordinator - Prof. P.S. Datti, Prof. A K Nandakumaran

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - 1
- Lecture 2 - Preliminaries - 1
- Lecture 3 - Preliminaries - 2
- Lecture 4 - Preliminaries - 3
- Lecture 5 - Preliminaries - 4
- Lecture 6 - Preliminaries - 5
- Lecture 7 - Preliminaries - 6
- Lecture 8 - Preliminaries - 7
- Lecture 9 - Preliminaries - 8
- Lecture 10 - Preliminaries - 9
- Lecture 11 - Introduction to Distributions
- Lecture 12 - Properties and Examples
- Lecture 13 - Convergence of distributions
- Lecture 14 - Convergence of distributions
- Lecture 15 - Calculus in the space of distributions
- Lecture 16 - Further discussion on Distributions
- Lecture 17 - Order and support of a distribution
- Lecture 18 - Laplace and Poisson equations - Distributions with compact support
- Lecture 19 - Validity of the definition of the support
- Lecture 20 - Convolution and Fourier transform of distributions
- Lecture 21 - The Schwartz space and AKN Lec 15 its dual
- Lecture 22 - Fourier transform of a tempered distribution, convolution
- Lecture 23 - Properties of Convolution
- Lecture 24 - Further discussion on Fourier transform and convolution
- Lecture 25 - Convolution of two distributions
- Lecture 26 - Convolution of distributions
- Lecture 27 - Introduction to Sobolev spaces
- Lecture 28 - Properties of Sobolev Spaces
- Lecture 29 - Extension and Density results

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- Lecture 30 - General Extension result
- Lecture 31 - Integration on a smooth surface
- Lecture 32 - A more general extension result
- Lecture 33 - Notion of the trace
- Lecture 34 - A compactness theorem
- Lecture 35 - Equivalent norms
- Lecture 36 - Sobolev lemma
- Lecture 37 - Sobolev lemma (Continued...)
- Lecture 38 - Analysis near the boundary
- Lecture 39 - Trace in the upper half space
- Lecture 40 - Trace in the upper half space
- Lecture 41 - Supplementary lecture
- Lecture 42 - Supplementary lecture

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Advanced Course on Partial Differential Equations - II

Subject Co-ordinator - Prof. A K Nandakumaran, Prof. P.S. Datti

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Outline
- Lecture 2 - Review of Sobolev spaces - 1
- Lecture 3 - Review of Sobolev spaces - 2
- Lecture 4 - Review of Sobolev spaces - 3
- Lecture 5 - Review of Sobolev spaces - 4
- Lecture 6 - Review of Sobolev spaces - 5
- Lecture 7 - Elliptic equations and weak formulation
- Lecture 8 - Abstract Formulation
- Lecture 9 - Variational Inequality
- Lecture 10 - Babuska-Brezzi Theorem
- Lecture 11 - Strong vs Weak Form of PDE
- Lecture 12 - General Second Order Equations
- Lecture 13 - Non-uniqueness of Neumann problem
- Lecture 14 - Biharmonic equation, Stokes system
- Lecture 15 - Stokes system (Continued...)
- Lecture 16 - Regularity of Ellptic Equations
- Lecture 17 - Regularity (Continued...)
- Lecture 18 - Maximum and Minimum Principles for weak formulation
- Lecture 19 - Spectrum of the Laplace operator
- Lecture 20 - First eigenvalue of the Laplace operator and a brief discussion of a Galerkin method
- Lecture 21 - Introduction to semi-groups and unbounded operators
- Lecture 22 - Spectrum of an operator
- Lecture 23 - Examples of operators and operators in a Hilbert space
- Lecture 24 - Perturbation of an operator, Kato theorems. Definition of a semi-group
- Lecture 25 - Semi-group and its infinitesimal generator
- Lecture 26 - Examples of semi-groups; spectrum and resolvent of the infinitesimal generator
- Lecture 27 - An application. Saturation theorem
- Lecture 28 - Hille-Yosida Theorem
- Lecture 29 - Lumer-Philips Theorem. Stone's theorem

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- Lecture 30 - Abstract Cauchy Problem
- Lecture 31 - Semi-group arising from the heat equation
- Lecture 32 - Generator of the heat semi-group
- Lecture 33 - Semi-group arising from the wave equation
- Lecture 34 - Semi-group arising from the wave equation in energy space
- Lecture 35 - Wave equation in energy space
- Lecture 36 - Wave equation in energy space (Continued...)
- Lecture 37 - Semi-group arising from the wave equation in  $H^1 \times L^2$
- Lecture 38 - Schroedinger equation in free space
- Lecture 39 - Schroedinger equation with a potential. Application of Kato's theorem
- Lecture 40 - Equations in a bounded domain. Concluding remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Group Theory

Subject Co-ordinator - Prof. R. Venkatesh

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivation of group theory
- Lecture 2 - Definition of a group
- Lecture 3 - Examples of groups
- Lecture 4 - The symmetric group
- Lecture 5 - Subgroups of integers
- Lecture 6 - Basic properties of groups
- Lecture 7 - Subgroups of a group
- Lecture 8 - Subgroup generated by subsets of a group
- Lecture 9 - Group of integers modulo  $n$
- Lecture 10 - Some elementary number theory - I
- Lecture 11 - Some elementary number theory - II
- Lecture 12 - Order of an elements in a group
- Lecture 13 - Cyclic groups and its subgroups
- Lecture 14 - Characterization of cyclic groups
- Lecture 15 - Examples of cosets of a subgroup in a group
- Lecture 16 - Cosets of a subgroup of a group
- Lecture 17 - Lagrange's Theorem
- Lecture 18 - Number theoretic applications of Lagrange's Theorem
- Lecture 19 - Normal subgroup
- Lecture 20 - Some useful definitions
- Lecture 21 - Internal direct product
- Lecture 22 - More on normal subgroups
- Lecture 23 - Normalizer of a subgroup
- Lecture 24 - First Isomorphism Theorem
- Lecture 25 - Second Isomorphism Theorem
- Lecture 26 - Third Isomorphism Theorem
- Lecture 27 - Group acting on a set
- Lecture 28 - Group action - Examples
- Lecture 29 - Isometries of the plane is a group

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Orthogonal maps
- Lecture 31 - Dihedral groups
- Lecture 32 - Finite subgroups of the orthogonal group
- Lecture 33 - Group acting on a set
- Lecture 34 - Group action - Examples
- Lecture 35 - Orbit-decomposition Theorem
- Lecture 36 - Stabilizer of a subset
- Lecture 37 - Applications of group action
- Lecture 38 - Class equation
- Lecture 39 - Some more applications of group action
- Lecture 40 - G-sets and morphisms
- Lecture 41 - More examples
- Lecture 42 - Burnside's lemma
- Lecture 43 - The Sylow's theorems
- Lecture 44 - The Sylow's theorems (Continued...)
- Lecture 45 - Application of Sylow's Theorems
- Lecture 46 - Semidirect product of groups
- Lecture 47 - Automorphisms of groups
- Lecture 48 - Symmetric and alternating groups
- Lecture 49 - Conjugacy in the symmetric group
- Lecture 50 - Conjugacy in the symmetric group (Continued...)
- Lecture 51 - Simplicity of the alternating groups
- Lecture 52 - The sign map
- Lecture 53 - The sign map (Continued...)
- Lecture 54 - Structure theorem for finite abelian groups (using invariant factors)
- Lecture 55 - The structure theorem for finite abelian groups
- Lecture 56 - Proof of the structure theorem for finite abelian groups (Continued...)
- Lecture 57 - Proof of the structure theorem for finite abelian groups
- Lecture 58 - Structure theory of finite abelian p-groups

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Introduction to Lie Algebras

Subject Co-ordinator - Prof. R. Venkatesh

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - An Introduction to Lie Algebras

Lecture 2 - Lie subalgebra and Homomorphism

Lecture 3 - Some Problems

Lecture 4 - Ideals and Quotient algebras

Lecture 5 - Isomorphism theorems

Lecture 6 - Correspondence between ideals

Lecture 7 - Low dimensional Lie algebra - 1

Lecture 8 - Low dimensional Lie algebra - 2

Lecture 9 - Some more definitions

Lecture 10 - Solvable and nilpotent Lie algebra

Lecture 11 - Nilpotent Lie algebra

Lecture 12 - The invariance Lemma

Lecture 13 - Engel's and Lie's Theorem

Lecture 14 - Engel's and Lie's Theorem (Continued...)

Lecture 15 - Lie's Theorem

Lecture 16 - Basics of Representation Theory

Lecture 17 - Basics of Representation Theory (Continued...)

Lecture 18 - Schur's lemma

Lecture 19 - Finite dimensional representations of  $sl_2(\mathbb{C})$

Lecture 20 - Classification of finite dimensional representations of  $sl_2(\mathbb{C})$

Lecture 21 - Complete reducibility of finite dimensional representation of  $sl_2(\mathbb{C})$  - Part 1

Lecture 22 - Complete reducibility of finite dimensional representation of  $sl_2(\mathbb{C})$  - Part 2

Lecture 23 - Applications of Lie's and Engel's theorem

Lecture 24 - Applications of Weyl's Theorem for  $sl_2(\mathbb{C})$

Lecture 25 - New representations from given representations

Lecture 26 - Primary decomposition Theorem and Jordan-Chevalley decomposition

Lecture 27 - Cartan's criteria for solvability

Lecture 28 - Cartan's criteria for semisimplicity and its consequences

Lecture 29 - Abstract Jordan decomposition in semisimple Lie algebras

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Casimir element of a representation of a semisimple Lie algebra
- Lecture 31 - Weyl's Theorem of complete reducibility for semisimple Lie algebras
- Lecture 32 - Root space decomposition of semisimple Lie algebras
- Lecture 33 - Centralizer of a maximal toral subalgebra
- Lecture 34 - Properties of roots
- Lecture 35 - More properties of roots
- Lecture 36 - Rationality of roots
- Lecture 37 - Abstract root system and Weyl groups
- Lecture 38 - Isomorphism of Root systems and dual root systems
- Lecture 39 - Root systems of Ranks 1 and 2
- Lecture 40 - Classification of rank 2 root systems
- Lecture 41 - Base of a root system
- Lecture 42 - Classification of bases
- Lecture 43 - Basic properties of simple roots
- Lecture 44 - Characterization of length function
- Lecture 45 - Decomposition of root systems
- Lecture 46 - Root lengths, Cartan Matrices
- Lecture 47 - Cartan matrices and Dynkin diagrams
- Lecture 48 - Classification of Root systems
- Lecture 49 - Classification of Root systems (Continued...)
- Lecture 50 - Concrete description of root systems
- Lecture 51 - Uniqueness of root systems
- Lecture 52 - Isomorphism theorem
- Lecture 53 - Isomorphism theorem (Continued...)
- Lecture 54 - Generators and relations
- Lecture 55 - Serre presentation

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Convective Heat and Mass Transfer

Subject Co-ordinator - Prof. A.W. Date

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Flow Classifications  
Lecture 3 - Laws of Convection  
Lecture 4 - Scalar Transport Equations  
Lecture 5 - Laminar Boundary Layers  
Lecture 6 - Similarity Method  
Lecture 7 - Similarity Solns Velocity BL  
Lecture 8 - Similarity Solns Temperature BL - I  
Lecture 9 - Similarity Solns Temperature BL - II  
Lecture 10 - Integral BL Equations  
Lecture 11 - Integral Solns Laminar Velocity BL  
Lecture 12 - Integral Solns Laminar Temperature BL  
Lecture 13 - Superposition Theory  
Lecture 14 - Laminar Internal Flows  
Lecture 15 - Fully-Developed Laminar Flows - 1  
Lecture 16 - Fully-Developed Laminar Flows - 2  
Lecture 17 - Fully-Developed Laminar Flows Heat Transfer - 1  
Lecture 18 - Fully-Developed Laminar Flows Heat Transfer - 2  
Lecture 19 - Laminar Internal Developing Flows Heat Transfer  
Lecture 20 - Superposition Technique  
Lecture 21 - Nature of Turbulent Flows  
Lecture 22A - Sustaining Mechanism of Turbulence - 1  
Lecture 22B - Sustaining Mechanism of Turbulence - 1  
Lecture 23 - Sustaining Mechanism of Turbulence - 2  
Lecture 24 - Near-Wall Turbulent Flows - 1  
Lecture 25 - Near-Wall Turbulent Flows - 2  
Lecture 26 - Turbulence Models - 1  
Lecture 27 - Turbulence Models - 2  
Lecture 28 - Turbulence Models - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Prediction of Turbulent Flows
- Lecture 30 - Prediction of Turbulent Heat Transfer
- Lecture 31 - Convective Mass Transfer
- Lecture 32 - Stefan Flow Model
- Lecture 33 - Couette Flow Model
- Lecture 34 - Reynolds Flow Model
- Lecture 35 - Boundary Layer Flow Model
- Lecture 36 - Evaluation of  $g$  and  $Nw$
- Lecture 37 - Diffusion Mass Transfer Problems
- Lecture 38 - Convective MT Couette Flow
- Lecture 39 - Convective MT Reynolds Flow Model - 1
- Lecture 40 - Convective MT Reynolds Flow Model - 2
- Lecture 41 - Natural Convection
- Lecture 42 - Diffusion Jet Flames

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Cryogenic Engineering

Subject Co-ordinator - Prof. M.D. Atrey

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Cryogenic Engineering
- Lecture 2 - Properties of Cryogenic Fluids - I
- Lecture 3 - Properties of Cryogenic Fluids - II
- Lecture 4 - Properties of Cryogenic
- Lecture 5 - Material Properties at Low Temperature - I
- Lecture 6 - Material Properties at Low Temperature - II
- Lecture 7 - Material Properties at Low Temperature - III
- Lecture 8 - Gas Liquefaction and Refrigeration Systems - I
- Lecture 9 - Gas Liquefaction and Refrigeration Systems - II
- Lecture 10 - Gas Liquefaction and Refrigeration Systems - III
- Lecture 11 - Gas Liquefaction and Refrigeration Systems - IV
- Lecture 12 - Gas Liquefaction and Refrigeration Systems - V
- Lecture 13 - Gas Liquefaction and Refrigeration Systems - VI
- Lecture 14 - Gas Liquefaction and Refrigeration Systems - VII
- Lecture 15 - Gas Liquefaction and Refrigeration Systems - VIII
- Lecture 16 - Gas Liquefaction and Refrigeration Systems - IX
- Lecture 17 - Gas Liquefaction and Refrigeration Systems - X
- Lecture 18 - Gas Separation - I
- Lecture 19 - Gas Separation - II
- Lecture 20 - Gas Separation - III
- Lecture 21 - Gas Separation - IV
- Lecture 22 - Gas Separation - V
- Lecture 23 - Gas Separation - VI
- Lecture 24 - Gas Separation - VII
- Lecture 25 - Gas Separation - VIII
- Lecture 26 - Cryocoolers
- Lecture 27 - Cryocoolers Ideal Stirling Cycle - I
- Lecture 28 - Cryocoolers Ideal Stirling Cycle - II
- Lecture 29 - Cryocoolers Ideal Stirling Cycle - III

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- Lecture 30 - Cryocoolers Ideal Stirling Cycle - IV
- Lecture 31 - Cryocoolers Ideal Stirling Cycle - V
- Lecture 32 - Cryocoolers
- Lecture 33 - Cryogenic Insulation - I
- Lecture 34 - Cryogenic Insulation - II
- Lecture 35 - Cryogenic Insulation - III
- Lecture 36 - Vacuum Technology - I
- Lecture 37 - Vacuum Technology - II
- Lecture 38 - Vacuum Technology - III
- Lecture 39 - Instrumentation in Cryogenics - I
- Lecture 40 - Instrumentation in Cryogenics - II
- Lecture 41 - Instrumentation in Cryogenics - III
- Lecture 42 - Safety in Cryogenics

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Advanced Strength of Materials

Subject Co-ordinator - Prof. S.K. Maiti

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Stress and Strain Tensor

Lecture 2 - Stress and Strain Tensor (Continued) and Cauchy Formula for Traction

Lecture 3 - Examples on Calculation of Strains and Tractions, Principal Stresses and Directions

Lecture 4 - Example on Calculation of Principal Stresses and Directions, Orthogonality of Principal Directions

Lecture 5 - Maximum Shear Stress and Octahedral Shear Stress, Deviatoric and Hydrostatic Stresses

Lecture 6 - Transformation of Stresses and Mohr Circle in 3-D

Lecture 7 - Mohr Circle (Continued)

Lecture 8 - Deformation, Rotation and Strain Tensors, Principal Strains, Deviatoric and Hydrostatic Strains

Lecture 9 - Strain Transformations, Strains in Polar Coordinates, Equilibrium Equations in 2-D

Lecture 10 - Equilibrium Equations in 2-D Polar Coordinates Plane Stress and Plane Strain Conditions

Lecture 11 - Stress-Strain Relations for Isotropic, Orthotropic and Anisotropic Materials Stress-Strain-Temperature Relations

Lecture 12 - Relation between Elastic Constants and Strain Energy Densities Recap of Lectures 1 to 11

Lecture 13 - Stress Distribution in Thick Cylinder

Lecture 14 - Stresses due to Shrink Fitting

Lecture 15 - Stresses in Rotating Disc

Lecture 16 - Examples on Shrink Fitting and Rotating Disc

Lecture 17 - Torsion of Non-Circular Shaft

Lecture 18 - Torsion of Non-Circular Shaft (Continued)

Lecture 19 - Membrane Analogy for Torsion

Lecture 20 - Torsion of Thin Box Sections

Lecture 21 - Torsion of Box and Open Sections

Lecture 22 - Bending of Curved Bars

Lecture 23 - Bending of Curved Bars (Continued)

Lecture 24 - Theories of Failure

Lecture 25 - Theories of Failure (Continued)

Lecture 26 - Theories of Failure (Continued) and Their Applications, Griffith Theory of Brittle Fracture

Lecture 27 - Application of Griffith Theory, Irwin-Orowan Modification of Griffith Theory, Assessment of Effect of Defects

Lecture 28 - Theorems of Elasticity

Lecture 29 - Theorems of Elasticity (Continued)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Thermal Stress Distribution in Rectangular Sheet due to Symmetric and Asymmetric Temperature Field
- Lecture 31 - Thermal Stress Distribution in Cylinders
- Lecture 32 - Unsymmetrical Bending
- Lecture 33 - Shear Centre
- Lecture 34 - Plate Bending
- Lecture 35 - Plate Bending (Continued)
- Lecture 36 - Examples on Plate Bending
- Lecture 37 - Approximate Solutions for Bending of Rectangular and Circular Plates
- Lecture 38 - Thin Shells of Revolution
- Lecture 39 - Beam on Elastic Foundation
- Lecture 40 - Application of Beam on Elastic Foundation Analysis to Pressure Vessels for Calculation of Displacements

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Heat and Mass Transfer

Subject Co-ordinator - Prof. S.P. Sukhatme, Prof. U.N. Gaitonde

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Heat and Mass Transfer

Lecture 2 - Introduction

Lecture 3 - Introduction

Lecture 4 - Heat Conduction - 1

Lecture 5 - Heat Conduction - 2

Lecture 6 - Heat Conduction - 3

Lecture 7 - Heat Conduction - 4

Lecture 8 - Heat Conduction - 5

Lecture 9 - Heat Conduction - 6

Lecture 10 - Thermal Radiation - 1

Lecture 11 - Thermal Radiation - 2

Lecture 12 - Thermal Radiation - 3

Lecture 13 - Thermal Radiation - 4

Lecture 14 - Thermal Radiation - 5

Lecture 15 - Thermal Radiation - 6

Lecture 16 - Review Of Fluid Mechanics - 1

Lecture 17 - Review Of Fluid Mechanics - 2

Lecture 18 - Forced Convection - 1

Lecture 19 - Forced Convection - 2

Lecture 20 - Forced Convection - 3

Lecture 21 - Forced Convection - 4

Lecture 22 - Natural Convection - 1

Lecture 23 - Natural Convection - 2

Lecture 24 - Natural Convection - 3

Lecture 25 - Heat Exchangers - 1

Lecture 26 - Heat Exchangers - 2

Lecture 27 - Heat Exchangers - 3

Lecture 28 - Heat Exchangers - 4

Lecture 29 - Boiling and Condensation - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Boiling and Condensation - 2
- Lecture 31 - Boiling and Condensation - 3
- Lecture 32 - Boiling and Condensation - 4
- Lecture 33 - Introduction to Mass Transfer - 1
- Lecture 34 - Introduction to Mass Transfer - 2
- Lecture 35 - Introduction to Mass Transfer - 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Robotics

Subject Co-ordinator - Prof. P. Seshu, Prof. P.S. Gandhi, Prof. K. Kurien Issac, Prof. B. Seth, Prof. C. Amar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Robotics
- Lecture 2 - Technologies in Robots
- Lecture 3 - Industrial Robots
- Lecture 4 - Industrial Manipulators and its Kinematics
- Lecture 5 - Parallel Manipulators
- Lecture 6 - Grippers manipulators
- Lecture 7 - Electric Actuators
- Lecture 8 - Actuators - Electric, Hydraulic, Pneumatic
- Lecture 9 - Internal State Sensors
- Lecture 10 - Internal State Sensors
- Lecture 11 - External State Sensors
- Lecture 12 - Trajectory planning
- Lecture 13 - Trajectory planning
- Lecture 14 - Trajectory planning
- Lecture 15 - Trajectory planning
- Lecture 16 - Trajectory planning
- Lecture 17 - Trajectory planning
- Lecture 18 - Trajectory planning
- Lecture 19 - Trajectory planning
- Lecture 20 - Forward Position Control
- Lecture 21 - Inverse Problem
- Lecture 22 - Velocity Analysis
- Lecture 23 - Velocity Analysis
- Lecture 24 - Dynamic Analysis
- Lecture 25 - Image Processing
- Lecture 26 - Image Processing
- Lecture 27 - Image Processing
- Lecture 28 - Image Processing
- Lecture 29 - Image Processing

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- Lecture 30 - Image Processing
- Lecture 31 - Robot Dynamics and Control
- Lecture 32 - Robot Dynamics and Control
- Lecture 33 - Robot Dynamics and Control
- Lecture 34 - Robot Dynamics and Control
- Lecture 35 - Robot Dynamics and Control
- Lecture 36 - Robot Dynamics and Control
- Lecture 37 - Futuristic Topics in Robotics
- Lecture 38 - Robot Dynamic and Control-Case Studies
- Lecture 39 - Robot Dynamic and Control-Case Studies
- Lecture 40 - Futuristic Topics in Robotics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Optimization from Fundamentals

Subject Co-ordinator - Prof. Ankur A. Kulkarni

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Isoperimetric problem  
Lecture 3 - Review of real analysis (sequences and convergence)  
Lecture 4 - Bolzano-Weierstrass theorem and completeness axiom  
Lecture 5 - Open sets, closed sets and compact sets  
Lecture 6 - Continuity and Weierstrass theorem  
Lecture 7 - Weierstrass theorem  
Lecture 8 - Different solution concepts  
Lecture 9 - Different types of constraints  
Lecture 10 - Taylor's theorem  
Lecture 11 - First order sufficient condition  
Lecture 12 - Second order necessary condition  
Lecture 13 - Least square regression  
Lecture 14 - Least square regression (Continued...)  
Lecture 15 - Implicit function theorem  
Lecture 16 - Optimization with equality constraints and introduction to Lagrange multipliers - I  
Lecture 17 - Optimization with equality constraints and introduction to Lagrange multipliers - II  
Lecture 18 - Least norm solution of underdetermined linear system  
Lecture 19 - Transformation of optimization problems - I  
Lecture 20 - Transformation of optimization problems - II  
Lecture 21 - Transformation of optimization problems - III  
Lecture 22 - Convex Analysis - I  
Lecture 23 - Convex Analysis - II  
Lecture 24 - Convex Analysis - III  
Lecture 25 - Polyhedrons  
Lecture 26 - Minkowski-Weyl Theorem  
Lecture 27 - Linear Programming Problems  
Lecture 28 - Extreme points and optimal solution of an LP  
Lecture 29 - Extreme points and optimal solution of an LP (Continued...)

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- Lecture 30 - Extreme points and basic feasible solutions
- Lecture 31 - Equivalence of extreme point and BFS
- Lecture 32 - Equivalence of extreme point and BFS (Continued...)
- Lecture 33 - Examples of Linear Programming
- Lecture 34 - Weak and Strong duality
- Lecture 35 - Proof of strong duality
- Lecture 36 - Proof of strong duality (Continued...)
- Lecture 37 - Farkas' lemma
- Lecture 38 - Max-flow Min-cut problem
- Lecture 39 - Shortest path problem
- Lecture 40 - Complementary Slackness
- Lecture 41 - Proof of complementary slackness
- Lecture 42 - Tangent cones
- Lecture 43 - Tangent cones (Continued...)
- Lecture 44 - Constraint qualifications, Farkas' lemma and KKT
- Lecture 45 - KKT conditions
- Lecture 46 - Convex optimization and KKT conditions
- Lecture 47 - Slater condition and Lagrangian Dual
- Lecture 48 - Weak duality in convex optimization and Fenchel dual
- Lecture 49 - Geometry of the Lagrangian
- Lecture 50 - Strong duality in convex optimization - I
- Lecture 51 - Strong duality in convex optimization - II
- Lecture 52 - Strong duality in convex optimization - III
- Lecture 53 - Line search methods for unconstrained optimization
- Lecture 54 - Wolfe conditions
- Lecture 55 - Line search algorithm and convergence
- Lecture 56 - Steepest descent method and rate of convergence
- Lecture 57 - Newton's method
- Lecture 58 - Penalty methods
- Lecture 59 - L1 and L2 Penalty methods
- Lecture 60 - Augmented Lagrangian methods
- Lecture 61 - Cutting plane methods
- Lecture 62 - Interior point methods for linear programming
- Lecture 63 - Dynamic programming: Inventory control problem
- Lecture 64 - Policy and value function
- Lecture 65 - Principle of optimality in dynamic programming
- Lecture 66 - Principle of optimality applied to inventory control problem
- Lecture 67 - Optimal control for a system with linear state dynamics and quadratic cost

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Design of Mechatronic Systems

Subject Co-ordinator - Prof. Prasanna Gandhi

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Elements of Mechatronic Systems - Part I
- Lecture 3 - Elements of Mechatronic Systems - Part II
- Lecture 4 - Elements of Mechatronic Systems - Part III
- Lecture 5 - CD-ROM - Part I
- Lecture 6 - CD-ROM - Part II
- Lecture 7 - CD-ROM - Part III
- Lecture 8 - Scanner
- Lecture 9 - Integrated Mechanical-Electronics Philosophy - Part I
- Lecture 10 - Integrated Mechanical-Electronics Philosophy - Part II
- Lecture 11 - Smart Sensors Concept
- Lecture 12 - Compliant Mechanisms
- Lecture 13 - Microprocessor Building Blocks I - Combinational Circuits
- Lecture 14 - Microprocessor Building Blocks II - Sequential Circuits
- Lecture 15 - Microprocessor Memory and Addressing
- Lecture 16 - Timing and control unit: Primitive Microprocessor
- Lecture 17 - Microcontroller Architecture - I
- Lecture 18 - Microcontroller Architecture - II
- Lecture 19 - Microcontroller Programming Philosophy
- Lecture 20 - Hardware Interfaces
- Lecture 21 - Interfacing Actuator using PWM in Tiva Microcontroller
- Lecture 22 - Interfacing Encoder using QEI in Tiva Launchpad + ISR
- Lecture 23 - Mathematical Modelling: Overview and Context
- Lecture 24 - Modelling Friction in a System
- Lecture 25 - Modelling DC Motor with loads
- Lecture 26 - Lagrange formulation fundamentals
- Lecture 27 - Lagrange formulation examples
- Lecture 28 - Dynamics: 2-R Manipulator
- Lecture 29 - Control formulation: Regulation and Tracking

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- Lecture 30 - Fundamentals of Simulation of dynamics using MATLAB
- Lecture 31 - Selection of Sensors and Actuators - Part I
- Lecture 32 - Selection of Sensors and Actuators - Part II
- Lecture 33 - Concept of feedback
- Lecture 34 - Closed loop control implementation in microcontroller
- Lecture 35 - Mathematical representations of systems for control
- Lecture 36 - Control design for linear systems
- Lecture 37 - Application of control design for linear systems
- Lecture 38 - Mathematical Preliminaries- Nonlinear Control
- Lecture 39 - Fundamentals of Lyapunov theory
- Lecture 40 - Application of Lyapunov stability analysis
- Lecture 41 - Trajectory tracking controller: Robotic system
- Lecture 42 - Fundamentals of sampling
- Lecture 43 - Shannon sampling theorem and signal reconstruction
- Lecture 44 - Signal processing
- Lecture 45 - Digital system representation and filters for mechatronics
- Lecture 46 - Case study: Development of 3D microprinting system
- Lecture 47 - Case study: 3D microprinting via Bulk lithography
- Lecture 48 - Case study: Hele-Shaw system for novel fabrication

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Nonlinear Adaptive Control

Subject Co-ordinator - Prof. Srikant Sukumar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Concepts and Nomenclature
- Lecture 2 - Preliminaries - Part 1
- Lecture 3 - Preliminaries - Part 2
- Lecture 4 - Preliminaries - Part 3
- Lecture 5 - Preliminaries - Part 4
- Lecture 6 - Preliminaries - Part 5
- Lecture 7 - Barbalat's Lemma - Part 1
- Lecture 8 - Barbalat's Lemma - Part 2
- Lecture 9 - Convergence of Signals using Barbalat's Lemma - Part 1
- Lecture 10 - Convergence of Signals using Barbalat's Lemma - Part 2
- Lecture 11 - Notions of Stability - Part 1
- Lecture 12 - Notions of Stability - Part 2
- Lecture 13 - Stability Analysis with Examples - Part 1
- Lecture 14 - Stability Analysis with Examples - Part 2
- Lecture 15 - Stability Analysis with Examples - Part 3
- Lecture 16 - Stability Analysis with Examples - Part 4
- Lecture 17 - Stability Analysis in Linear Systems
- Lecture 18 - Function Classes and Definiteness
- Lecture 19 - Positive Definite Functions
- Lecture 20 - Radially Unbounded Functions
- Lecture 21 - Decrescent Functions
- Lecture 22 - Lyapunov Stability Theorems - Part 1
- Lecture 23 - Lyapunov Stability Theorems - Part 2
- Lecture 24 - Lyapunov Stability Theorems - Part 3
- Lecture 25 - Exponential Stability and Converse Lyapunov Theorems
- Lecture 26 - Persistence of Excitation (PE): Introduction
- Lecture 27 - Connection of PE to Stability, Uniform Complete Observability (UCO)
- Lecture 28 - Exponential Stability of LTV systems, PE and Exponential Stability
- Lecture 29 - Parameter Identifier Convergence under PE Condition

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- Lecture 30 - Analysis of Parameter Varying Systems using General Integral Lemma - Part 1
- Lecture 31 - Analysis of Parameter Varying Systems using General Integral Lemma - Part 2
- Lecture 32 - Adaptive Control Design: First Order Scalar Systems
- Lecture 33 - Barbalat's Lemma and Signal Chasing Analysis
- Lecture 34 - Parameter Convergence in Adaptive Control Design
- Lecture 35 - Adaptive Control Design: Second-Order Systems
- Lecture 36 - Overcoming the Detectability Obstacle: Ortega Construction
- Lecture 37 - Backstepping in Adaptive Control: Introduction - Part 1
- Lecture 38 - Backstepping in Adaptive Control: Introduction - Part 2
- Lecture 39 - Backstepping in Adaptive Control: Parameters Unmatched with Control - Part 1
- Lecture 40 - Backstepping in Adaptive Control: Parameters Unmatched with Control - Part 2
- Lecture 41 - How to Deal with Unknown Gains in Control
- Lecture 42 - Setup of Model Reference Adaptive Control (MRAC) Problem
- Lecture 43 - Model Reference Adaptive control: For Known and Unknown Parameters
- Lecture 44 - Model Reference Adaptive control: Lyapunov Stability Analysis
- Lecture 45 - Generalization of Adaptive Integrator Backstepping Method - Part 1
- Lecture 46 - Generalization of Adaptive Integrator Backstepping Method - Part 2
- Lecture 47 - Extended Matching Design for Avoiding Overparameterization
- Lecture 48 - Adaptive Integrator Backstepping Method: An Example - Part 1
- Lecture 49 - Adaptive Integrator Backstepping Method: An Example - Part 2
- Lecture 50 - Extended Matching Design: An Example
- Lecture 51 - Control Lyapunov Function
- Lecture 52 - Tuning Function Adaptive Method
- Lecture 53 - Adaptive Backstepping via Control Lyapunov Function (CLF)
- Lecture 54 - Adaptive Backstepping via CLF: An Example
- Lecture 55 - Robustness in Adaptive Control - Part 1
- Lecture 56 - Robustness in Adaptive Control - Part 2
- Lecture 57 - Parameter Projection in Adaptive Control - Part 1
- Lecture 58 - Parameter Projection in Adaptive Control - Part 2
- Lecture 59 - Parameter Projection in Adaptive Control - Part 3
- Lecture 60 - Sigma- Modification and Epsilon-Modification in Adaptive Control
- Lecture 61 - Initial Excitation in Adaptive Control - Part 1
- Lecture 62 - Initial Excitation in Adaptive Control - Part 2
- Lecture 63 - Initial Excitation in Adaptive Control - Part 3
- Lecture 64 - Initial Excitation in Adaptive Control - Part 4
- Lecture 65 - Initial Excitation in Adaptive Control - Part 5
- Lecture 66 - Discussion on Historical Developments in Adaptive Control and Learning
- Lecture 67 - Real Time Neural Network Based Control of a Robotic Manipulator - Part 1
- Lecture 68 - Real Time Neural Network Based Control of a Robotic Manipulator - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Real Time Neural Network Based Control of a Robotic Manipulator - Part 3
- Lecture 70 - Real Time Neural Network Based Control of a Robotic Manipulator - Part 4
- Lecture 71 - Real Time Neural Network Based Control of a Robotic Manipulator - Part 5

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Nonlinear Control Design

Subject Co-ordinator - Prof. Srikant Sukumar

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Introduction  
Lecture 2 - Examples of Nonlinear systems  
Lecture 3 - Existence and uniqueness of solutions  
Lecture 4 - Preliminaries and notations  
Lecture 5 - Preliminaries: Normed linear space  
Lecture 6 - Preliminaries: Induced Matrix Norms and Signal Norms  
Lecture 7 - Signal Norms and Cauchy-Schwarz Inequality  
Lecture 8 - Stability - Part 1  
Lecture 9 - Stability - Part 2  
Lecture 10 - Stability - Part 3  
Lecture 11 - Stability - Part 4  
Lecture 12 - Stability - Part 5  
Lecture 13 - Lyapunov stability Theorems - Part 1  
Lecture 14 - Lyapunov stability Theorems - Part 2  
Lecture 15 - Lyapunov stability Theorems - Part 3  
Lecture 16 - Lyapunov stability Theorems - Part 4  
Lecture 17 - Lyapunov stability Theorems - Part 5  
Lecture 18 - Lyapunov stability Theorems - Part 6  
Lecture 19 - Proofs of Lyapunov Stability Theorems - Part 1  
Lecture 20 - Proofs of Lyapunov Stability Theorems - Part 2  
Lecture 21 - Proofs of Lyapunov Stability Theorems - Part 3  
Lecture 22 - Proofs of Lyapunov Stability Theorems - Part 4  
Lecture 23 - La Salle's Invariance Principle - Part 1  
Lecture 24 - La Salle's Invariance Principle - Part 2  
Lecture 25 - La Salle's Invariance Principle - Part 3  
Lecture 26 - La Salle's Invariance Principle - Part 4  
Lecture 27 - La Salle's Invariance Principle - Part 5  
Lecture 28 - La Salle's Invariance Principle - Part 6  
Lecture 29 - Control Lyapunov functions - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Control Lyapunov functions - Part 2
- Lecture 31 - Control Lyapunov functions - Part 3
- Lecture 32 - Control Lyapunov functions - Part 4
- Lecture 33 - Control Lyapunov functions - Part 5
- Lecture 34 - Backstepping method for control design - Part 1
- Lecture 35 - Backstepping method for control design - Part 2
- Lecture 36 - Backstepping method for control design - Part 3
- Lecture 37 - Backstepping method for control design - Part 4
- Lecture 38 - Passivity based control - Part 1
- Lecture 39 - Passivity based control - Part 2
- Lecture 40 - Passivity based control - Part 3
- Lecture 41 - Passivity in control systems - Part 1 (Prof. Antonio Loria)
- Lecture 42 - Passivity in control systems - Part 2 (Prof. Antonio Loria)
- Lecture 43 - Passivity in control systems - Part 3 (Prof. Antonio Loria)
- Lecture 44 - Passivity in control systems - Part 4 (Prof. Antonio Loria)
- Lecture 45 - Passivity based control - Part 4
- Lecture 46 - Passivity based control - Part 5
- Lecture 47 - Passivity based control - Part 6
- Lecture 48 - Passivity based control - Part 7
- Lecture 49 - Feedback Linearization - Part 1
- Lecture 50 - Feedback Linearization - Part 2
- Lecture 51 - Feedback Linearization - Part 3
- Lecture 52 - Feedback Linearization - Part 4
- Lecture 53 - Feedback Linearization - Part 5
- Lecture 54 - Feedback Linearization - Part 6
- Lecture 55 - Feedback Linearization - Part 6
- Lecture 56 - Feedback Linearization - Part 7
- Lecture 57 - Feedback Linearization - Part 8
- Lecture 58 - Feedback Linearization - Part 9
- Lecture 59 - Feedback Linearization - Part 10
- Lecture 60 - Feedback Linearization - Part 11
- Lecture 61 - Barbalat's Lemma
- Lecture 62 - Application of Barbalat's Lemma
- Lecture 63 - Adaptive control - Part 1
- Lecture 64 - Adaptive control - Part 2
- Lecture 65 - State constrained control - Part 1
- Lecture 66 - State constrained control - Part 2
- Lecture 67 - State constrained control - Part 3
- Lecture 68 - Finite time stability - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Finite time stability - Part 2
- Lecture 70 - Finite time stability - Part 3
- Lecture 71 - Sliding mode control - Part 1
- Lecture 72 - Sliding mode control - Part 2
- Lecture 73 - Sliding mode control - Part 3

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Tribology

Subject Co-ordinator - Dr. Harish Hirani

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Interdisciplinary Approach and Economic Benefits
- Lecture 3 - Friction
- Lecture 4 - Friction Estimation
- Lecture 5 - Friction Instability
- Lecture 6 - Wear
- Lecture 7 - Adhesive Wear
- Lecture 8 - Wear Mechanisms
- Lecture 9 - Wear Mechanisms - 2
- Lecture 10 - Wear Analysis
- Lecture 11 - Lubrication and Lubricants
- Lecture 12 - Boundary Lubrication
- Lecture 13 - Lubrication Mechanisms
- Lecture 14 - Hydrodynamic Lubrication
- Lecture 15 - Lubricant Classifications
- Lecture 16 - Solid and Semi Solid Lubricants
- Lecture 17 - Liquid Lubricants
- Lecture 18 - Lubricant Additives
- Lecture 19 - Fluid Film Lubrication
- Lecture 20 - Reynolds Equation
- Lecture 21 - Solution of Reynolds Equation
- Lecture 22 - Hybrid Solution Approach (to solve Reynolds Equation)
- Lecture 23 - Finite Difference Method to Solve Reynolds Equation
- Lecture 24 - Viscosity Variation
- Lecture 25 - Estimating Elastic Deformation
- Lecture 26 - Thermo Hydrodynamic Lubrication
- Lecture 27 - Application of Tribology
- Lecture 28 - Rolling Element Bearings
- Lecture 29 - Rolling Element Bearings (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Rolling Element Bearings (Continued...)
- Lecture 31 - Selection of Rolling Element Bearings
- Lecture 32 - Friction of Rolling Element Bearing
- Lecture 33 - Bearing Clearance
- Lecture 34 - Bearing Lubrication
- Lecture 35 - Tribology of Gears
- Lecture 36 - Friction and Lubrication of Gears
- Lecture 37 - Friction and Lubrication of Gears (Continued...)
- Lecture 38 - Surface Fatigue of Spur Gears
- Lecture 39 - Journal Bearings
- Lecture 40 - Hydrostatic Bearings
- Lecture 41 - Hydrodynamic Journal Bearings
- Lecture 42 - Design of Hydrodynamic Journal Bearings

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Computer Aided Design and Manufacturing

Subject Co-ordinator - Prof. P.V. Madhusudan Rao, Prof. Anoop Chawla

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Introduction to CAD
- Lecture 2 - Input Output Devices, Raster Graphics
- Lecture 3 - Raster Graphics - I
- Lecture 4 - Raster Graphics - II
- Lecture 5 - Polygon Filling
- Lecture 6 - Windowing and Clipping
- Lecture 7 - Clipping of Polygons
- Lecture 8 - 2D Transformations
- Lecture 9 - 3D Transformations and Projection
- Lecture 10 - Perspective Projections
- Lecture 11 - Projections and Hidden Surface Removal
- Lecture 12 - Hidden Surface Removal
- Lecture 13 - Hidden Surface Removal
- Lecture 14 - Hidden Surface Removal
- Lecture 15 - Finite Element Method
- Lecture 16 - Galerkin's Approach
- Lecture 17 - Galerkin's Method
- Lecture 18 - 1D Finite Element Problems
- Lecture 19 - 1D Finite Element Problems
- Lecture 20 - FE Problems
- Lecture 21 - 1D - FE Problems
- Lecture 22 - Penalty Approach and Multi Point Boundary
- Lecture 23 - Quadratic Shape Functions
- Lecture 24 - 2D - FE Problems
- Lecture 25 - 2D - FE Problems (Continued.)
- Lecture 26 - 3D - FE Problems
- Lecture 27 - 3D - Tetrahedral and 2D - Quadrilateral Element
- Lecture 28 - Mesh Preparation
- Lecture 29 - Modeling of Curves

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Modeling of Curves
- Lecture 31 - Modeling of Curves
- Lecture 32 - Modeling of B-Spline Curves
- Lecture 33 - Modeling of B-spline Curves
- Lecture 34 - Surface Modeling
- Lecture 35 - Surface Modeling
- Lecture 36 - Display of Curves and Surfaces
- Lecture 37 - Solid Modeling
- Lecture 38 - Solid Modeling
- Lecture 39 - Solid Modeling Using Octrees
- Lecture 40 - (Lecture Missing)
- Lecture 41 - Computer Aided Design
- Lecture 42 - Computer Aided Manufacturing
- Lecture 43 - What is CAD/CAM
- Lecture 44 - An Overview of Geometric Modeling
- Lecture 45 - Parametric Cubic Curve
- Lecture 46 - Parametric Bezier Curve
- Lecture 47 - B-Spline Curve
- Lecture 48 - Parametric Surfaces - Part-1
- Lecture 49 - Parametric Surfaces - Part-2
- Lecture 50 - Solid Modeling
- Lecture 51 - Geometric & Product Data Exchange
- Lecture 52 - Reverse Engineering

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Project and Production Management

Subject Co-ordinator - Prof. Arun Kanda

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Project and Production Management - An Overview
- Lecture 2 - Project Management
- Lecture 3 - Project Identification and Screening
- Lecture 4 - Project Appraisal - Part I
- Lecture 5 - Project Appraisal - Part II
- Lecture 6 - Project Selection
- Lecture 7 - Project Representation
- Lecture 8 - Consistency and Redundancy in Project Networks
- Lecture 9 - Basic scheduling with A-O-A Networks
- Lecture 10 - Basic Scheduling with A-O-N Networks
- Lecture 11 - Project Scheduling with Probabilistic Activity
- Lecture 12 - Linear Time-Cost Tradeoffs in Projects
- Lecture 13 - Project Crashing with Multiple Objectives
- Lecture 14 - Resource Profiles and Leveling
- Lecture 15 - Limited Resource Allocation
- Lecture 16 - Project Monitoring and Control with PERT/Cost
- Lecture 17 - Team Building and Leadership in Projects
- Lecture 18 - Organizational and Behavioral Issues
- Lecture 19 - Computers in Project Management
- Lecture 20 - Project Completion and Review
- Lecture 21 - Life Cycle of a Production System
- Lecture 22 - Role of Models in Production Management
- Lecture 23 - Financial Evaluation of capital Decisions
- Lecture 24 - Decision Trees and Risk Evaluation
- Lecture 25 - Introducing New Products & Services
- Lecture 26 - Economic Evaluation of New Products & Services
- Lecture 27 - Product Mix Decisions
- Lecture 28 - Product & Process Design
- Lecture 29 - Issues in Location of Facilities

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Mathematical Models for Facility Location
- Lecture 31 - Layout planning
- Lecture 32 - Computerised Layout Planning
- Lecture 33 - Product Layouts and Assembly Line Balancing
- Lecture 34 - Forecasting
- Lecture 35 - The Analysis of Time Series
- Lecture 36 - Aggregate Production Planning
- Lecture 37 - Modelling Approaches
- Lecture 38 - Basic Inventory Principles
- Lecture 39 - Inventory Modelling
- Lecture 40 - Material Requirements Planning
- Lecture 41 - Scheduling of Job Shops

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:RAC Product Design

Subject Co-ordinator - Prof. Sanjeev Jain

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Design

Lecture 2 - Design Considerations

Lecture 3 - Basic Concepts Psychrometry and Air-Conditioning

Lecture 4 - Refrigerants

Lecture 5 - Refrigerant Properties and Applications

Lecture 6 - Refrigeration Cycle and Components

Lecture 7 - Compressor Selection

Lecture 8 - Expansion Devices

Lecture 9 - Condensers and Evaporators

Lecture 10 - Types of Heat Exchangers and Air Conditioning Systems

Lecture 11 - Selection of Air Conditioning Systems for Hostels

Lecture 12 - Case Study on a Railway Air Conditioning System

Lecture 13 - Vibration and noise issues in railway AC systems

Lecture 14 - New product launch process

Lecture 15 - Case study on a telecom cooling system and Emerging technologies



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Thermodynamics

Subject Co-ordinator - Prof. S.R kale

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Thermodynamic Concepts
- Lecture 2 - Thermodynamic Concepts
- Lecture 3 - Thermodynamic Concepts
- Lecture 4 - Thermodynamic Concepts
- Lecture 5 - Thermodynamic Concepts
- Lecture 6 - Thermodynamic Concepts
- Lecture 7 - Thermodynamic Concepts
- Lecture 8 - Thermodynamic Concepts
- Lecture 9 - Thermodynamic Concepts
- Lecture 10 - Thermodynamic Concepts
- Lecture 11 - Laws Of Thermodynamics
- Lecture 12 - Laws Of Thermodynamics
- Lecture 13 - Laws Of Thermodynamics
- Lecture 14 - Laws Of Thermodynamics
- Lecture 15 - Laws Of Thermodynamics
- Lecture 16 - Laws Of Thermodynamics
- Lecture 17 - Laws Of Thermodynamics
- Lecture 18 - Laws Of Thermodynamics
- Lecture 19 - Laws Of Thermodynamics
- Lecture 20 - Properties of a Pure Substance
- Lecture 21 - Properties of a Pure Substance
- Lecture 22 - Properties of a Pure Substance
- Lecture 23 - Properties of a Pure Substance
- Lecture 24 - Properties of a Pure Substance
- Lecture 25 - Properties of a Pure Substance
- Lecture 26 - Properties of a Pure Substance
- Lecture 27 - Properties of a Pure Substance
- Lecture 28 - Properties of a Pure Substance
- Lecture 29 - Properties of a Pure Substance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Properties of a Pure Substance
- Lecture 31 - Laws of Thermodynamics
- Lecture 32 - Applications, Problem Solving
- Lecture 33 - Applications, Problem Solving
- Lecture 34 - Applications, Problem Solving
- Lecture 35 - Applications, Problem Solving
- Lecture 36 - Applications, Problem Solving
- Lecture 37 - Applications, Problem Solving
- Lecture 38 - Applications, Problem Solving
- Lecture 39 - Applications, Problem Solving
- Lecture 40 - Applications, Problem Solving
- Lecture 41 - Applications, Problem Solving
- Lecture 42 - Applications, Problem Solving
- Lecture 43 - Applications, Problem Solving
- Lecture 44 - Applications, Problem Solving
- Lecture 45 - Properties of Ideal Gas Mixtures
- Lecture 46 - Properties of Ideal Gas Mixtures
- Lecture 47 - Gas-Vapour Mixtures
- Lecture 48 - Gas-Vapour Mixtures
- Lecture 49 - Gas-Vapour Mixtures
- Lecture 50 - Thermodynamics of Reacting systems
- Lecture 51 - Thermodynamics of Reacting systems
- Lecture 52 - Thermodynamics of Reacting systems
- Lecture 53 - Phase and Chemical Equilibrium
- Lecture 54 - Phase and Chemical Equilibrium

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Solid Mechanics

Subject Co-ordinator - Prof. Ajeet Kumar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Mathematical Concepts

Lecture 2 - Traction Vector

Lecture 3 - Stress Tensor and its Matrix Representation

Lecture 4 - Transformation of Stress Matrix

Lecture 5 - Stress Equilibrium Equations

Lecture 6 - Balance of Angular Momentum (Continued...)

Lecture 7 - Principal Planes and Principal stress components

Lecture 8 - Maximizing the Shear Component of Traction

Lecture 9 - Mohr's Circle

Lecture 10 - Mohr's Circle (Continued...), Stress Invariants, Decomposition of the Stress Tensor

Lecture 11 - Concept of Strain Tensor

Lecture 12 - Longitudinal and Shear Strains

Lecture 13 - Local Volumetric Strain and Local Infinitesimal Rotation

Lecture 14 - Similarity in Properties of Stress and Strain Tensors

Lecture 15 - Stress-Strain Relation

Lecture 16 - Stress-Strain Relation for Isotropic Materials

Lecture 17 - Linear Momentum Balance in Cylindrical Coordinate System

Lecture 18 - Linear Momentum Balance in Cylindrical Coordinate System (Continued...)

Lecture 19 - Strain Matrix Cylindrical Coordinate System

Lecture 20 - Extension-Torsion-Inflation in a Hollow Cylinder

Lecture 21 - Extension-Torsion-Inflation in a Hollow Cylinder (Continued...)

Lecture 22 - Solving Problems Involving Torsion of Shafts

Lecture 23 - Pure Bending of Rectangular Beams

Lecture 24 - Bending of Beams (Continued...)

Lecture 25 - Bending of Unsymmetrical Beams

Lecture 26 - Concept of Shear Center

Lecture 27 - Theory of Beams

Lecture 28 - Theory of Beams (Continued...) and Beam Buckling

Lecture 29 - Energy Methods

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Energy Methods (Continued...)
- Lecture 31 - Theories of Failure
- Lecture 32 - Theories of Failure (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Uncertainty Analysis and Experimentation

Subject Co-ordinator - Unknown

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Outline, Introduction  
Lecture 2 - Experimentation Processes and Applications Overview  
Lecture 3 - Developments in Uncertainty Analysis, Approach  
Lecture 4 - Errors, Their Causes and Classification  
Lecture 5 - Errors to Uncertainty via Statistics  
Lecture 6 - Sources of Errors, Uncertainty Definitions  
Lecture 7 - Experimentation - I  
Lecture 8 - Experimentation Stages / Phases I  
Lecture 9 - Experimentation Stages / Phases II  
Lecture 10 - Uncertainty Analysis Processes  
Lecture 11 - Instrument ans DAS  
Lecture 12 - Basic procedure - I  
Lecture 13 - Basic procedure - II  
Lecture 14 - Evaluating systematic uncertainties  
Lecture 15 - Worksheets for uncertainty in a measurement, Examples  
Lecture 16 - Examples of uncertainty in a measurement  
Lecture 17 - Methodologies, Multiple tests method  
Lecture 18 - Single test, Basics of taylor Series Method  
Lecture 19 - Sensitivity coefficient, Result uncertainty from TSM  
Lecture 20 - Result uncertainty TSM: Special cases  
Lecture 21 - Method selection, Worksheets for result uncertainty  
Lecture 22 - Examples for result uncertainty - 1  
Lecture 23 - Examples for result uncertainty - 2  
Lecture 24 - Regression Introduction  
Lecture 25 - Regression analysis - Linear, single variable  
Lecture 26 - Correlation, Related topics  
Lecture 27 - Reporting uncertainties  
Lecture 28 - Validation and verification aspects, Data archiving  
Lecture 29 - Course overview

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Engineering Graphics and Design

Subject Co-ordinator - Prof. Naresh Varma Datla and Prof. S.R Kale

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Examples of visualization - 1
- Lecture 3 - Examples of visualization - 2
- Lecture 4 - Visualization and drawing
- Lecture 5 - Sketch to engineering drawing
- Lecture 6 - Types of projections
- Lecture 7 - Multiview projections
- Lecture 8 - 1st and 3rd angle projections
- Lecture 9 - Sketching
- Lecture 10 - Visualization
- Lecture 11 - Drawing sheet
- Lecture 12 - Lines
- Lecture 13 - Dimensioning
- Lecture 14 - Projection of a point line and plane
- Lecture 15 - Projection of simple objects
- Lecture 16 - Example Projection of a solid
- Lecture 17 - Example Projection of an object
- Lecture 18 - Types of Solids
- Lecture 19 - Polygons Construction and Projections
- Lecture 20 - Rotation of Solids
- Lecture 21 - Example Rotation of Solids
- Lecture 22 - Section views
- Lecture 23 - Sectioning practices
- Lecture 24 - Auxiliary views
- Lecture 25 - Example Section View
- Lecture 26 - Example Auxiliary View
- Lecture 27 - Pictorial Drawings
- Lecture 28 - Construction of Isometric Drawings
- Lecture 29 - Example Isometric drawings

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Working Drawing
- Lecture 31 - Example Sectional View of Assembly
- Lecture 32 - Computer Aided Design
- Lecture 33 - Autodesk Inventor Environment
- Lecture 34 - Sketching for Solid Modelling
- Lecture 35 - Example 1 Extrude Hole Fillet Chamfer
- Lecture 36 - Example 2 Rib Mirror
- Lecture 37 - Example 3
- Lecture 38 - Revolve Loft Pattern
- Lecture 39 - Example 4
- Lecture 40 - Example 5
- Lecture 41 - Spline Sweep Shell
- Lecture 42 - Example 6
- Lecture 43 - Example 7
- Lecture 44 - Drawing from Solid Model
- Lecture 45 - Assembly with constraints
- Lecture 46 - Example 8
- Lecture 47 - Example 9
- Lecture 48 - Example 10
- Lecture 49 - Example 11
- Lecture 50 - Civil and architectural drawings

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Ideal Fluid Flows using Complex Analysis

Subject Co-ordinator - Prof. Amit Gupta

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Ideal fluids, Velocity potential, Potential flows
- Lecture 2 - Stream function, Orthogonality of streamlines and equipotential lines
- Lecture 3 - Complex variables, Analyticity, Cauchy - Riemann equations, Complex potential, Complex velocity
- Lecture 4 - Elementary flows : Uniform flow, Source and Sink, Free vortex
- Lecture 5 - Flow in a bend, Flow around a sharp edge
- Lecture 6 - Superposition of source and sink : doublet flow
- Lecture 7 - Superposition of uniform flow and doublet
- Lecture 8 - Superposition of uniform flow, doublet and free vortex
- Lecture 9 - Superposition of source and uniform flow
- Lecture 10 - Problem solving session - 1
- Lecture 11 - Problem solving session - 2
- Lecture 12 - Method of images, Forces on a body, Blasius theorem
- Lecture 13 - Calculation of forces using derived flow field
- Lecture 14 - Introduction to conformal transformation
- Lecture 15 - Singularities and their transformations



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Experimental Modal Analysis

Subject Co-ordinator - Subodh V. Modak

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Mechanical Behavior of Polymers and Composites

Subject Co-ordinator - Dr. Naresh V Datla

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to polymers
- Lecture 2 - Polymer structure
- Lecture 3 - Polymer classification
- Lecture 4 - Polymer length, packing and tacticity
- Lecture 5 - Glass transition temperature
- Lecture 6 - Temperature effects, glassy regime
- Lecture 7 - Viscoelastic, rubbery, viscous, decomposition
- Lecture 8 - Relaxation and creep tests
- Lecture 9 - Failure of polymers
- Lecture 10 - Heaviside, Dirac delta, Laplace
- Lecture 11 - Introduction to linear viscoelasticity
- Lecture 12 - Phenomenological models for linear viscoelasticity
- Lecture 13 - Maxwell model
- Lecture 14 - Kelvin model
- Lecture 15 - Three and four parameter models
- Lecture 16 - Generalized Maxwell and Kelvin models
- Lecture 17 - Boltzman superposition principle
- Lecture 18 - Alfrey's correspondence principle
- Lecture 19 - Analysis of viscoelastic bars
- Lecture 20 - Analysis of viscoelastic beams
- Lecture 21 - Dynamic mechanical analysis (DMA)
- Lecture 22 - Dynamic mechanical thermal analysis (DMTA)
- Lecture 23 - Time temperature superposition principle (TTSP)
- Lecture 24 - Plastic design consideration and practices
- Lecture 25 - What are composites?
- Lecture 26 - Composite materials and types
- Lecture 27 - Composite advantages and applications
- Lecture 28 - Fabrication and other aspects of composites
- Lecture 29 - 3D stress and strain components

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Symmetry in stress, strain and stiffness matrix
- Lecture 31 - Monoclinic, orthotropic and isotropic materials
- Lecture 32 - 3D stress strain relation for orthotropic material
- Lecture 33 - Plane stress: Specially orthotropic material
- Lecture 34 - Plane stress: Generally orthotropic material
- Lecture 35 - Lamina engineering constants
- Lecture 36 - Lamina hygrothermal effects
- Lecture 37 - Lamina fundamental strengths
- Lecture 38 - Lamina failure criteria
- Lecture 39 - Tsai-Hill and Hoffman failure criteria
- Lecture 40 - Micromechanics: Assumptions, RVE
- Lecture 41 - Micromechanics: Stiffness prediction
- Lecture 42 - Micromechanics: Stiffness and strength
- Lecture 43 - Macromechanics of laminate
- Lecture 44 - Classical laminate theory
- Lecture 45 - Classical laminate theory - II
- Lecture 46 - Symmetric laminates, orthotropic laminates
- Lecture 47 - Angle-ply, cross-ply and quasi-isotropic laminates
- Lecture 48 - Hygrothermal stresses in laminates
- Lecture 49 - Laminate failure
- Lecture 50 - Design practices with laminates
- Lecture 51 - Sandwich structures
- Lecture 52 - Composites testing
- Lecture 53 - Joining of composites

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Data-Enabled Tribological Engineering: From Experiments to

Subject Co-ordinator - Prof. (HAG) Harish Hirani

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Tribology
- Lecture 2 - Tribological Interfaces
- Lecture 3 - Fundamentals of Friction and Wear
- Lecture 4 - Adhesion, Abrasion, and Surface Fatigue Mechanisms
- Lecture 5 - Wear Measurement Techniques
- Lecture 6 - Principles of Lubrication, types of Lubricants and their properties
- Lecture 7 - Lubrication regimes and film thickness calculations
- Lecture 8 - Mixed Lubrication
- Lecture 9 - Hydrodynamic Lubrication Theory
- Lecture 10 - Design Considerations for Hydrodynamic Lubrication Systems
- Lecture 11 - Elastohydrodynamic Lubrication
- Lecture 12 - Solid Lubrication
- Lecture 13 - Surface modification techniques for tribological applications
- Lecture 14 - Thin film coatings and their tribological properties
- Lecture 15 - Nanotribology
- Lecture 16 - Tribocorrosion
- Lecture 17 - Wear testing techniques and standards
- Lecture 18 - Measurement and analysis of wear debris
- Lecture 19 - Experimental Design and Statistical Analysis
- Lecture 20 - Introduction to Data-Enabled Engineering
- Lecture 21 - Data Collection and Preprocessing
- Lecture 22 - Feature Extraction and Selection
- Lecture 23 - Introduction to Machine Learning Algorithms
- Lecture 24 - Regression and Classification Algorithms for Tribological Modeling
- Lecture 25 - Deep Learning for Tribological Engineering
- Lecture 26 - Data-Driven Models for Friction Prediction
- Lecture 27 - Data-Driven Models for Wear Prediction
- Lecture 28 - Data-Driven Models for Lubricant Optimization
- Lecture 29 - Data-Driven Models for Tribofilm Formation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Data-Driven Models for Tribocorrosion Prediction
- Lecture 31 - Prediction of Coating and Surface Treatment Performance
- Lecture 32 - Optimization of Surface Engineering Processes using Machine Learning
- Lecture 33 - Uncertainty Quantification and Sensitivity Analysis
- Lecture 34 - Data Management and Ethics in Data-Enabled Engineering
- Lecture 35 - Case Studies in Data-Enabled Tribological Engineering
- Lecture 36 - Future Directions in Data-Enabled Tribological Engineering

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Nonlinear Vibration

Subject Co-ordinator - Prof. S.K. Dwivedy

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of Nonlinear systems
- Lecture 2 - Review of Linear vibrating systems
- Lecture 3 - Phenomena associated with Nonlinear systems
- Lecture 4 - Commonly observed Phenomena in Nonlinear systems
- Lecture 5 - Force and Moment based Approach
- Lecture 6 - Energy based approach Extended Hamilton's principle and Lagrange Principle
- Lecture 7 - Derivation of Equation of motion of nonlinear discrete system (More examples)
- Lecture 8 - Derivation of Equation of motion of nonlinear continuous system - 1
- Lecture 9 - Derivation of Equation of motion of nonlinear continuous system - 2
- Lecture 10 - Ordering of nonlinear Equation of motion
- Lecture 11 - Qualitative Analysis Straight forward expansion
- Lecture 12 - Numerical method Straight forward expansion
- Lecture 13 - Lindstedt Poincare's technique
- Lecture 14 - Method of multiple scales
- Lecture 15 - Method of Harmonic balance
- Lecture 16 - Method of averaging
- Lecture 17 - Generalized Method of averaging
- Lecture 18 - Krylov-Bogoliubov-Mitropolski technique
- Lecture 19 - Incremental harmonic balance method and Intrinsic multiple scale harmonic balance method
- Lecture 20 - Modified Lindstedt Poincare's technique
- Lecture 21 - Stability and Bifurcation of Fixed-point response - 1
- Lecture 22 - Stability and Bifurcation of Fixed-point response - 2
- Lecture 23 - Stability and Bifurcation of Fixed-point response - 3
- Lecture 24 - Stability and Bifurcation of Fixed-point response - 4
- Lecture 25 - Stability Analysis of Periodic response
- Lecture 26 - Bifurcation of Periodic response And Introduction to quasi-periodic and Chaotic response
- Lecture 27 - Quasi-Periodic and Chaotic response
- Lecture 28 - Numerical methods to obtain roots of characteristic equation and time response
- Lecture 29 - Numerical methods to obtain time response

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Numerical methods to obtain frequency response
- Lecture 31 - Free Vibration of Single degree of freedom Nonlinear systems with Cubic and quadratic nonlinearities
- Lecture 32 - Free Vibration of Single degree of freedom Nonlinear systems with Cubic and quadratic nonlinearities
- Lecture 33 - Free Vibration of multi- degree of freedom Nonlinear systems with Cubic and quadratic nonlinearities
- Lecture 34 - Forced nonlinear Vibration Single degree of freedom Nonlinear systems with Cubic nonlinearities
- Lecture 35 - Forced nonlinear Vibration Single and multi- degree of freedom Nonlinear systems
- Lecture 36 - Nonlinear Forced-Vibration of Single and Multi Degree-of-Freedom System
- Lecture 37 - Analysis of Multi- degree of freedom system
- Lecture 38 - Nonlinear Vibration of Parametrically excited system
- Lecture 39 - Nonlinear Vibration of Parametrically excited system
- Lecture 40 - Nonlinear Vibration of Parametrically excited system with internal resonance



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Theory and Practice of Rotor Dynamics

Subject Co-ordinator - Prof. Rajiv Tiwari

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - A Brief History of Rotor Dynamics
- Lecture 3 - The State of the Art of Rotor Dynamics
- Lecture 4 - Simple Rotor Models with Rigid Bearings
- Lecture 5 - Jeffcott Rotor Model
- Lecture 6 - Variant of Jeffcott Rotor Model
- Lecture 7 - Rigid Rotor Mounted on Simple Anisotropic Springs as Bearings
- Lecture 8 - Rigid Rotor Mounted on Complex Anisotropic Bearings
- Lecture 9 - Flexible Shaft with a Rigid Disc Mounted on Anisotropic Supports
- Lecture 10 - Gyroscopic Effects
- Lecture 11 - Gyroscopic Effects
- Lecture 12 - Gyroscopic Effects
- Lecture 13 - Gyroscopic Effects
- Lecture 14 - Torsional Vibrations
- Lecture 15 - Three Disc Rotor System
- Lecture 16 - Transfer Matrix Approach - Part I
- Lecture 17 - Transfer Matrix Approach - Part II
- Lecture 18 - Transfer Matrix Approach - Part III
- Lecture 19 - Geared and Branched Systems
- Lecture 20 - Continuous System and Finite Element Method
- Lecture 21 - Finite Element Method
- Lecture 22 - Finite Element Analysis
- Lecture 23 - Finite Element Analysis - Part III
- Lecture 24 - Influence Coefficient Method
- Lecture 25 - Transfer Matrix Method - Part I
- Lecture 26 - Transfer Matrix Method - Part II
- Lecture 27 - Transfer Matrix Method - Part III
- Lecture 28 - Continuous System Approach
- Lecture 29 - Finite Element Method - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Finite Element Method - Part II
- Lecture 31 - Finite Element Method - Part III
- Lecture 32 - Instability in Rotor Systems
- Lecture 33 - Fluid-Film Bearings
- Lecture 34 - Internal Damping & Asymmetrical Shaft
- Lecture 35 - Steam Whirl and Seals
- Lecture 36 - Subcritical Speed Whirl
- Lecture 37 - Introduction to Rigid Rotor Balancing
- Lecture 38 - Dynamic Balancing of Rotors
- Lecture 39 - Dynamic Balancing of Rotors
- Lecture 40 - Dynamic Balancing of Rotors
- Lecture 41 - Common Faults & Vibration signatures
- Lecture 42 - Condition Based Monitoring

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Engineering Mechanics

Subject Co-ordinator - Prof. U.S. Dixit, Dr. G. Saravana Kumar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals Of Engineering Mechanics
- Lecture 2 - Equations of Equilibrium
- Lecture 3 - Truss Analysis - Part 1
- Lecture 4 - Truss Analysis - Part 2
- Lecture 5 - Analysis of Frames Machines
- Lecture 6 - Internal Forces
- Lecture 7 - Internal Forces in Beams
- Lecture 8 - Cables
- Lecture 9 - Friction
- Lecture 10 - Application of Friction - Part 1
- Lecture 11 - Application of Friction - Part 2
- Lecture 12 - Application of Friction - Part 3
- Lecture 13 - Centroids Center of Mass
- Lecture 14 - Centroids Area of Moments
- Lecture 15 - Product of Inertia, Rotation of Axis and Principle Moments of Inertia
- Lecture 16 - Principle Mass Moments of Inertia
- Lecture 17 - Second Moment of Mass
- Lecture 18 - Virtual Work of Ideal System
- Lecture 19 - Principle of Virtual Work
- Lecture 20 - Systems with Friction
- Lecture 21 - Potential Energy
- Lecture 22 - Stability of Equilibrium
- Lecture 23 - Kinematics of a Particles
- Lecture 24 - Kinematics of a Particle Moving on a Curve
- Lecture 25 - Relative Motion
- Lecture 26 - Plane Kinematics of Rigid Bodies
- Lecture 27 - Kinematics of a Particle
- Lecture 28 - Work and Energy
- Lecture 29 - Impulse and Momentum

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Direct and Oblique Impulse
- Lecture 31 - Plane Kinetics of Rigid Bodies
- Lecture 32 - Kinetics of a Body
- Lecture 33 - Method of Momentum and Analysis of Robot Manipulator
- Lecture 34 - Kinematics in 3D
- Lecture 35 - Kinetics in 3D
- Lecture 36 - Free Vibration
- Lecture 37 - Forced Vibration Damped Undamped
- Lecture 38 - Vibration of Rigid Bodies - Part 1
- Lecture 39 - Vibration of Rigid Bodies - Part 2
- Lecture 40 - Some Problems of Vibration

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Mechanical Vibrations

Subject Co-ordinator - Prof. S.K. Dwivedy, Prof. Rajiv Tiwari

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of the Course, Practical and Research Trends
- Lecture 2 - Harmonic and Periodic Motions, Vibration Terminology
- Lecture 3 - Vibration Model, Equation of Motion-Natural Frequency
- Lecture 4 - Energy Method, Principle of Virtual Work
- Lecture 5 - Viscously Damped Free Vibration Special Cases
- Lecture 6 - Logarithmic Decrement Experimental Determination of Damping Coefficient Hysteresis Loop
- Lecture 7 - Coulomb Damping other Damping Models
- Lecture 8 - Forced Harmonic Vibration, Magnification Factor
- Lecture 9 - Laplace Transform, Superposition Theorem
- Lecture 10 - Rotor Unbalance and Whirling of Shaft, Transmissibility
- Lecture 11 - Support Motion, Vibration Isolation
- Lecture 12 - Sharpness of Resonance, Vibration Measuring Instruments
- Lecture 13 - Generalized and Principle Coordinates, Derivation of Equation of Motion
- Lecture 14 - Lagranges's Equation
- Lecture 15 - Coordinate Coupling
- Lecture 16 - Forced Harmonic Vibration
- Lecture 17 - Tuned Absorber, Determination of Mass Ratio
- Lecture 18 - Tuned and Damped Absorber, Untuned Viscous Damper
- Lecture 19 - Derivation of Equations of Motion, Influence Coefficient Method
- Lecture 20 - Properties of Vibrating Systems
- Lecture 21 - Modal Analysis
- Lecture 22 - Modal Analysis
- Lecture 23 - Simple Systems With One Two or Three Discs Geared System
- Lecture 24 - Multi-Degree of Freedom Systems-Transfer Matrix Method Branched Systems
- Lecture 25 - Derivation of Equations of Motion Part 1 - Newton
- Lecture 26 - Derivation of Equations of Motion Part 2 - Newton
- Lecture 27 - Vibration of Strings
- Lecture 28 - Longitudinal and Torsional Vibration of Rods
- Lecture 29 - Transverse Vibration of Beams, Equations of Motion and Boundary Conditions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transverse Vibration of Beams
- Lecture 31 - Rayleigh's Energy Method
- Lecture 32 - Matrix Iteration Method
- Lecture 33 - Durkerley, Rayleigh-Ritz and Galerkin Method
- Lecture 34 - Finite Element Formulation for Rods, Gear Train and Branched System
- Lecture 35 - Finite Element Formulation for Beams
- Lecture 36 - Global Finite Element Assembly and Imposition of Boundary Conditions
- Lecture 37 - Vibration Testing Equipments
- Lecture 38 - Vibration Testing Equipments
- Lecture 39 - Field Balancing of Rotors
- Lecture 40 - Condition Monitoring

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Advanced Machining Processes

Subject Co-ordinator - Prof. Manas Das

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to advanced machining processes

Lecture 2 - Ultrasonic machining - Part I

Lecture 3 - Ultrasonic machining - Part II

Lecture 4 - Abrasive jet machining

Lecture 5 - Water jet cutting and Abrasive water jet machining

Lecture 6 - Magnetic abrasive finishing

Lecture 7 - Abrasive Flow Finishing

Lecture 8 - Magnetorheological Finishing

Lecture 9 - Magnetorheological Abrasive Flow Finishing - Part I

Lecture 10 - Magnetorheological Abrasive Flow Finishing - Part II

Lecture 11 - Magnetorheological Abrasive Flow Finishing - Part III

Lecture 12 - Electric discharge machining (EDM)

Lecture 13 - Electric Discharge Grinding, Electric Discharge Diamond Grinding and Wire Electric Discharge Machining

Lecture 14 - Electrochemical Machining (ECM)

Lecture 15 - Electrochemical Grinding, Electrostream Drilling, Shaped Tube Electrolytic Machining

Lecture 16 - Plasma Arc Machining (PAM)

Lecture 17 - Electron Beam Machining (EBM) Edit Lesson

Lecture 18 - Laser Beam Machining (LBM)

Lecture 19 - Chemical Machining (ChM)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Nuclear Power Generation

Subject Co-ordinator - Prof. Dipankar N. Basu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of nuclear energy
- Lecture 2 - Binding energy and mass defect
- Lecture 3 - Radioactivity and radioactive decay
- Lecture 4 - Different types of nuclear transmutation
- Lecture 5 - Artificial radioactivity and neutron-nucleus interactions
- Lecture 6 - Energy and momentum conservation
- Lecture 7 - Fission and role of neutron energy
- Lecture 8 - Theory of elastic scattering
- Lecture 9 - Neutron multiplication factor
- Lecture 10 - Neutron diffusion theory
- Lecture 11 - Solution of one-group diffusion equation
- Lecture 12 - Simple reactor theory
- Lecture 13 - Nuclear fuel and simple energy consideration
- Lecture 14 - Axial temperature distribution and heat transfer coefficient
- Lecture 15 - Prompt and delayed neutrons
- Lecture 16 - Delayed neutron kinetics
- Lecture 17 - Different control mechanisms and various effects
- Lecture 18 - Classical reactor designs
- Lecture 19 - Evolution of reactors from Gen-I to Gen-IV
- Lecture 20 - The concept of breeding
- Lecture 21 - Fuel cycles and FBR
- Lecture 22 - Gen-IV FBR designs
- Lecture 23 - Hydrogen fusion reactions
- Lecture 24 - Coulomb barrier and other critical factors
- Lecture 25 - Radiation dose and gross biological effects
- Lecture 26 - Stochastic and deterministic effects of human cells
- Lecture 27 - Lessons from TMI and Chernobyl
- Lecture 28 - Defence-in-depth Philosophy
- Lecture 29 - Waste classification and Disposal of Mill Tailings

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Disposal methodologies for HLW and IMW

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Advances in Welding and Joining Technologies

Subject Co-ordinator - Prof. Swarup bag

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of Welding and Joining - Part I
- Lecture 2 - Fundamentals of Welding and Joining - Part II
- Lecture 3 - Fundamentals of Welding and Joining - Part III
- Lecture 4 - Fundamentals of Welding and Joining - Part IV
- Lecture 5 - Fundamentals of Welding and Joining - Part V
- Lecture 6 - Laser and Electron Beam Welding - Part I
- Lecture 7 - Laser and Electron Beam Welding - Part II
- Lecture 8 - Solid State Welding Processes - Part I
- Lecture 9 - Solid State Welding Processes - Part II
- Lecture 10 - Solid State Welding Processes - Part III
- Lecture 11 - Computational Welding Mechanics - Part I
- Lecture 12 - Computational Welding Mechanics - Part II
- Lecture 13 - Computational Welding Mechanics - Part III
- Lecture 14 - Micro and Nano Joining Processes - Part I
- Lecture 15 - Micro and Nano Joining Processes - Part II
- Lecture 16 - Micro and Nano Joining Processes - Part III
- Lecture 17 - Welding Metallurgy - Part I
- Lecture 18 - Welding Metallurgy - Part II
- Lecture 19 - Welding Metallurgy - Part III
- Lecture 20 - Welding Metallurgy - Part IV
- Lecture 21 - Welding and Joining of Non-Metals - Part I
- Lecture 22 - Welding and Joining of Non-Metals - Part II
- Lecture 23 - Metal Transfer in Welding and Metal Printing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Machining and Machining Fluids

Subject Co-ordinator - Prof. Mamilla Ravi Sankar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction and Importance of Machining
- Lecture 3 - Principles of Machining or Metal Cutting
- Lecture 4 - Cutting Tools
- Lecture 5 - Forces in Machining
- Lecture 6 - Tribology in Machining
- Lecture 7 - Lubrication surface roughness in Machining
- Lecture 8 - Machinability and Thermal Aspects
- Lecture 9 - Tool Wear and Tool life - Part 1
- Lecture 10 - Tool Wear and Tool life - Part 2
- Lecture 11 - Tool Wear and Tool life - Part 3
- Lecture 12 - Tool Materials and Coatings
- Lecture 13 - Machining Fluids / Cutting Fluids and its Additives - Part 1
- Lecture 14 - Machining Fluids / Cutting Fluids and its Additives - Part 2
- Lecture 15 - Machining Fluids / Cutting Fluids and its Emissions
- Lecture 16 - Eco Friendly Cutting Fluids - Part 1
- Lecture 17 - Eco Friendly Cutting Fluids - Part 2
- Lecture 18 - Rheology and Thermal Characterization of Machining / Cutting Fluids
- Lecture 19 - Bio-degradation Studies of Machining / Cutting Fluids
- Lecture 20 - Cutting Fluid Application in Machining Region
- Lecture 21 - Practical Machining Processes - 1
- Lecture 22 - Practical Machining Processes - 2
- Lecture 23 - Introduction to Abrasive Processes - Grinding
- Lecture 24 - Cutting fluids in Grinding Process
- Lecture 25 - Unbonded Conventional Abrasive Processes
- Lecture 26 - Advances in Metal Cutting\_Machining Processes
- Lecture 27 - Advances in Metal Cutting\_Machining Processes - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Mechanics of Machining

Subject Co-ordinator - Dr. Uday S. Dixit

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Deformation of Metals

Lecture 2 - Mechanism of Plastic Deformation

Lecture 3 - Machining Processes

Lecture 4 - Tool Geometry

Lecture 5 - Tool Specifications, Conversion Of Tool Angles, Multi-Point Cutting Tools

Lecture 6 - Mechanics of Orthogonal Cutting, Force Relationships

Lecture 7 - Determination of Stress, Strain, and Strain Rate

Lecture 8 - Measurement of Shear Angle

Lecture 9 - Other Analysis for Force Relationships

Lecture 10 - Mechanics of Oblique Cutting

Lecture 11 - Measurement of Cutting Forces

Lecture 12 - Thermal Aspects Of Machining

Lecture 13 - Tool Wear and Tool Life and Tool Life Equations

Lecture 14 - Economics in Machining

Lecture 15 - Practical Machining Operations

Lecture 16 - Practical Machining Operations

Lecture 17 - Grinding of Metals and Mechanics of Grinding Process

Lecture 18 - Abrasive Machining and Finishing Operations

Lecture 19 - CNC Machines and CNC Programming

Lecture 20 - Introduction to Advanced Machining Processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Principle of Hydraulic Machines and System Design

Subject Co-ordinator - Prof. Pranab K. Mondal

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to hydraulic machines: classifications and operational principles
- Lecture 2 - Euler equation for turbomachines: net head developed by the pump/turbines
- Lecture 3 - Velocity triangles of pumps, effect of inlet swirl on pump operation
- Lecture 4 - Velocity triangles of pumps, effect of inlet swirl on pump operation
- Lecture 5 - Pump casings, Efficiencies and Problems - I
- Lecture 6 - Pump casings, Efficiencies and Problems - II
- Lecture 7 - Pump casings, Efficiencies and Problems - III
- Lecture 8 - Axial flow pump, HQ curve, System Resistance Curve - I
- Lecture 9 - Axial flow pump, HQ curve, System Resistance Curve - II
- Lecture 10 - HQ Curve, System Resistance Curve - I
- Lecture 11 - HQ Curve, System Resistance Curve - II
- Lecture 12 - Introduction to Cavitation
- Lecture 13 - Condition for Cavitation and NPSH
- Lecture 14 - Net Positive Suction Head (NPSH)
- Lecture 15 - Suction number and Introduction to off design condition
- Lecture 16 - Cavitation: The effect of off-design Conditions
- Lecture 17 - Cavitation: Preventive Measures
- Lecture 18 - Cavitation: Preventive Measures, Effect on Pump Characteristic
- Lecture 19 - Problems on Cavitation
- Lecture 20 - Introduction to Slip : Stodola Slip Model
- Lecture 21 - Departure from Euler theory
- Lecture 22 - Slip Velocity - I
- Lecture 23 - Slip Velocity - II
- Lecture 24 - Problem on slip
- Lecture 25 - Degree of reaction of pump
- Lecture 26 - Degree of reaction and axial pump design
- Lecture 27 - Testing of radial flow pump - I
- Lecture 28 - Testing of radial flow pump - II
- Lecture 29 - Problem on radial flow pump testing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Radial equilibrium of axial flow pump - I
- Lecture 31 - Radial equilibrium of axial flow pump - II
- Lecture 32 - Pump operation: series and parallel connection
- Lecture 33 - Series and parallel operation of dissimilar pumps
- Lecture 34 - Pumping system design
- Lecture 35 - Design of parallel pumping system
- Lecture 36 - Numerical problem on pumps - I
- Lecture 37 - Numerical problem on pumps - II
- Lecture 38 - Numerical problem on pumps - III
- Lecture 39 - Working principle and Indicator diagram of PD pump
- Lecture 40 - Working principle and Indicator diagram of PD pump (Continued...)
- Lecture 41 - Modified indicator diagram and Head-Discharge curve
- Lecture 42 - Analysis and Head-Discharge curve of PD pump
- Lecture 43 - Analysis and efficiencies of PD pump
- Lecture 44 - Requirement of air chamber in PD pump
- Lecture 45 - Numerical problem on PD pump with air chamber
- Lecture 46 - Similarity and dimensional analysis of hydraulic machines
- Lecture 47 - Dimensional analysis of hydraulic machines: Buckingham's theorem
- Lecture 48 - Buckingham's theorem: Specific speed of hydraulic machines
- Lecture 49 - Turbine Classification and Operational principle of Pelton wheel
- Lecture 50 - Velocity Triangles and analysis
- Lecture 51 - Operational Principle of Reaction turbine
- Lecture 52 - Degree of Reaction and Introduction to axial flow turbine
- Lecture 53 - Kaplan Turbine: Operational Principle, Turbine efficiencies
- Lecture 54 - Draft Tube for Reaction Turbine and Cavitation
- Lecture 55 - Energy Balance and NPSH
- Lecture 56 - Thoma Cavitation Factor
- Lecture 57 - Reaction Turbine: Design aspects and Characteristic Curves
- Lecture 58 - Problems on Impulse and Reaction Turbines

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Abrasive Machining and Finishing Processes

Subject Co-ordinator - Prof. Mamilla Ravi Sankar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Abrasive Machining and Finishing Processes
- Lecture 2 - Grinding Process
- Lecture 3 - Grinding Fluids and Its Additives
- Lecture 4 - Grinding Fluids and its Emissions
- Lecture 5 - Sustainable Grinding Process
- Lecture 6 - Sustainable Grinding Process
- Lecture 7 - Honing Process
- Lecture 8 - Lapping Process
- Lecture 9 - Super Finishing and Sand Blasting
- Lecture 10 - Vibratory Bowl Finishing, Rotary Barrel Finishing or Tumbling
- Lecture 11 - Drag Finishing, Ice-bonded Abrasive Finishing, Pitch Polishing, Pad Polishing
- Lecture 12 - Introduction to Surface Texture in abrasive Process
- Lecture 13 - Representation of Surface Roughness
- Lecture 14 - Abrasive Jet Machining (AJM)
- Lecture 15 - Abrasive Water Jet Machining (AWJM)
- Lecture 16 - Ultrasonic Machining (USM)
- Lecture 17 - EDM, Wire-EDM, EDG, EDDG, AW-EDG
- Lecture 18 - Elastic Emission Machining
- Lecture 19 - PMEDM and ECD and ELID, ECH
- Lecture 20 - Abrasive Flow Finishing
- Lecture 21 - Abrasive Flow Finishing
- Lecture 22 - Magnetic Field Assisted Abrasive Finishing
- Lecture 23 - Magneto Rheological Finishing and BE-MRF
- Lecture 24 - Magnetic Field Assisted Abrasive Finishing
- Lecture 25 - Summary of the Course

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Theory of Rectangular Plates - Part 1

Subject Co-ordinator - Prof. Poonam Kumari

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic of Solid Mechanics

Lecture 2 - Energy Principles

Lecture 3 - Classification of Plate Theories and Some Basics

Lecture 4 - Tutorial

Lecture 5 - Governing Equation for Plate - 1

Lecture 6 - Governing Equation for Plate - 2

Lecture 7 - Tutorial

Lecture 8 - Navier Solution + Levy solution

Lecture 9 - Levy Solution

Lecture 10 - Tutorial

Lecture 11 - EKM and buckling of plates

Lecture 12 - 3D Solutions

Lecture 13 - Matlab Coding + ABAQUS

Lecture 14 - Tutorial



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Principles of Mechanical Measurement

Subject Co-ordinator - Prof. Dipankar N. Basu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to measurement
- Lecture 2 - Generalized measurement system and static characteristics
- Lecture 3 - Uncertainties in measurement
- Lecture 4 - Statistical treatment of random errors
- Lecture 5 - System response to periodic inputs
- Lecture 6 - Zeroth and first order systems
- Lecture 7 - First and second order systems
- Lecture 8 - Basics of digitization and number systems
- Lecture 9 - Binary logic gates and binary codes
- Lecture 10 - Analog-to-digital conversion
- Lecture 11 - Digital-to-analog conversion
- Lecture 12 - Electromagnetic indicators
- Lecture 13 - Electronic amplifiers and filters
- Lecture 14 - Resistive devices
- Lecture 15 - Inductive, capacitive and optical devices
- Lecture 16 - Piezoelectric and nozzle-flapper transducers
- Lecture 17 - Resistive strain gages and associated circuitry
- Lecture 18 - Strain gage rosettes and gage orientation
- Lecture 19 - Elastic and strain gage load cells
- Lecture 20 - Various load cells and dynamometers
- Lecture 21 - Principles of manometry
- Lecture 22 - Piezometer and elastic pressure transducer
- Lecture 23 - Electric pressure transducer and high and low pressure measurement
- Lecture 24 - Bernoulli's equation in obstruction meters
- Lecture 25 - Obstruction meters and volume flowmeters
- Lecture 26 - Mass flowmeters and velocity probes
- Lecture 27 - Expansion-based devices
- Lecture 28 - RTD, Thermistor and Thermocouple
- Lecture 29 - Introduction to pyrometers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Basic seismic transducer
- Lecture 31 - Vibro-, velo- and accelerometer
- Lecture 32 - Introduction to acoustic measurement
- Lecture 33 - Radioactivity and its biological effects

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:IC Engines and Gas Turbines

Subject Co-ordinator - Dr. Vinayak Kulkarni, Prof. Pranab K. Mondal

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - External and Internal combustion engines, Engine components, SI and CI engines
- Lecture 2 - Four-stroke and Two-stroke engines, Comparison between SI and CI engines, and Four-stroke and Two
- Lecture 3 - Classification of IC engines
- Lecture 4 - Engine operating characteristics
- Lecture 5 - Otto, Diesel and Dual cycles
- Lecture 6 - Otto, Diesel and Dual cycles (Continued...)
- Lecture 7 - Otto, Diesel and Dual cycles (Continued...)
- Lecture 8 - Otto, Diesel and Dual cycles (Continued...)
- Lecture 9 - Comparison between the cycles, Actual cycles and their analysis
- Lecture 10 - Carburetor, Mixture requirements
- Lecture 11 - Carburetor, Mixture requirements (Continued...)
- Lecture 12 - Idling, cruising and power ranges
- Lecture 13 - Idling, cruising and power ranges (Continued...)
- Lecture 14 - Classification, types of nozzles, Ignition system, Battery and Magneto ignition systems
- Lecture 15 - Classification, types of nozzles, Ignition system, Battery and Magneto ignition systems (Continu
- Lecture 16 - Classification, types of nozzles, Ignition system, Battery and Magneto ignition systems (Continu
- Lecture 17 - Engine friction, Lubrication systems, forces on piston
- Lecture 18 - Lubricating oils, Thermochemistry and Fuels, Self-ignition
- Lecture 19 - Octane and Cetane Numbers, Alternative Fuels - Methanol, Ethanol, hydrogen, Natural Gas
- Lecture 20 - Octane and Cetane Numbers, Alternative Fuels - Methanol, Ethanol, hydrogen, Natural Gas (Continu
- Lecture 21 - Combustion in SI and CI Engines, Pressure Crank Angle Diagram
- Lecture 22 - Combustion in SI and CI Engines, Pressure Crank Angle Diagram (Continued...)
- Lecture 23 - Combustion in SI and CI Engines, Pressure Crank Angle Diagram (Continued...)
- Lecture 24 - SI engine injection system, Energy distribution, Engine temperatures, Heat transfer in combustio
- Lecture 25 - SI engine injection system, Energy distribution, Engine temperatures, Heat transfer in combustio
- Lecture 26 - CI engine injection systems, Air-cooled and liquid-cooled engines, Modern trends
- Lecture 27 - CI engine injection systems, Air-cooled and liquid-cooled engines, Modern trends (Continued...)
- Lecture 28 - CI engine injection systems, Air-cooled and liquid-cooled engines, Modern trends (Continued...)
- Lecture 29 - Problems on IC engine

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Turbomachines, Gas Turbine theory
- Lecture 31 - Open Cycle Gas Turbine Power Plant, Twin Shaft Arrangement
- Lecture 32 - Closed Cycle, Multi-Spool Arrangement, Steam Power Plant
- Lecture 33 - Basic Thermodynamics
- Lecture 34 - Brayton Cycle
- Lecture 35 - Brayton Cycle
- Lecture 36 - Brayton Cycle with Heat Exchanger/Reheater
- Lecture 37 - Brayton Cycle with Intercooler
- Lecture 38 - Real Brayton Cycle, Solved Example for Ideal Cycle
- Lecture 39 - Solved Examples for Real Brayton Cycle
- Lecture 40 - Introduction and Performance Parameters of Propulsion System
- Lecture 41 - Basics of Various Aircraft Engine
- Lecture 42 - Euler Turbomachinery Equation
- Lecture 43 - Introduction and Flow Analysis of Centrifugal Compressors
- Lecture 44 - Thermodynamics Analysis of Centrifugal Compressors
- Lecture 45 - Axial Compressor
- Lecture 46 - Axial Compressor
- Lecture 47 - Complete Analysis of Axial Flow Gas Turbine
- Lecture 48 - Solved Examples for Axial Compressors, Centrifugal Compressors and Turbine
- Lecture 49 - Radial Flow Turbine, Solved Example of Free vortex Condition
- Lecture 50 - Nozzles and Diffusers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamental of Welding Science and Technology

Subject Co-ordinator - Prof. Pankaj Biswas

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction of welding
- Lecture 2 - Classification of welding and joints
- Lecture 3 - Parts of weld joint
- Lecture 4 - Welding Symbol
- Lecture 5 - welding power source - 1
- Lecture 6 - Welding power source - 2
- Lecture 7 - Welding Power sources characteristics - 1
- Lecture 8 - Welding Power sources characteristics - 2
- Lecture 9 - Physics of welding - 1
- Lecture 10 - Physics of welding - 2
- Lecture 11 - Physics of welding - 4 (Arc Stability and Arc Blow)
- Lecture 12 - Physics of welding - 3
- Lecture 13 - Physics of welding - 5 (Metal Transfer-1)
- Lecture 14 - Physics of welding - 6 (Metal Transfer-2)
- Lecture 15 - Physics of welding - 7 (Metal Transfer-3)
- Lecture 16 - Physics of welding - 8 (Metal Transfer-4)
- Lecture 17 - Physics of welding - 9 (Metal Transfer-5)
- Lecture 18 - Physics of welding - 10 (Metalting Efficiency)
- Lecture 19 - Oxy-Fuel Gas Welding
- Lecture 20 - Shielded Metal Arc Welding
- Lecture 21 - Gas Tungsten Arc Welding
- Lecture 22 - Gas Metal Arc Welding
- Lecture 23 - Submerged Arc Welding
- Lecture 24 - Welding Defects and Inspection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Polymer Assisted Abrasive Finishing Processes

Subject Co-ordinator - Prof. Mamilla Ravi Sankar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Polymer Assisted Abrasive Finishing Processes
- Lecture 2 - Surface Integrity and Surface roughness representation - Part I
- Lecture 3 - Surface Integrity and Surface roughness representation - Part II
- Lecture 4 - Introduction to Grinding and Polymer assisted Grinding Wheels
- Lecture 5 - Polymer medium for vibratory bowl finishing, Tumbling, Drag finishing
- Lecture 6 - Polymer Pad and Chemo-mechanical Polishing
- Lecture 7 - Elastic Emission Machining
- Lecture 8 - Hydrodynamic Polishing, Elasto Abrasive Finishing
- Lecture 9 - Abrasive Flow Machining and Finishing - Part I
- Lecture 10 - Abrasive Flow Machining and Finishing - Part II
- Lecture 11 - Advances in Abrasive Flow Finishing
- Lecture 12 - Advances in Abrasive Flow Finishing
- Lecture 13 - AFF Processes
- Lecture 14 - Finishing of Biomedical implants (Micro AFF)
- Lecture 15 - Summary of the Course

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Mathematical Modeling of Manufacturing Processes

Subject Co-ordinator - Prof. Swarup bag

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Materials and manufacturing Processes - 1
- Lecture 2 - Materials and manufacturing Processes - 2
- Lecture 3 - Physics based modeling approach at different scale
- Lecture 4 - Evaluation of properties and process modelling
- Lecture 5 - Thermofluid and electromagnetic analysis
- Lecture 6 - Solid-state deformation and residual stress - 1
- Lecture 7 - Solid-state deformation and residual stress - 2
- Lecture 8 - Melting, solidification and additive manufacturing
- Lecture 9 - Force and velocity diagram - 1
- Lecture 10 - Force and velocity diagram - 2
- Lecture 11 - Heat transfer analysis
- Lecture 12 - Principal and mechanism at different processes - 1
- Lecture 13 - Principal and mechanism at different processes - 2
- Lecture 14 - Mechanics of bulk metal forming
- Lecture 15 - Mechanics of sheet metal forming - 1
- Lecture 16 - Mechanics of sheet metal forming - 2
- Lecture 17 - Heat transfer and thermomechanical processing
- Lecture 18 - Fusion welding processes - 1
- Lecture 19 - Fusion welding processes - 2
- Lecture 20 - Physics of welding and metal transfer
- Lecture 21 - Heat source model in fusion welding
- Lecture 22 - Heat transfer and material flow
- Lecture 23 - Solidification in welding - 1
- Lecture 24 - Solidification in welding - 2
- Lecture 25 - Solid state welding - 1
- Lecture 26 - Solid state welding - 2
- Lecture 27 - Hybrid welding, residual stress and distortion
- Lecture 28 - Cooling and solidification at different casting processes
- Lecture 29 - Powder metallurgy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Principle of surface and coating technologies
- Lecture 31 - Principle and development of additive manufacturing technologies - 1
- Lecture 32 - Principle and development of additive manufacturing technologies - 2
- Lecture 33 - Fundamentals of heat treatment
- Lecture 34 - Evaluation of microstructural properties and residual stress
- Lecture 35 - Down-scaling of conventional manufacturing processes and Micro-to-nano manufacturing
- Lecture 36 - Packaging, micro-finishing and micro-manufacturing processes
- Lecture 37 - Processing and shaping of non-metals and bio-materials
- Lecture 38 - Principle of glass and ceramics processing and their shaping



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Two-Phase flow with phase change in Conventional and Miniaturized Channels

Subject Co-ordinator - Prof. Manmohan Pandey

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Notation

Lecture 2 - Flow Regimes and Flow Regime Maps

Lecture 3 - The Homogeneous Model

Lecture 4 - The Separated Flow Model

Lecture 5 - The Separated Flow Model (Continued...)

Lecture 6 - The Drift Flux Model

Lecture 7 - Estimation of pressure drop in two phase flow

Lecture 8 - Two phase flow and pressure drop in miniature channels

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Applied Thermodynamics for Engineers

Subject Co-ordinator - Prof. Dipankar N. Basu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of thermodynamic system and state
- Lecture 2 - First and second laws of thermodynamics
- Lecture 3 - Concept of entropy and entropy generation
- Lecture 4 - Concept of exergy and exergy destruction
- Lecture 5 - Thermodynamic potentials and Maxwell relations
- Lecture 6 - Generalized relations for entropy and specific heats
- Lecture 7 - Joule-Thomson coefficient and Clapeyron equation
- Lecture 8 - Liquid-vapor phase-change process
- Lecture 9 - Use of property tables
- Lecture 10 - Equations-of-state and Compressibility factor
- Lecture 11 - Ideal cycles for reciprocating engines
- Lecture 12 - Otto, Diesel and Dual combustion cycles
- Lecture 13 - Stirling and Ericsson cycles
- Lecture 14 - Fuel-air cycle
- Lecture 15 - Numerical exercise on Fuel-air cycles
- Lecture 16 - Losses in actual cycle and valve-timing diagram
- Lecture 17 - Ideal Brayton cycle
- Lecture 18 - Intercooling and reheating in Brayton cycle
- Lecture 19 - Regeneration in Brayton cycle
- Lecture 20 - Ideal Rankine cycle
- Lecture 21 - Improvements and modifications in Rankine cycle
- Lecture 22 - Regenerative Rankine cycle
- Lecture 23 - Binary vapor power cycle
- Lecture 24 - Combined gas-steam power plant
- Lecture 25 - Different arrangements in combined cycles
- Lecture 26 - Vapor compression refrigeration cycle
- Lecture 27 - SSS cycles and refrigerants
- Lecture 28 - Modifications in VCR systems
- Lecture 29 - Vapor absorption refrigeration cycle

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - P-v-T behavior of gas mixtures
- Lecture 31 - Numerical examples
- Lecture 32 - Properties of moist air
- Lecture 33 - Psychrometric chart and various psychrometric processes
- Lecture 34 - Sensible heat factor and bypass factor
- Lecture 35 - Theoretical and actual combustion process
- Lecture 36 - Thermodynamic analyses of reacting systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Conduction and Radiation

Subject Co-ordinator - Prof. Dipankar N. Basu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Relationship of Thermodynamics with Heat transfer
- Lecture 2 - Modes of heat transfer
- Lecture 3 - Fourier's law and thermal conductivity
- Lecture 4 - Generalized heat diffusion equation
- Lecture 5 - Heat diffusion equation in curvilinear coordinates
- Lecture 6 - Concept of thermal resistance
- Lecture 7 - Use of network of resistances in wall and cylinder
- Lecture 8 - Critical thickness of insulation
- Lecture 9 - Conduction with energy generation - I
- Lecture 10 - Conduction with energy generation - II
- Lecture 11 - General Heat Transfer Analysis
- Lecture 12 - Fins with uniform cross-section area - I
- Lecture 13 - Fins with uniform cross-section area - II
- Lecture 14 - Fins with non-uniform cross-section area
- Lecture 15 - Method of Separation of Variables
- Lecture 16 - Graphical approach
- Lecture 17 - Method of Superposition
- Lecture 18 - Lumped capacitance approach - I
- Lecture 19 - Lumped capacitance approach - II
- Lecture 20 - Semi-infinite Solid
- Lecture 21 - Steady Heat Conduction
- Lecture 22 - Unsteady Heat Conduction
- Lecture 23 - Problem solving using Energy Balance Method
- Lecture 24 - Introduction to radiative heat fluxes
- Lecture 25 - Spectral and directional definitions
- Lecture 26 - Blackbody radiation
- Lecture 27 - Emissivity
- Lecture 28 - Irradiation of real surfaces
- Lecture 29 - View factor

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Blackbody radiation exchange
- Lecture 31 - Radiation networks
- Lecture 32 - Gas radiation
- Lecture 33 - Radiative Transfer Equation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Steam Power Engineering

Subject Co-ordinator - Dr. Vinayak Kulkarni

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of thermodynamics
- Lecture 2 - Rankine cycle
- Lecture 3 - Performance estimation of steam power cycles
- Lecture 4 - Carnot cycle examples
- Lecture 5 - Rankine cycle with superheat
- Lecture 6 - Rankine cycle with reheat theory and example
- Lecture 7 - Examples of Rankine cycle
- Lecture 8 - Examples of reheat Rankine cycle
- Lecture 9 - Rankine cycle with regeneration
- Lecture 10 - Feedwater heaters
- Lecture 11 - Cogeneration of power and process heat
- Lecture 12 - Examples of regeneration
- Lecture 13 - Examples of regenerative Rankine cycle
- Lecture 14 - Binary/multi-fluid cycles
- Lecture 15 - Low temperature power cycles
- Lecture 16 - Examples of binary cycles
- Lecture 17 - Types of boilers
- Lecture 18 - Boiler accessories
- Lecture 19 - Practice examples
- Lecture 20 - Stagnation conditions and Nozzle flow
- Lecture 21 - Nozzle flow
- Lecture 22 - Examples of Nozzle
- Lecture 23 - Impulse Turbine - 1
- Lecture 24 - Impulse Turbine - 2
- Lecture 25 - Examples on Impulse Turbine
- Lecture 26 - Reaction Turbine
- Lecture 27 - Reheat Factor
- Lecture 28 - Examples on Turbine - 1
- Lecture 29 - Examples on Turbine - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gas Mixture
- Lecture 31 - Psychrometry - 1
- Lecture 32 - Psychrometry - 2
- Lecture 33 - Condensers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Dynamic Behaviour of Materials

Subject Co-ordinator - Prof. Prasenjit Khanikar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Dynamic Behaviour of Materials - I
- Lecture 2 - Introduction to Dynamic Behaviour of Materials - II
- Lecture 3 - Introduction to Waves
- Lecture 4 - Quasi-static vs Dynamic Deformation
- Lecture 5 - Elastic Wave and its Classification
- Lecture 6 - Propagation of Elastic Waves in Continuum
- Lecture 7 - Wave Reflection, Refraction and Interaction
- Lecture 8 - General Solution of Elastic Wave Equation
- Lecture 9 - Additional Considerations of Elastic Wave in Cylindrical Bar
- Lecture 10 - Introduction to Plastic Waves
- Lecture 11 - Plastic Waves of Uniaxial Stress
- Lecture 12 - Plastic Waves of Combined Stress
- Lecture 13 - Taylor's Experiment for Plastic Wave Propagation - 1
- Lecture 14 - Taylor's Experiment for Plastic Wave Propagation - 2
- Lecture 15 - Taylor's Experiment
- Lecture 16 - Introduction to Shock Waves - I
- Lecture 17 - Introduction to Shock Waves - II
- Lecture 18 - Shock Wave
- Lecture 19 - Rankine Hugoniot Treatment and Shock Wave under Impact
- Lecture 20 - Shock Wave under Impact
- Lecture 21 - Equations of States (Shock Waves)
- Lecture 22 - Equations of States (Shock Waves)
- Lecture 23 - Complex Problems of Shock Waves and Temperature Rise under Shock Wave
- Lecture 24 - Shock Wave Attenuation, Interaction and Reflection - I
- Lecture 25 - Shock Wave Attenuation, Interaction and Reflection - II
- Lecture 26 - Shock Wave Interaction and Reflection
- Lecture 27 - Fundamentals of Materials Science and Engineering
- Lecture 28 - Shock Wave Induced Phase Transformations - 1
- Lecture 29 - Shock Wave Induced Phase Transformations - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Shock Wave Induced Phase Transformations - 3
- Lecture 31 - Shock Wave Induced Phase Transformations - 4
- Lecture 32 - Experimental Techniques for Dynamic Deformation - 1
- Lecture 33 - Experimental Techniques for Dynamic Deformation - 2
- Lecture 34 - Plastic Deformation at High Strain Rates - 1
- Lecture 35 - Plastic Deformation at High Strain Rates - 2
- Lecture 36 - Plastic Deformation at High Strain Rates - 3
- Lecture 37 - Plastic Deformation at High Strain Rates - 4
- Lecture 38 - Plastic Deformation at High Strain Rates - 5
- Lecture 39 - Plastic Deformation Under Shock Waves - 1
- Lecture 40 - Plastic Deformation Under Shock Waves - 2
- Lecture 41 - Plastic Deformation Under Shock Waves - 3
- Lecture 42 - Shear Band - 1
- Lecture 43 - Shear Band - 2
- Lecture 44 - Dynamic Fracture - 1
- Lecture 45 - Dynamic Fracture - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Plastic Working of Metallic Materials

Subject Co-ordinator - Prof. P.S. Robi

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Plastic Working of Metals
- Lecture 2 - Uniaxial Tension Test Analysis
- Lecture 3 - Temperature effects in metal forming
- Lecture 4 - Friction and Lubrication
- Lecture 5 - Friction and Lubrication (Continued...)
- Lecture 6 - Deformation zone + worked examples
- Lecture 7 - Stresses at point and Theory of Plasticity
- Lecture 8 - Slab Analysis
- Lecture 9 - Slip Line Field Theory - Part 1
- Lecture 10 - Slip Line Field Theory - Part 2
- Lecture 11 - Upper Bound Theorem
- Lecture 12 - Plasticity equations
- Lecture 13 - Forging
- Lecture 14 - Analysis of Forging
- Lecture 15 - Analysis of Forging (Continued...)
- Lecture 16 - Forging Die Design consideration
- Lecture 17 - Forging Load
- Lecture 18 - Rolling of Metals
- Lecture 19 - Analysis of Rolling
- Lecture 20 - Analysis of Rolling (Continued...)
- Lecture 21 - Strain rate in the deformation zone
- Lecture 22 - Rolling mills
- Lecture 23 - Problem on rolling
- Lecture 24 - Drawing of Rods, Wires and Tubes
- Lecture 25 - Drawing of Rods, Wires and Tubes (Continued...)
- Lecture 26 - Analysis of Wire Drawing
- Lecture 27 - Wire Drawing
- Lecture 28 - Extrusion Process
- Lecture 29 - Analysis of Extrusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction
- Lecture 31 - Sheet deformation process
- Lecture 32 - Deformation of sheet in plane stress
- Lecture 33 - Analysis of stamping
- Lecture 34 - Instability in sheet metal forming
- Lecture 35 - Deep drawing
- Lecture 36 - Hydroforming

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Artificial Intelligence

Subject Co-ordinator - Prof. Shyamanta M. Hazarika

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Artificial Intelligence  
Lecture 2 - Problem Solving as State Space Search  
Lecture 3 - Uninformed Search  
Lecture 4 - Heuristic Search  
Lecture 5 - Informed Search  
Lecture 6 - Constraint Satisfaction Problems  
Lecture 7 - Searching AND/OR Graphs  
Lecture 8 - Game Playing  
Lecture 9 - Minimax + Alpha-Beta  
Lecture 10 - Introduction to Knowledge Representation  
Lecture 11 - Propositional Logic  
Lecture 12 - First Order Logic - I  
Lecture 13 - First Order Logic - II  
Lecture 14 - Inference in First Order Logic - I  
Lecture 15 - Inference in First Order Logic - II  
Lecture 16 - Answer Extraction  
Lecture 17 - Procedural Control of Reasoning  
Lecture 18 - Reasoning under Uncertainty  
Lecture 19 - Bayesian Network  
Lecture 20 - Decision Network  
Lecture 21 - Introduction to Planning  
Lecture 22 - Plan Space Planning  
Lecture 23 - Planning Graph and GraphPlan  
Lecture 24 - Practical Planning and Acting  
Lecture 25 - Sequential Decision Problems  
Lecture 26 - Making Complex Decisions  
Lecture 27 - Introduction to Machine Learning  
Lecture 28 - Learning Decision Trees  
Lecture 29 - Linear Regression

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Support Vector Machines
- Lecture 31 - Unsupervised Learning
- Lecture 32 - Reinforcement Learning
- Lecture 33 - Learning in Neural Networks
- Lecture 34 - Deep Learning

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Aircraft Propulsion

Subject Co-ordinator - Dr. Vinayak Kulkarni

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of Basic Thermodynamics
- Lecture 2 - Solved Examples for Flow process
- Lecture 3 - Turbomachines
- Lecture 4 - Components of Gas Turbine Power Plant, Gas Turbine Attachments
- Lecture 5 - Introduction to Various Aircraft engines, Engine Performance parameters
- Lecture 6 - Air Standard Ideal Brayton Cycle
- Lecture 7 - Examples for Ideal Brayton Cycle
- Lecture 8 - Non-Ideal Brayton Cycle
- Lecture 9 - Examples for Non-Ideal Brayton Cycle
- Lecture 10 - Brayton Cycle with Heat Exchanger / Re-heater
- Lecture 11 - Brayton Cycle with Intercooler / All Attachments
- Lecture 12 - Examples of Gas Turbine Attachment
- Lecture 13 - Examples of Gas Turbine Attachment
- Lecture 14 - Stagnation Conditions, Real Brayton Cycle with Stagnation Conditions
- Lecture 15 - Polytropic Efficiency of Compressor and Turbine
- Lecture 16 - Examples of Real Cycle
- Lecture 17 - Nozzle Flow
- Lecture 18 - Aircraft Engine Intake, Intake Efficiency
- Lecture 19 - Propelling Nozzle, Nozzle Efficiency
- Lecture 20 - Turbojet engine
- Lecture 21 - Turbofan engine
- Lecture 22 - Ramjet engine
- Lecture 23 - Examples of Ramjet Engine
- Lecture 24 - Thrust Augmentation and Engine performance parameters for Aircrafts
- Lecture 25 - Introduction to Turbomachinery
- Lecture 26 - Centrifugal Compressor
- Lecture 27 - Centrifugal Compressor
- Lecture 28 - Examples of Centrifugal compressor
- Lecture 29 - Axial Flow Compressor

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Axial Flow Compressor
- Lecture 31 - Examples of Axial Flow Compressor
- Lecture 32 - Examples of Axial Flow Compressor
- Lecture 33 - Examples of Axial Flow Compressor
- Lecture 34 - Axial Turbine
- Lecture 35 - Radial Turbine
- Lecture 36 - Examples of Axial Turbine
- Lecture 37 - Practice examples of Axial Turbine and centrifugal compressor
- Lecture 38 - Cascade theory and Blade design
- Lecture 39 - Cascade variables and Turbine Cascade
- Lecture 40 - Velocity diagrams of Turbine Cascade, Compressor cascade
- Lecture 41 - Turbine cooling methods
- Lecture 42 - Practice examples of aircraft engine

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Computational Fluid Dynamics for Incompressible Flows

Subject Co-ordinator - Prof. Amaresh Dalal

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Applications of CFD
- Lecture 2 - Basic equations of fluid dynamics and heat transfer
- Lecture 3 - Initial and boundary conditions
- Lecture 4 - Physical Classification, System of first-order PDEs
- Lecture 5 - System of second-order PDEs
- Lecture 6 - Finite difference by Taylor series expansion
- Lecture 7 - Finite difference by general approximation and polynomials
- Lecture 8 - Finite difference in non-uniform grid
- Lecture 9 - Types of error and accuracy of FD solutions
- Lecture 10 - Finite difference formulations of Elliptic Equations with boundary condition treatment
- Lecture 11 - Iterative Methods
- Lecture 12 - Applications
- Lecture 13 - Linear Solvers
- Lecture 14 - Finite difference formulations of Parabolic Equations
- Lecture 15 - Finite difference formulations of Parabolic Equations
- Lecture 16 - Finite difference formulations of Parabolic Equations
- Lecture 17 - Finite difference formulations of Parabolic Equations
- Lecture 18 - Finite difference formulations of the first order wave equation
- Lecture 19 - Finite difference formulations of the first order wave equation
- Lecture 20 - Von Neumann stability analysis of different schemes for Parabolic equations
- Lecture 21 - Von Neumann stability analysis of different schemes for Parabolic equations
- Lecture 22 - Von Neumann stability analysis of different schemes for Hyperbolic equations
- Lecture 23 - Modified equation, Artificial viscosity, Numerical diffusion
- Lecture 24 - Discretization vorticity-stream function equations using FDM
- Lecture 25 - Boundary conditions for flow problems
- Lecture 26 - Solutions of vorticity-stream function equations
- Lecture 27 - Solution of Navier-Stokes Equation using FDM
- Lecture 28 - Solution of Navier-Stokes Equation using FDM (Continued...)
- Lecture 29 - Introduction to finite volume method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Finite volume discretization of steady diffusion equation
- Lecture 31 - Finite volume discretization of unsteady diffusion equation
- Lecture 32 - Finite volume discretization of steady convection-diffusion equation
- Lecture 33 - Finite volume discretization of unsteady convection-diffusion equation
- Lecture 34 - Convection Schemes
- Lecture 35 - Solution of Navier-Stokes Equations using FVM - I
- Lecture 36 - Solution of Navier-Stokes Equations using FVM - II
- Lecture 37 - Boundary Conditions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Experimental Methods in Fluid Mechanics

Subject Co-ordinator - Prof. Pranab K. Mondal

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic concepts, Calibration

Lecture 2 - Dimensions, Units, Standards, Systems of dimensions, System of units, Unit conversion table

Lecture 3 - Basic concept of dynamic measurements

Lecture 4 - Basic concept of dynamic measurements (Continued...)

Lecture 5 - Basic concept of dynamic measurements (Continued...)

Lecture 6 - System response and distortion, Impedence matching

Lecture 7 - Dimensional measurement Gauge blocks, The pneumatic displacement gauge

Lecture 8 - Dimensional measurement Gauge blocks, The pneumatic displacement gauge

Lecture 9 - Pressure Measurements

Lecture 10 - Mechanical pressure measurement devices, U-tube manometer, The inclined well type manometer

Lecture 11 - The aneroid barometer, Diaphragm and Bellows Gauges

Lecture 12 - The Mcleod gauge, The Pirani gauge, The Ionization gauge

Lecture 13 - The Mcleod gauge, The Pirani gauge, The Ionization gauge (Continued...)

Lecture 14 - The Mcleod gauge, The Pirani gauge, The Ionization gauge (Continued...)

Lecture 15 - Pressure measurement using 3 holes/probes

Lecture 16 - Pressure measurement using 3 holes/probes (Continued...)

Lecture 17 - Flow obstruction flow rate measurement(venturimeter/orificemeter), the Rotameter

Lecture 18 - Flow obstruction flow rate measurement(venturimeter/orificemeter), the Rotameter (Continued...)

Lecture 19 - Thermal Anemometry(hot wire/hot film), Hot wire anemometer

Lecture 20 - Thermal Anemometry(hot wire/hot film), Hot wire anemometer (Continued...)

Lecture 21 - Laser Doppler anemometry

Lecture 22 - Measurement of velocity components by 3 holes and 4 holes probes

Lecture 23 - Ideal gas thermometer, Temperature measurement by mechanical and electrical effects

Lecture 24 - Ideal gas thermometer, Temperature measurement by mechanical and electrical effects (Continued...)

Lecture 25 - Thermostatic temperature, Resistance Temperature Detectors (RTD), Thermistors, Thermocouples

Lecture 26 - Temperature measurement by Radiation, The optical pyrometer

Lecture 27 - Transient response of thermal system, Thermocouple compensation, high speed flow

Lecture 28 - Transient response of thermal system, Thermocouple compensation, high speed flow (Continued...)

Lecture 29 - Transient response of thermal system, Thermocouple compensation, high speed flow (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Constant temperature hot-wire anemometer, LDA
- Lecture 31 - Use of PIV
- Lecture 32 - Use of PIV (Continued...)
- Lecture 33 - Use of PIV (Continued...)
- Lecture 34 - Measurement of pitch angle
- Lecture 35 - Measurement of torque by dynamometers, strain gauge, transducers
- Lecture 36 - Measurement of microscale flow features - I
- Lecture 37 - Measurement of microscale flow features - II
- Lecture 38 - Transient and Frequency response consideration
- Lecture 39 - Examples
- Lecture 40 - Analysis of experimental data, causes and types of experimental errors
- Lecture 41 - Rejection of data
- Lecture 42 - Error propagation
- Lecture 43 - The Method of Least square with example

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Automation in Manufacturing

Subject Co-ordinator - Dr. Shrikrishna N. Joshi

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic concepts
- Lecture 2 - Mechatronics
- Lecture 3 - Mechatronics based systems
- Lecture 4 - Automated systems and equipment used in manufacturing - Part I
- Lecture 5 - Automated systems and equipment used in manufacturing - Part II
- Lecture 6 - Selection of electrical and electronics components for mechatronics based systems
- Lecture 7 - Terms related to performance of electro-mechanical systems
- Lecture 8 - Computer aided design of components
- Lecture 9 - Fabrication Processes
- Lecture 10 - Measurement system and potentiometer sensors
- Lecture 11 - Displacement, position and proximity sensors - I
- Lecture 12 - Displacement, position and proximity sensors - II
- Lecture 13 - Fluid flow, pressure, and temperature measurement
- Lecture 14 - Signal Conditioning
- Lecture 15 - Pulse modulation, Protection devices, and Wheatstone bridge
- Lecture 16 - Signal conversion
- Lecture 17 - Microprocessor Technology
- Lecture 18 - Introduction to Microprocessor Programming
- Lecture 19 - Application of electric drives in automation
- Lecture 20 - DC and AC motors
- Lecture 21 - Stepper motor and servo motor
- Lecture 22 - Types of industrial automation and mechanisms
- Lecture 23 - Ball screw based linear motion drives
- Lecture 24 - Application of cams in automation
- Lecture 25 - Application of indexing mechanisms in automation
- Lecture 26 - Application of tool magazines in automation
- Lecture 27 - Material handling systems
- Lecture 28 - Fundamental concepts
- Lecture 29 - Hydraulic pumps

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Direction control valves
- Lecture 31 - Flow control and pressure relief valves
- Lecture 32 - Graphical representation of hydraulic system elements
- Lecture 33 - Basic concepts and air compressors
- Lecture 34 - Air treatment and pressure regulation
- Lecture 35 - Graphical representation and pneumatic circuits
- Lecture 36 - Computer aided manufacturing and process planning
- Lecture 37 - CNC machines and interpolation
- Lecture 38 - CNC Programming

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Compressible Flow

Subject Co-ordinator - Prof. Niranjan Sahoo

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review Concepts of Fluid Mechanics and Thermodynamics - I
- Lecture 2 - Review Concepts of Fluid Mechanics and Thermodynamics - II
- Lecture 3 - Review Concepts of Fluid Mechanics and Thermodynamics - III
- Lecture 4 - Wave Propagation in Compressible Medium - I
- Lecture 5 - Wave Propagation in Compressible Medium - II
- Lecture 6 - Wave Propagation in Compressible Medium - III
- Lecture 7 - Quasi-One Dimensional Isentropic Flow - I
- Lecture 8 - Quasi-One Dimensional Isentropic Flow - II
- Lecture 9 - Quasi-One Dimensional Isentropic Flow - III
- Lecture 10 - Normal Shock Waves - I
- Lecture 11 - Normal Shock Waves - II
- Lecture 12 - Normal Shock Waves - III
- Lecture 13 - Normal Shock Waves - IV
- Lecture 14 - Expansion Waves and Oblique Shocks - I
- Lecture 15 - Expansion Waves and Oblique Shocks - II
- Lecture 16 - Expansion Waves and Oblique Shocks - III
- Lecture 17 - Expansion Waves and Oblique Shocks - IV
- Lecture 18 - Expansion Waves and Oblique Shocks - V
- Lecture 19 - Expansion Waves and Oblique Shocks - VI
- Lecture 20 - Supersonic Nozzles and Diffusers - I
- Lecture 21 - Supersonic Nozzles and Diffusers - II
- Lecture 22 - Supersonic Nozzles and Diffusers - III
- Lecture 23 - Measurement Diagnostics and Experimental Facilities for Compressible Flow - II
- Lecture 24 - Compressible Flow with Friction and Heat Transfer - II
- Lecture 25 - Compressible Flow with Friction and Heat Transfer - III
- Lecture 26 - Measurement Diagnostics and Experimental Facilities for Compressible Flow - I
- Lecture 27 - Measurement Diagnostics and Experimental Facilities for Compressible Flow - II
- Lecture 28 - Measurement Diagnostics and Experimental Facilities for Compressible Flow - III
- Lecture 29 - Measurement Diagnostics and Experimental Facilities for Compressible Flow - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Measurement Diagnostics and Experimental Facilities for Compressible Flow - V
- Lecture 31 - Measurement Diagnostics and Experimental Facilities for Compressible Flow - VI

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Finite Element Method: Variational Methods to Computer Prog

Subject Co-ordinator - Prof. Arup Nandy, Prof. Atanu Banerjee

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Functional, First variation, Euler Lagrange equation; Several Dependent variables
- Lecture 2 - Functional with higher order derivatives; Variational statement
- Lecture 3 - Differential equation, Variational statement and Minimization problem; Rayleigh-Ritz method
- Lecture 4 - FEM steps
- Lecture 5 - Solving one Ordinary Differential Equation using Linear Finite Element
- Lecture 6 - Solving one Ordinary Differential Equation using Quadratic Finite Element
- Lecture 7 - Bar Element
- Lecture 8 - Bar Element
- Lecture 9 - Truss Element
- Lecture 10 - Beam Element
- Lecture 11 - Beam Element
- Lecture 12 - Beam Element
- Lecture 13 - Frame Element
- Lecture 14 - Frame Element
- Lecture 15 - Generalization of Geometry data; Stiffness matrix, Load vector formation at element level
- Lecture 16 - Generalization of Assembly, Imposition of Boundary condition and Load information
- Lecture 17 - Indicial Notation
- Lecture 18 - Second order tensor; Gradient, Divergence, Curl and Laplacian in Indicial notation
- Lecture 19 - Gauss Divergence theorem and its application in Heat transfer and Structural analysis
- Lecture 20 - Derivation of weak form of 2D steady-state heat conduction problem
- Lecture 21 - Triangular element, calculating element stiffness and element force vector
- Lecture 22 - Numerical example, assembly, mapping
- Lecture 23 - Numerical integration, Neumann boundary, and higher order shape functions
- Lecture 24 - Quadrilateral element, Lagrange shape functions, Serendipity elements
- Lecture 25 - Development of a MATLAB code for solving 2D steady-state heat conduction problem
- Lecture 26 - Demonstration of the MATLAB code
- Lecture 27 - Elasticity problems in two dimension and obtaining the weak form
- Lecture 28 - Deriving element stiffness matrix and element force vector, numerical example
- Lecture 29 - Development of a MATLAB code for solving planar elasticity problems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Superconvergent Patch Recovery, error estimator, adaptive refinement
- Lecture 31 - Solving eigenvalue problem in bar and beam, writing FEM code in MATLAB
- Lecture 32 - Solving eigenvalue problem of membrane, writing FEM code in MATLAB
- Lecture 33 - Solving transient problems (parabolic type)
- Lecture 34 - Solving transient problems (hyperbolic type)
- Lecture 35 - Solving elasticity problems in 3D using FEM, Solvers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Computational Continuum Mechanics

Subject Co-ordinator - Prof. Sachin Singh Gautam

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Origin of nonlinearities - 1
- Lecture 2 - Origin of nonlinearities - 2
- Lecture 3 - Tensor and Tensor Algebra - 1
- Lecture 4 - Tensor and Tensor Algebra - 2
- Lecture 5 - Tensor and Tensor Algebra - 3
- Lecture 6 - Tensor and Tensor Algebra - 4
- Lecture 7 - Linearization and directional derivative, Tensor analysis - 1
- Lecture 8 - Linearization and directional derivative, Tensor analysis - 2
- Lecture 9 - Worked Examples - 1
- Lecture 10 - Worked Examples - 2
- Lecture 11 - Idea of Motion, Material and Spatial Descriptions, Deformation Gradient Tensor
- Lecture 12 - Strain, Polar Decomposition - 1
- Lecture 13 - Polar Decomposition - 2, Volume and Area Change
- Lecture 14 - Worked Examples, Linearized Kinematics
- Lecture 15 - Velocity, Acceleration, Material Time Derivative
- Lecture 16 - Velocity Gradient, Rate of Deformation tensor, Area and Volume Rate, Reynolds Transport Theorem
- Lecture 17 - Solved Examples
- Lecture 18 - Conservation of Mass, Balance of Linear Momentum, Cauchy's Stress Principle - 1
- Lecture 19 - Cauchy's Stress Principle - 2, Cauchy Stress Tensor
- Lecture 20 - Objectivity, Stress Objectivity, Equilibrium Equations - 1
- Lecture 21 - Equilibrium Equations - 2, Principle of Virtual Work
- Lecture 22 - Work Conjugacy, First Piola-Kirchhoff Stress Tensor
- Lecture 23 - Second Piola-Kirchhoff Stress Tensor, Decomposition of Stress - 1
- Lecture 24 - Decomposition of Stress - 2, Objective Stress Measures
- Lecture 25 - Solved Examples
- Lecture 26 - Constitutive relations and constraints, Hyperelasticity, Material elasticity tensor
- Lecture 27 - Spatial Elasticity Tensor, Solved Example
- Lecture 28 - Isotropic hyperelasticity - material and spatial description, Hyperelastic models
- Lecture 29 - Isotropic Hyperelasticity, Neo-Hookean Material Model, Solved Examples

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction, Linearization Process Overview
- Lecture 31 - Linearization of Internal Virtual Work and External Virtual Work
- Lecture 32 - Discretization of Kinematic Quantities, Equilibrium Equations
- Lecture 33 - Discretization of Linearized Equilibrium Equations
- Lecture 34 - Newton Raphson Method
- Lecture 35 - Line Search Method
- Lecture 36 - Arc Length Method, Solved Examples
- Lecture 37 - FE Formulation of Ductile Fracture in Dynamic Elasto-Plastic Contact Problem - Introduction
- Lecture 38 - FE Formulation of Ductile Fracture in Dynamic Elasto-Plastic Contact Problem - Formulation
- Lecture 39 - FE Formulation of Ductile Fracture in Dynamic Elasto-Plastic Contact Problem - FEM
- Lecture 40 - FE Formulation of Ductile Fracture in Dynamic Elasto-Plastic Contact Problem - Results

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Convective Heat Transfer

Subject Co-ordinator - Prof. Amaresh Dalal

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Application of convective heat transfer

Lecture 2 - Foundations of heat transfer

Lecture 3 - Derivation of energy equation

Lecture 4 - Derivation of boundary layer equation

Lecture 5 - Derivation of boundary layer energy equation

Lecture 6 - Blasius solution

Lecture 7 - Pohlhausen solution

Lecture 8 - Pohlhausen solution

Lecture 9 - Falkner-Skan equation

Lecture 10 - Momentum integral equation for flat plate boundary layer

Lecture 11 - Laminar BL flow over flat plate

Lecture 12 - Laminar BL flow over flat plate

Lecture 13 - Solution of example problems

Lecture 14 - Hydrodynamic and thermal regions

Lecture 15 - Energy balance in channel flow

Lecture 16 - Determination of heat transfer coefficient

Lecture 17 - Velocity profile in fully-developed channel flows

Lecture 18 - Thermally fully developed laminar slug flow with uniform wall heat flux condition

Lecture 19 - Hydrodynamically and thermally fully developed flow with uniform wall heat flux condition

Lecture 20 - Fully developed flow through parallel plate channel with uniform wall temperature

Lecture 21 - Fully developed flow through circular pipe with uniform wall temperature

Lecture 22 - Thermally developing flow through circular pipe with uniform wall heat flux

Lecture 23 - Thermally developing flow through circular pipe with uniform wall temperature

Lecture 24 - Heat transfer in plane Couette flow

Lecture 25 - Solutions of example problems

Lecture 26 - Introduction and scale analysis

Lecture 27 - Natural convection over a vertical plate

Lecture 28 - Natural convection over a vertical plate

Lecture 29 - Natural convection over a vertical plate

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Natural convection over inclined plate and mixed convection
- Lecture 31 - Natural convection inside enclosures
- Lecture 32 - Solution of example problems
- Lecture 33 - Basics of finite difference method
- Lecture 34 - Solution of Navier-Stokes equations
- Lecture 35 - Solution of energy equation
- Lecture 36 - Derivation of Reynolds Averaged Navier-Stokes Equations
- Lecture 37 - External Turbulent Flow
- Lecture 38 - Integral solution for turbulent boundary layer flow over a flat plate
- Lecture 39 - Convection in turbulent pipe flow
- Lecture 40 - Boiling regimes and boiling curve
- Lecture 41 - Laminar film condensation on a vertical plate
- Lecture 42 - Laminar film condensation on horizontal tube
- Lecture 43 - Solution of example problems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Theory of Composite Shells

Subject Co-ordinator - Prof. Poonam Kumari

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to composite materials
- Lecture 2 - Basic terminology in Shell
- Lecture 3 - Derivation of fundamental theorem of surfaces
- Lecture 4 - Derivative of unit vectors and various theorems
- Lecture 5 - Classification of shells
- Lecture 6 - Derivation of strain-displacement relation
- Lecture 7 - Derivation of shell governing equations - 1
- Lecture 8 - Derivation of shell governing equations - 2
- Lecture 9 - Derivation of shell governing equations - 3
- Lecture 10 - Derivation of special cases
- Lecture 11 - Derivation of shell constitutive relations
- Lecture 12 - Solved examples on membrane theory and moment shell theory
- Lecture 13 - Shell of revolution problems
- Lecture 14 - Derivation of Navier solution for infinite shell panel
- Lecture 15 - Basics of MATLAB coding
- Lecture 16 - Derivation of Navier solution for finite shell panel
- Lecture 17 - ABAQUS Modelling
- Lecture 18 - Extended Kanatrovich method for shell panel
- Lecture 19 - Free Vibration solution of shell panels under Navier and Levy supports - 1
- Lecture 20 - Free Vibration solution of shell panels under Navier and Levy supports - 2
- Lecture 21 - Basics of Buckling of shells
- Lecture 22 - Buckling of cylindrical shells
- Lecture 23 - Buckling of Levy-type cylindrical shells
- Lecture 24 - 3D Bending
- Lecture 25 - 3D Free vibration
- Lecture 26 - 3D Buckling
- Lecture 27 - Advanced Material
- Lecture 28 - Free vibration of a composite cylindrical shell

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Finite Element Modeling of Welding Processes

Subject Co-ordinator - Prof. Swarup bag

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Properties, Modelling approaches, Process modelling and Optimization
- Lecture 2 - Fusion welding - 1
- Lecture 3 - Fusion welding - 2
- Lecture 4 - Soldering, Brazing, Solid-state welding processes
- Lecture 5 - Advanced welding processes
- Lecture 6 - Advances in laser microwelding
- Lecture 7 - Additive manufacturing processes
- Lecture 8 - Elastic stress analysis - I
- Lecture 9 - Elastic stress analysis - II and Potential energy method
- Lecture 10 - Three-Dimensional element
- Lecture 11 - Weighted residual method
- Lecture 12 - Material nonlinearity - I
- Lecture 13 - Material nonlinearity - II
- Lecture 14 - Fluid flow and Natural coordinate system - I
- Lecture 15 - Natural coordinate system in 3D and XFEM
- Lecture 16 - Introduction to heat source model
- Lecture 17 - Heat source models in welding - I
- Lecture 18 - Heat source models in welding - II
- Lecture 19 - Heat source model for Keyhole mode and solid state welding
- Lecture 20 - Implementation of FEM in fusion welding processes
- Lecture 21 - Implementation of FEM for fluid flow in fusion welding processes
- Lecture 22 - FEM modeling of EBW and RSW
- Lecture 23 - FEM modeling of FSW and hybrid FSW
- Lecture 24 - Demonstration of thermal model development using commercial software
- Lecture 25 - Fluid flow modeling in welding processes
- Lecture 26 - Heat transfer and fluid flow analysis in quasi-steady state
- Lecture 27 - Prediction of free surface profile
- Lecture 28 - Principle stress, Hydrostatic and Deviatoric Components of Stress
- Lecture 29 - Yield Function, Von Mises Yield Surface and Hardening rule

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Material models, Residual stress and distortion
- Lecture 31 - Phase transformation effect on Residual stress and distortion
- Lecture 32 - Demonstration of thermo-mechanical model development using commercial software
- Lecture 33 - Fundamentals of metal transfer in arc welding
- Lecture 34 - FE-based modelling approaches
- Lecture 35 - Theoretical development of heat transfer model
- Lecture 36 - Heating of nano-film
- Lecture 37 - Theoretical development of stress analysis model
- Lecture 38 - Fundamentals of wire arc additive manufacturing processes - I
- Lecture 39 - Fundamentals of wire arc additive manufacturing processes - II
- Lecture 40 - Modelling approaches of additive manufacturing



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Nonlinear Vibration

Subject Co-ordinator - Prof. S. K. Dwivedy

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to mechanical systems
- Lecture 2 - Superposition rule, Commonly used nonlinear equations
- Lecture 3 - Equilibrium points: potential function
- Lecture 4 - Force and moment based Approach, Lagrange Principle
- Lecture 5 - Extended Hamilton's principle
- Lecture 6 - Use of scaling and book-keeping parameter for ordering
- Lecture 7 - Numerical solution, Analytical solutions: Harmonic Balance method
- Lecture 8 - Straight forward expansion
- Lecture 9 - Lindsted-Poincaré method
- Lecture 10 - Method of Averaging
- Lecture 11 - Method of multiple scales
- Lecture 12 - Method of generalized Harmonic Balance method
- Lecture 13 - Free vibration of undamped and damped SDOF systems with quadratic and cubic nonlinearity
- Lecture 14 - Super and sub harmonic resonance conditions
- Lecture 15 - Bifurcation analysis of fixed-point response
- Lecture 16 - Nonlinear system with hard excitations
- Lecture 17 - Super and sub harmonic resonance conditions
- Lecture 18 - Bifurcation analysis of fixed-point response
- Lecture 19 - Floquet theory, Hill's infinite determinant, Resonance in parametrically excited systems
- Lecture 20 - Parametrically excited pneumatic artificial muscle
- Lecture 21 - Parametric instability of sandwich plate
- Lecture 22 - Analysis of periodic, quasi-periodic and chaotic systems
- Lecture 23 - Stability and bifurcation analysis of periodic and quasi-periodic response
- Lecture 24 - Analysis of chaotic system
- Lecture 25 - Numerical methods for finding roots and solutions of ODE
- Lecture 26 - Time response, phase portraits, frequency response
- Lecture 27 - Poincaré section, FFT, Lyapunov exponent
- Lecture 28 - Passive and active vibration absorber with displacement and acceleration feedback
- Lecture 29 - Active vibration absorber with time delay acceleration feedback by HBM

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Application of Active vibration absorber with combination feedback
- Lecture 31 - Cantilever beam with tip mass for principal parametric resonance
- Lecture 32 - Cantilever beam with tip mass for combination resonance
- Lecture 33 - Cantilever beam based piezoelectric based energy harvester
- Lecture 34 - Nonlinear dynamics of turning operation with delay and internal resonance
- Lecture 35 - Chatter in rolling mills and dynamic analysis of artificial pneumatic muscle
- Lecture 36 - Chaotic systems and control of chaos

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Evolutionary Computation for Single and Multi Objective Opt

Subject Co-ordinator - Prof. Deepak Sharma

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Optimization
- Lecture 2 - Introduction to Evolutionary Computation
- Lecture 3 - Binary-Coded Genetic Algorithm (BGA)
- Lecture 4 - Operators and Simulations of Binary-Coded Genetic Algorithm
- Lecture 5 - Real-Coded Genetic Algorithm (RGA)
- Lecture 6 - Operators and Simulations of Real-Coded Genetic Algorithm
- Lecture 7 - Algorithmic Implementation of BGA and RGA
- Lecture 8 - Particle Swarm Optimization (PSO)
- Lecture 9 - Simulations and Algorithmic Implementation of Particle Swarm Optimization
- Lecture 10 - Differential Evolution (DE)
- Lecture 11 - Simulations and Algorithmic Implementation of Differential Evolution
- Lecture 12 - Constrained Optimization: Introduction and Optimality
- Lecture 13 - Penalty Function Methods for Evolutionary Computing Techniques
- Lecture 14 - Evolutionary Computing Techniques: Separation of Objective Function and Constraints
- Lecture 15 - Simulations of Constraint Handling Techniques - Part 1
- Lecture 16 - Simulations of Constraint Handling Techniques - Part 2
- Lecture 17 - Introduction to Multi-Objective Optimization - Part 1
- Lecture 18 - Introduction to Multi-Objective Optimization - Part 2
- Lecture 19 - Multi-Objective Optimization: Ranking and Diversity
- Lecture 20 - Classical Multi-Objective Optimization Methods
- Lecture 21 - Non-Dominated Genetic Algorithm: NSGA-II: Introduction
- Lecture 22 - Non-Dominated Genetic Algorithm: NSGA-II: Simulations
- Lecture 23 - Strength Pareto Evolutionary Algorithm: SPEA2: Introduction
- Lecture 24 - Strength Pareto Evolutionary Algorithm: SPEA2: Simulations
- Lecture 25 - Performance Assessment of Multi-Objective EC Techniques
- Lecture 26 - Closure of EC for Single and Multi-Objective Optimization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Viscous Fluid Flow

Subject Co-ordinator - Prof. Amaresh Dalal

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Preliminary concepts

Lecture 2 - Fluid Kinematics

Lecture 3 - Derivation of incompressible Navier-Stokes equations

Lecture 4 - Initial and Boundary Conditions

Lecture 5 - Plane Couette Flow

Lecture 6 - Plane Poiseuille Flow

Lecture 7 - Plane Poiseuille Flow with Slip and Thin Film Flow

Lecture 8 - Combined Couette - Poiseuille Flow

Lecture 9 - Example Problems

Lecture 10 - Hagen - Poiseuille Flow

Lecture 11 - Thin Film Flow and Annular Flow

Lecture 12 - Steady Flow Between Rotating Cylinders

Lecture 13 - Flow near a plate suddenly set in motion

Lecture 14 - Flow due to an oscillating plate

Lecture 15 - Transient Plane Couette Flow

Lecture 16 - Transient Axisymmetric Poiseuille Flow

Lecture 17 - Flow Through Rectangular Duct

Lecture 18 - Flow Through Equilateral Triangular Duct

Lecture 19 - Flow Through Elliptical Duct

Lecture 20 - Example Problems

Lecture 21 - Creeping Flow Around a Sphere

Lecture 22 - Reynolds Equation for Lubrication

Lecture 23 - One-dimensional Slider Bearing

Lecture 24 - Journal Bearing and Piston-ring Lubrication

Lecture 25 - Derivation of Boundary Layer Equations

Lecture 26 - Blasius Flow Over A Flat Plate: Similarity Solution

Lecture 27 - Momentum Integral Equation For Flat Plate Boundary Layer

Lecture 28 - Falkner-Skan equation: Boundary layer flow over a wedge

Lecture 29 - Karman-Pohlhausen Method for Non-zero Pressure Gradient Flows

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Correlation Method by Thwaites
- Lecture 31 - Separation of Boundary Layer
- Lecture 32 - Example Problems
- Lecture 33 - Two-dimensional Laminar Jet
- Lecture 34 - Flow in the Wake of a Flat Plate
- Lecture 35 - Free Shear Layer Between Two Different Streams
- Lecture 36 - Derivation of Orr-Sommerfeld Equation
- Lecture 37 - Viscous Stability
- Lecture 38 - Inviscid Analysis
- Lecture 39 - Introduction to Turbulent Flows
- Lecture 40 - Derivation of Reynolds Averaged Navier-Stokes Equations
- Lecture 41 - External Turbulent Flows
- Lecture 42 - Integral Solution for Turbulent Boundary Layer Flow
- Lecture 43 - Internal Turbulent Flow
- Lecture 44 - Turbulence Modelling

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Welding Application Technology

Subject Co-ordinator - Prof. Pankaj Biswas

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Plasma Arc Welding (PAW)
- Lecture 2 - Flux Cored Arc Welding (FCAW)
- Lecture 3 - Thermit Welding
- Lecture 4 - Resistance Welding - Part 1 (Resistance Spot Welding)
- Lecture 5 - Resistance Welding - Part 2 (Types of Resistance Welding)
- Lecture 6 - Friction Welding
- Lecture 7 - Friction Stir Welding - Part 1
- Lecture 8 - Friction Stir Welding - Part 2
- Lecture 9 - Soldering
- Lecture 10 - Brazing
- Lecture 11 - Residual Stress - Part 1
- Lecture 12 - Residual Stress - Part 2
- Lecture 13 - Influencing Factors and Control of Residual Stresses
- Lecture 14 - Residual Stress Measurement - 1
- Lecture 15 - Residual Stress Measurement - 2
- Lecture 16 - Residual Stress Measurement by NDT
- Lecture 17 - Welding Induced Distortion
- Lecture 18 - Welding Induced Distortion (Control and Measurement)
- Lecture 19 - Welding Induced Distortion (Measurement and Prediction)
- Lecture 20 - Welded Joint Analysis
- Lecture 21 - Welded Joints Analysis (Strength of Parallel and Transverse Fillet Welds)
- Lecture 22 - Welded Joints Analysis (Analysis of Eccentrically Loaded Welded Joint)
- Lecture 23 - Welded Joints Static Analysis (Analysis of Eccentrically Loaded Welded Joint - Part 1)
- Lecture 24 - Welded Joints Static Analysis (Analysis of Eccentrically Loaded Welded Joint - Part 2)
- Lecture 25 - Welded Joints Static Analysis (Welded Joint Subjected to Bending Moment)
- Lecture 26 - Welded Joints Static Analysis (Welded Joint Subjected to Bending Moment - Part 1)
- Lecture 27 - Welded Joints Static Analysis (Welded Joint Subjected to Bending Moment - Part 2)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Additive Manufacturing Technologies

Subject Co-ordinator - Prof. Sajan Kapil

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Additive Manufacturing
- Lecture 2 - CAD Models for Additive Manufacturing
- Lecture 3 - Manipulation of STL Files
- Lecture 4 - Slicing Methods - Part A
- Lecture 5 - Slicing Methods - Part B
- Lecture 6 - Toolpath Planning
- Lecture 7 - Demonstration of CAD-CAM Packages
- Lecture 8 - Introduction to Liquid AM
- Lecture 9 - Stereolithography Apparatus: Fundamentals of Photopolymerization - Part 1
- Lecture 10 - Stereolithography Apparatus: Fundamentals of Photopolymerization - Part 2
- Lecture 11 - Stereolithography Apparatus: Sub-systems - Part 1
- Lecture 12 - Stereolithography Apparatus: Sub-systems - Part 2
- Lecture 13 - Other Liquid AM Processes - 1
- Lecture 14 - Other Liquid AM Processes - 2
- Lecture 15 - Sheet Additive Manufacturing - Part 1
- Lecture 16 - Sheet Additive Manufacturing - Part 2
- Lecture 17 - Wire Additive Manufacturing
- Lecture 18 - Fused Deposition Modeling
- Lecture 19 - Metal Wire Additive Manufacturing
- Lecture 20 - Metal Inert Gas-Wire Arc Additive Manufacturing (MIG-WAAM) - Part 1
- Lecture 21 - Metal Inert Gas-Wire Arc Additive Manufacturing (MIG-WAAM) - Part 2
- Lecture 22 - Tungsten Inert Gas/Plasma-Wire Arc Additive Manufacturing (TIG/Plasma-WAAM)
- Lecture 23 - Electron beam-based Wire Beam Additive Manufacturing (WBAM)
- Lecture 24 - Laser Metal Wire Additive Manufacturing
- Lecture 25 - Powder-Feed Additive Manufacturing - Part 1
- Lecture 26 - Powder-Feed Additive Manufacturing - Part 2
- Lecture 27 - Process Modeling for Powder Feed Additive Manufacturing - Part 1
- Lecture 28 - Process Modeling for Powder Feed Additive Manufacturing - Part 2
- Lecture 29 - Laser Beam based Powder Bed Additive Manufacturing - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Laser Beam based Powder Bed Additive Manufacturing - Part 2
- Lecture 31 - Electron Beam based Powder Bed Additive Manufacturing
- Lecture 32 - Binder based Powder Bed Additive Manufacturing - Part 1
- Lecture 33 - Binder based Powder Bed Additive Manufacturing - Part 2



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Applied Thermodynamics

Subject Co-ordinator - Prof. Niranjan Sahoo

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Thermodynamic Systems and Pure Substance
- Lecture 2 - Heat and Work Transfer - First Law of Thermodynamics
- Lecture 3 - Second Law of Thermodynamics
- Lecture 4 - Entropy and Exergy
- Lecture 5 - Introduction to Steam Power Plant
- Lecture 6 - Thermodynamics aspects of Steam Power Plant-Efficiency and Work ration
- Lecture 7 - Rankine Cycle and its analysis
- Lecture 8 - Improvement in Rankine Cycle Efficiency: Superheating and Reheating
- Lecture 9 - Improvement in Rankine Cycle Efficiency: Reheating and Regenerative Methods
- Lecture 10 - Improvement in Rankine Cycle Efficiency: Regenerative Methods
- Lecture 11 - Regenerative Cycles
- Lecture 12 - Impulse Steam Turbine: Velocity Diagrams, Work Transfer, Blade Efficiency
- Lecture 13 - Impulse Steam Turbine: Velocity Diagrams, Work Transfer, Blade Efficiency (Continued...)
- Lecture 14 - Reaction Steam Turbine
- Lecture 15 - Reaction Steam Turbine: Velocity Diagram, Work transfer, Blade Efficiency
- Lecture 16 - Steam Nozzle: Analysis and Efficiency
- Lecture 17 - Steam Nozzle: Analysis and Efficiency (Continued...)
- Lecture 18 - Boilers and Condensers
- Lecture 19 - Condensers and Second Law Analysis of Steam Power cycle
- Lecture 20 - Exergy Analysis of a Steam Turbine
- Lecture 21 - Numerical Problems: Steam Power Cycle
- Lecture 22 - IC engine-Components, Nomenclature and Classifications
- Lecture 23 - Basic Engine Cycle and Engine Kinematic Analysis
- Lecture 24 - Engine Operating Characteristics
- Lecture 25 - Thermodynamics Analysis of Air Standard Cycles
- Lecture 26 - Valve Timing Diagram and Fuel-Air Cycle
- Lecture 27 - Thermochemistry and Fuel Characteristics
- Lecture 28 - Combustion Phenomena in Engines
- Lecture 29 - Heat Transfer Analysis in Engines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Exergy Analysis and Engine Emission/Pollution
- Lecture 31 - Gas Turbine Engine-Components and Thermal Circuit
- Lecture 32 - Gas Turbine Performance Cycle - I
- Lecture 33 - Gas Turbine Performance Cycle - II
- Lecture 34 - Real Gas Turbine Performance Cycle
- Lecture 35 - Aircraft Propulsion Cycle - I
- Lecture 36 - Aircraft Propulsion Cycle - II
- Lecture 37 - Vapour Compression Refrigeration System - I
- Lecture 38 - Vapour Compression Refrigeration System - II
- Lecture 39 - Absorption Refrigeration and Refrigerants
- Lecture 40 - Fundamentals of Psychrometrics
- Lecture 41 - Air-Conditioning Processes
- Lecture 42 - Cooling Tower and Air Washers
- Lecture 43 - Reciprocating Compressor - Analysis and Modelling
- Lecture 44 - Multistage Compression - Analysis and Modelling

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Mechanics of Fiber Reinforced Polymer Composite Structures

Subject Co-ordinator - Prof. Debabrata Chakraborty

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Composite Materials - Introduction
- Lecture 2 - Composite Materials - Classification
- Lecture 3 - Anisotropic Elasticity
- Lecture 4 - Orthotropic Materials
- Lecture 5 - Hooke's Law for 2D Lamina
- Lecture 6 - Engineering Constants for 2D Lamina
- Lecture 7 - Strength Failure Criteria - Part I
- Lecture 8 - Strength Failure Criteria - Part II
- Lecture 9 - Hygrothermal Behavior of Lamina
- Lecture 10 - Introduction and Terminologies
- Lecture 11 - Evaluation of Elastic Moduli
- Lecture 12 - Evaluation of Longitudinal Strength
- Lecture 13 - Evaluation of Transverse and Shear Strengths
- Lecture 14 - Evaluation of Hygrothermal Properties
- Lecture 15 - Elasticity Approach
- Lecture 16 - Experimental Evaluation
- Lecture 17 - Laminate - Introduction
- Lecture 18 - Classical Lamination Theory - Part I
- Lecture 19 - Classical Lamination Theory - Part II
- Lecture 20 - Response of Laminate - Significance of ABBD
- Lecture 21 - Special Classes of Laminates
- Lecture 22 - Engineering Constants of Laminates
- Lecture 23 - Hygrothermal Behaviour of Laminates
- Lecture 24 - Analysis of Laminates
- Lecture 25 - Failure of Laminates
- Lecture 26 - Failure Analysis under Combined Loading
- Lecture 27 - Design Example - I
- Lecture 28 - Design Example - II
- Lecture 29 - Interlaminar Stresses- Delamination

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- Lecture 30 - Prediction of Delamination
- Lecture 31 - Transverse Deflection
- Lecture 32 - Buckling and Free Vibration

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Laser Based Manufacturing

Subject Co-ordinator - Prof. Shrikrishna N. Joshi

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Lasers in Manufacturing: Importance and Applications
- Lecture 2 - Fundamentals of Laser Technology
- Lecture 3 - Laser System: Construction and Types
- Lecture 4 - Principle of Operation, Types of Laser Cutting, and Kerf Geometry
- Lecture 5 - Types of Lasers in Material Removal, Process and Performance Parameters
- Lecture 6 - A Case-study on Cutting a Circular Part using CO2 Laser Machine
- Lecture 7 - Mechanisms of Laser Welding - Part I
- Lecture 8 - Mechanisms of Laser Welding - Part II
- Lecture 9 - Effects of Process Parameters during Laser Welding and Study of Defects in Weld Beads
- Lecture 10 - A Case Study on Welding of Mild Steel Sheets using 2.5 kW CO2 Laser Machine
- Lecture 11 - Material Forming and Fundamentals of Laser Forming
- Lecture 12 - Mechanisms of Laser Forming
- Lecture 13 - Process Parameters and their Effects on the Performance of Laser Forming
- Lecture 14 - Surface Treatment and Application of Lasers
- Lecture 15 - Laser Surface Hardening
- Lecture 16 - Laser Surface Alloying
- Lecture 17 - Laser Cladding
- Lecture 18 - Additive Manufacturing Techniques
- Lecture 19 - Laser Scanning Stereolithography
- Lecture 20 - Selective Laser Sintering and Selective Laser Melting
- Lecture 21 - Process and Performance Parameters of Laser Based Additive Manufacturing Techniques
- Lecture 22 - Lasers in Manufacturing Automation
- Lecture 23 - CNC for Laser Based Manufacturing
- Lecture 24 - CAD for Laser Based Manufacturing
- Lecture 25 - Laser-assisted Material Forming
- Lecture 26 - Effect of Coatings, 3D Laser Forming and Micro-forming

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Advanced Thermodynamics and Combustion

Subject Co-ordinator - Prof. Niranjan Sahoo

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Temperature and Zeroth Law of Thermodynamics
- Lecture 2 - Work and Heat Transfer - First Law of Thermodynamics
- Lecture 3 - Heat Engines and Refrigerators/Heat Pump - Second Law of Thermodynamics
- Lecture 4 - Entropy Analysis - Part I
- Lecture 5 - Entropy Analysis - Part II
- Lecture 6 - Entropy Analysis - Part III
- Lecture 7 - Exergy Analysis - Part I
- Lecture 8 - Exergy Analysis - Part II
- Lecture 9 - Exergy Analysis - Part III
- Lecture 10 - Thermodynamic Functions and Maxwell's Equations
- Lecture 11 - Property Relations for Phase Change Processes
- Lecture 12 - Property Relations for Single Phase Systems
- Lecture 13 - Heat Capacity Equations and its Applications
- Lecture 14 - Joule - Thomson Coefficient and Liquefaction of Gases
- Lecture 15 - Ideal Gas and Real Gas
- Lecture 16 - Gas Mixtures and Multi-Component System
- Lecture 17 - Ideal Gas Mixture
- Lecture 18 - Mixing Analysis of Thermodynamic Systems
- Lecture 19 - Thermodynamic Considerations of Combustion
- Lecture 20 - Conservation of Energy for Reacting Systems
- Lecture 21 - Adiabatic Flame Temperature, Entropy and Gibbs Function for Reacting System
- Lecture 22 - Equilibrium Products of Combustion and Effective Energy Utilization
- Lecture 23 - Fundamentals of Chemical Reactions
- Lecture 24 - Reaction Mechanisms - Part I
- Lecture 25 - Reaction Mechanisms - Part II
- Lecture 26 - Chemical and Thermal Analysis of Reacting Systems
- Lecture 27 - Simplified Conservation Equations for Reacting Flows
- Lecture 28 - Laminar Premixed Flame - Part I
- Lecture 29 - Laminar Premixed Flame - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Laminar Diffusion Flame
- Lecture 31 - Droplet Evaporation and Turbulent Flame
- Lecture 32 - Engine Combustion and Pollution

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Thermal Engineering: Basic and Applied

Subject Co-ordinator - Prof. Pranab K. Mondal

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - First law of Thermodynamics for control mass and control volume systems
- Lecture 2 - First law of Thermodynamics for control volume system (Flow system)
- Lecture 3 - Steady State Steady Flow Processes, combination of First and Second Laws
- Lecture 4 - Second Law of Thermodynamics: A Brief Review
- Lecture 5 - Combined First and Second Laws Applied to Processes
- Lecture 6 - Combined First and Second Laws: Flow and Non-Flow Processes
- Lecture 7 - Description of Steam Power Plant: Application of 1st and 2nd Laws to Different Processes
- Lecture 8 - Second Law Applied to Processes of Power Plant and Ideal Cycle of Power Plant
- Lecture 9 - Steam Power Plant: Thermodynamic aspects, Efficiency, Work ratio and Ideal Cycle
- Lecture 10 - Ideal Power Cycle and its Limitations, Introduction to Actual Power Cycle
- Lecture 11 - Limitations of Carnot Cycle, Simple Rankine Cycle and Analysis
- Lecture 12 - Analysis of Simple Rankine Cycle and its Design Modifications
- Lecture 13 - Reheat Cycle and Analysis
- Lecture 14 - Reheat Cycle and Analysis (Continued...)
- Lecture 15 - Regenerative Principle of Steam Power Cycles
- Lecture 16 - Analysis of Regenerative Steam Power Cycles
- Lecture 17 - Regenerative Steam Power Cycle with Closed Feed-Water Heater, Ideal Working Fluid
- Lecture 18 - Multi-fluid Cycle and Analysis
- Lecture 19 - Analysis of Multi-fluid Cycle; Second Law Analysis of Steam Power Cycle
- Lecture 20 - Problems of Steam Power Cycle
- Lecture 21 - Problems of Steam Power Cycle (Continued...)
- Lecture 22 - Types of Boiler, Different Cycles in Boiler Operation, Boiler attachment
- Lecture 23 - Cochran Boiler Operation, Boiler attachment
- Lecture 24 - Boiler Attachments
- Lecture 25 - Superheaters and their Arrangements, Steam Temperature Control
- Lecture 26 - Characteristics of Convective and Radiant Superheaters; Steam Temperature Control
- Lecture 27 - Problems on Boiler/Steam Generator
- Lecture 28 - Use of nozzles in steam power plant, flow analysis of steam in nozzle
- Lecture 29 - Flow analysis of steam in nozzle: Mass flow rate

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- Lecture 30 - Mass flow rate of steam in nozzle, Critical Pressure Ratio
- Lecture 31 - Critical Pressure Ratio and its Physical Significance
- Lecture 32 - Nozzle efficiency and factors that affect the efficiency
- Lecture 33 - Factors that affect the efficiency, problem on flow nozzle
- Lecture 34 - Problem on flow nozzle
- Lecture 35 - Steam Turbines: types and analysis using velocity triangles
- Lecture 36 - Analysis of Impulse Steam Turbine
- Lecture 37 - Compounding of Steam Turbine
- Lecture 38 - Analysis of Reaction Steam Turbine
- Lecture 39 - Problems on Steam Turbine
- Lecture 40 - The Role of Condenser in Power Plant
- Lecture 41 - Cooling Tower: Types and Analysis
- Lecture 42 - Cooling Tower Performance
- Lecture 43 - IC Engines, Classification, Different Parts, SI and CI Engines
- Lecture 44 - Comparison of 2-stroke and 4-stroke Engines
- Lecture 45 - Comparison of SI and CI Engines, Compression Ratio
- Lecture 46 - Introduction to Carburettor and Regimes of Engine Operation
- Lecture 47 - Regimes of Engine Operation and Simple Float Type Carburettor
- Lecture 48 - Simple Float Type Carburettor and its Analysis
- Lecture 49 - Mass Flow Rate of Fuel and limitations of Simple Float Type Carburettor
- Lecture 50 - Limitations of Simple Float Type Carburettor, Problem on Carburettion
- Lecture 51 - Engine Operating Characteristics: MEP and Indicator diagram
- Lecture 52 - Performance Analysis parameters of IC Engine
- Lecture 53 - Fuel of IC Engines
- Lecture 54 - Alternative Fuels and Self Ignition Characteristics of Fuel: Octane Number, Cetane Number
- Lecture 55 - Thermodynamic Analysis of SI Engine
- Lecture 56 - Thermodynamic Analysis of CI Engine
- Lecture 57 - Numerical Problems on Engine Performance
- Lecture 58 - Pressure-Crank angle diagram, Engine Efficiencies
- Lecture 59 - Numerical Problems on SI and CI Engines
- Lecture 60 - Vapour Compression Refrigeration Cycle and its analysis
- Lecture 61 - Problems on Vapour Compression Refrigeration Cycle
- Lecture 62 - Gas Turbine Units and Thermodynamic Cycles
- Lecture 63 - Gas Compressor and Optimum Pressure Ratio
- Lecture 64 - Compressor Efficiency and Multistage Compression with Intercooling
- Lecture 65 - Gas Turbine Unit: Combined Cycle
- Lecture 66 - Problems On Gas Turbine Cycle

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Mechanics of Sheet Metal Forming

Subject Co-ordinator - Prof. R Ganesh Narayanan

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to sheet forming and tensile test of sheets

Lecture 2 - Tensile test, effect of properties, exercise problem

Lecture 3 - Sheet deformation processes

Lecture 4 - Sheet deformation processes (Continued...)

Lecture 5 - Sheet deformation processes (Continued...)

Lecture 6 - Sheet deformation in plane stress

Lecture 7 - Sheet deformation in plane stress (Continued...)

Lecture 8 - Stamping analyses

Lecture 9 - Load instability and tearing

Lecture 10 - Load instability and tearing

Lecture 11 - Formability testing of sheet metals

Lecture 12 - Sheet formability

Lecture 13 - Sheet formability (Continued...)

Lecture 14 - Bending of sheets

Lecture 15 - Bending of sheets (Continued...)

Lecture 16 - Cup deep drawing

Lecture 17 - Deep drawing, redrawing, ironing of cup

Lecture 18 - Stretching of sheet

Lecture 19 - Hydroforming

Lecture 20 - Yield functions with sheet anisotropy

Lecture 21 - Demonstration of sheet forming experiments

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Power Plant System Engineering

Subject Co-ordinator - Prof. Niranjan Sahoo

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Thermodynamics Concepts - Part I
- Lecture 2 - Thermodynamics Concepts - Part II
- Lecture 3 - Thermodynamic Analysis of Vapor Power Cycle
- Lecture 4 - Rankine Cycle
- Lecture 5 - Modified Rankine Cycle
- Lecture 6 - Exergy Analysis of Vapor Power Cycles
- Lecture 7 - Rotodynamic Machines
- Lecture 8 - Impulse Turbine
- Lecture 9 - Reaction Turbine
- Lecture 10 - Performance Analysis of Steam Turbines
- Lecture 11 - Steam Nozzles - Part I
- Lecture 12 - Steam Nozzles - Part II
- Lecture 13 - Steam Generator
- Lecture 14 - Water Tube Boiler - Part I
- Lecture 15 - Water Tube Boiler - Part II
- Lecture 16 - Fuels and Combustion - Part I
- Lecture 17 - Fuels and Combustion - Part II
- Lecture 18 - Steam Condenser
- Lecture 19 - Feed Water Heaters
- Lecture 20 - Cooling Towers
- Lecture 21 - Fundamentals of Gas turbine systems
- Lecture 22 - Modifications of Brayton cycle
- Lecture 23 - Combined Power cycle
- Lecture 24 - Gas Turbines for Aircraft Propulsion
- Lecture 25 - Hydro-Power System - Part I
- Lecture 26 - Hydro-Power System - Part II
- Lecture 27 - Wind Energy - Part I
- Lecture 28 - Wind Energy - Part II
- Lecture 29 - Energy From Oceans - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Energy From Oceans - Part II
- Lecture 31 - Geothermal Energy
- Lecture 32 - Energy Storage - I
- Lecture 33 - Energy Storage - II
- Lecture 34 - Energy Storage - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Solidification Processing

Subject Co-ordinator - Prof. Swarup Bag

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to phase diagrams

Lecture 2 - Thermodynamic relations

Lecture 3 - Single component system and binary solutions

Lecture 4 - Regular solutions

Lecture 5 - Real solutions

Lecture 6 - Phase transformations

Lecture 7 - Practice problems (Module 1)

Lecture 8 - Introduction to homogenous nucleation process

Lecture 9 - Fundamental to heterogeneous nucleation

Lecture 10 - Growth of pure metal

Lecture 11 - Alloy solidification

Lecture 12 - Formation of different S/L interface

Lecture 13 - Solidification structures and segregation

Lecture 14 - Weld Metal Solidification and Microstructure - I

Lecture 15 - Weld Metal Solidification and Microstructure - II

Lecture 16 - Solidification of additive manufacturing - I

Lecture 17 - Solidification of additive manufacturing - II

Lecture 18 - Rate of solidification-sand casting

Lecture 19 - Rate of solidification-die casting

Lecture 20 - Riser design and solidification of pure metal

Lecture 21 - Zone melting and rapid solidification

Lecture 22 - Semisolid processing and other solidification techniques

Lecture 23 - Demonstration of the solidification process and numerical problems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Acoustics

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Intro, sound wave versus vibration, different types of waves, octave, music scales, sense of SPL  
Lecture 2 - Review  
Lecture 3 - Review  
Lecture 4 - Review  
Lecture 5 - 1-D wave equation, and its solution  
Lecture 6 - Solution for 1-D wave equation  
Lecture 7 - Waveguides, transmission line equations, and standing waves  
Lecture 8 - Waveguides, transmission line equations, and standing waves  
Lecture 9 - Examples of 1-D waves in tubes, short tubes, Kundt's tube  
Lecture 10 - Thermodynamic processes during sound transmission  
Lecture 11 - Numerical examples  
Lecture 12 - Sound transmission through walls  
Lecture 13 - Sound transmission through walls  
Lecture 14 - Leakage in walls, STC Ratings, Octave bands  
Lecture 15 - Instantaneous power flow  
Lecture 16 - Radial propagation of sound, monopoles, and dipoles  
Lecture 17 - Radial propagation of sound, monopoles, and dipoles  
Lecture 18 - Radial propagation of sound, monopoles, and dipoles  
Lecture 19 - Numerical examples  
Lecture 20 - Numerical examples  
Lecture 21 - Directivity  
Lecture 22 - Directivity  
Lecture 23 - Directivity  
Lecture 24 - Directivity  
Lecture 25 - Generalized elements  
Lecture 26 - Examples of electromechanical systems  
Lecture 27 - Transformers, radiation impedance, and Helmholtz resonator  
Lecture 28 - Radiation impedance  
Lecture 29 - Radiation impedance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Models of electro-mechanical-acoustic systems
- Lecture 31 - Solution for a loudspeaker model
- Lecture 32 - Microphones
- Lecture 33 - Vibro-meter, seismometer, accelerometer, shaker table
- Lecture 34 - Sound propagation in rooms, 1-D rooms, 2D rooms
- Lecture 35 - Sound in 3-D rooms
- Lecture 36 - Absorption coefficient, and irregular rooms
- Lecture 37 - Room constant, and Sabine's coefficient
- Lecture 38 - Design of a muffler
- Lecture 39 - Noise in machines, basics of noise management

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Advanced Machining Processes

Subject Co-ordinator - Prof. Vijay K. Jain

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Advanced Machining Processes  
Lecture 2 - Advanced Machining Processes  
Lecture 3 - Advanced Machining Processes  
Lecture 4 - Advanced Machining Processes  
Lecture 5 - Advanced Machining Processes  
Lecture 6 - Advanced Machining Processes  
Lecture 7 - Advanced Machining Processes  
Lecture 8 - Advanced Machining Processes  
Lecture 9 - Advanced Machining Processes  
Lecture 10 - Advanced Machining Processes  
Lecture 11 - Advanced Machining Processes  
Lecture 12 - Advanced Machining Processes  
Lecture 13 - Advanced Machining Processes  
Lecture 14 - Advanced Machining Processes  
Lecture 15 - Advanced Machining Processes  
Lecture 16 - Advanced Machining Processes  
Lecture 17 - Advanced Machining Processes  
Lecture 18 - Advanced Machining Processes  
Lecture 19 - Advanced Machining Processes  
Lecture 20 - Advanced Machining Processes  
Lecture 21 - Advanced Machining Processes  
Lecture 22 - Advanced Machining Processes  
Lecture 23 - Advanced Machining Processes  
Lecture 24 - Advanced Machining Processes  
Lecture 25 - Advanced Machining Processes  
Lecture 26 - Advanced Machining Processes  
Lecture 27 - Advanced Machining Processes  
Lecture 28 - Advanced Machining Processes  
Lecture 29 - Advanced Machining Processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Advanced Machining Processes
- Lecture 31 - Advanced Machining Processes
- Lecture 32 - Advanced Machining Processes
- Lecture 33 - Advanced Machining Processes
- Lecture 34 - Advanced Machining Processes

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Biomicroelectromechanical systems

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10 (same as 9)

Lecture 11

Lecture 12 (Lecture Missing)

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

Lecture 21

Lecture 22

Lecture 23

Lecture 24

Lecture 25

Lecture 26

Lecture 27

Lecture 28

Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Computer Aided Engineering Design

Subject Co-ordinator - Dr. Anupam Saxena

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Mathematical Methods in Engineering and Science

Subject Co-ordinator - Dr. Bhaskar Dasgupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Basic Ideas of Applied Linear Algebra
- Lecture 3 - Systems of Linear Equations
- Lecture 4 - Square Non-Singular Systems
- Lecture 5 - Ill-Conditioned and Ill-Posed Systems
- Lecture 6 - The Algebraic Eigenvalue Problem
- Lecture 7 - Canonical Forms, Symmetric Matrices
- Lecture 8 - Methods of Plane Rotations
- Lecture 9 - Householder Method, Tridiagonal Matrices
- Lecture 10 - QR Decomposition, General Matrices
- Lecture 11 - Singular Value Decomposition
- Lecture 12 - Vector Space
- Lecture 13 - Multivariate Calculus
- Lecture 14 - Vector Calculus in Geometry
- Lecture 15 - Vector Calculus in Physics
- Lecture 16 - Solution of Equations
- Lecture 17 - Introduction to Optimization
- Lecture 18 - Multivariate Optimization
- Lecture 19 - Constrained Optimization
- Lecture 20 - Constrained Optimization
- Lecture 21 - Interpolation
- Lecture 22 - Numerical Integration
- Lecture 23 - Numerical Solution of ODE's as IVP
- Lecture 24 - Boundary Value Problems, Question of Stability in IVP Solution
- Lecture 25 - Stiff Differential Equations, Existence and Uniqueness Theory
- Lecture 26 - Theory of First Order ODE's
- Lecture 27 - Linear Second Order ODE's
- Lecture 28 - Methods of Linear ODE's
- Lecture 29 - ODE Systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Stability of Dynamic Systems
- Lecture 31 - Series Solutions and Special Functions
- Lecture 32 - Sturm-Liouville Theory
- Lecture 33 - Approximation Theory and Fourier Series
- Lecture 34 - Fourier Integral to Fourier Transform, Minimax Approximation
- Lecture 35 - Separation of Variables in PDE's, Hyperbolic Equations
- Lecture 36 - Parabolic and Elliptic Equations, Membrane Equation
- Lecture 37 - Analytic Functions
- Lecture 38 - Integration of Complex Functions
- Lecture 39 - Singularities and Residues
- Lecture 40 - Calculus of Variations

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Dynamics of Machines

Subject Co-ordinator - Prof. Amitabha Ghosh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Rigid Body Motion - Part 1
- Lecture 2 - Rigid Body Motion - Part 2
- Lecture 3 - Dynamic Force Analysis of Mechanisms
- Lecture 4 - Space Motion of Rigid Bodies
- Lecture 5 - Inertia Tensor Angular Momentum
- Lecture 6 - Euler's Equation of Motion
- Lecture 7 - Gyroscopic Action in Machines
- Lecture 8 - Unbalance in Machines
- Lecture 9 - Rotary Balancing
- Lecture 10 - Balancing Machines
- Lecture 11 - Field Balancing of Rotors
- Lecture 12 - Single-Cylinder Engine Balancing
- Lecture 13 - Balancing of Single Slider Machines
- Lecture 14 - In-Line Engine Balancing
- Lecture 15 - V and Radial Engine Balancing
- Lecture 16 - Turning Moment Diagram
- Lecture 17 - Flywheel Analysis
- Lecture 18 - Dynamics of Machines
- Lecture 19 - Dynamics of Machines
- Lecture 20 - Dynamics of Machines
- Lecture 21 - Dynamics of Machines
- Lecture 22 - Dynamics of Machines
- Lecture 23 - Dynamics of Machines
- Lecture 24 - Dynamics of Machines
- Lecture 25 - Dynamics of Machines
- Lecture 26 - Dynamics of Machines
- Lecture 27 - Dynamics of Machines
- Lecture 28 - Dynamics of Machines
- Lecture 29 - Rotating Vector Approach

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equivalent viscous damping
- Lecture 31 - Dynamics of Machines
- Lecture 32 - Systems with two degree of freedom
- Lecture 33 - Tuned Vibration Absorber
- Lecture 34 - Design of Vibration Absorbers
- Lecture 35 - Flexibility Matrix Influence Coeff
- Lecture 36 - Forced Vibration of multiple
- Lecture 37 - Forced Vibration of Multiple degrees
- Lecture 38 - Vibration of Continuous Systems
- Lecture 39 - Vibration of Continuous Systems
- Lecture 40 - Vibration of Beams
- Lecture 41 - Rayleigh's method
- Lecture 42 - Rayleigh-Ritz Method
- Lecture 43 - Vibration Measurement
- Lecture 44 - Vibration Measurement Types of Pickups

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Finite Element Method

Subject Co-ordinator - Prof. C.S. Upadhyay

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Module 1 - Lecture 1  
Module 1 - Lecture 2  
Module 1 - Lecture 3  
Module 2 - Lecture 1  
Module 2 - Lecture 2  
Module 2 - Lecture 3  
Module 2 - Lecture 4  
Module 3 - Lecture 1  
Module 3 - Lecture 2  
Module 3 - Lecture 3  
Module 4 - Lecture 1  
Module 4 - Lecture 2  
Module 4 - Lecture 3  
Module 5 - Lecture 1  
Module 5 - Lecture 2  
Module 5 - Lecture 3  
Module 6 - Lecture 1  
Module 6 - Lecture 2  
Module 6 - Lecture 3  
Module 7 - Lecture 1  
Module 7 - Lecture 2  
Module 7 - Lecture 3  
Module 7 - Lecture 4  
Module 8 - Lecture 1  
Module 8 - Lecture 2  
Module 8 - Lecture 3  
Module 9 - Lecture 1  
Module 9 - Lecture 2  
Module 9 - Lecture 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Module 10 - Lecture 1  
Module 10 - Lecture 2  
Module 11 - Lecture 1  
Module 11 - Lecture 2  
Module 12 - Lecture 1  
Module 13 - Lecture 1  
Module 13 - Lecture 2  
Module 14 - Lecture 1  
Module 14 - Lecture 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Kinematics of Machines

Subject Co-ordinator - Prof. Ashok K Mallik

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Module 1 - Lecture 1  
Module 1 - Lecture 2  
Module 1 - Lecture 3  
Module 2 - Lecture 1  
Module 2 - Lecture 2  
Module 2 - Lecture 3  
Module 3 - Lecture 1  
Module 3 - Lecture 2  
Module 3 - Lecture 3  
Module 3 - Lecture 4  
Module 4 - Lecture 1  
Module 4 - Lecture 2  
Module 5 - Lecture 1  
Module 5 - Lecture 2  
Module 5 - Lecture 3  
Module 6 - Lecture 1  
Module 6 - Lecture 2  
Module 6 - Lecture 3  
Module 7 - Lecture 1  
Module 7 - Lecture 2  
Module 7 - Lecture 3  
Module 8 - Lecture 1  
Module 8 - Lecture 2  
Module 9 - Lecture 1  
Module 9 - Lecture 2  
Module 9 - Lecture 3  
Module 9 - Lecture 4  
Module 10 - Lecture 1  
Module 10 - Lecture 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Module 10 - Lecture 3  
Module 11 - Lecture 1  
Module 11 - Lecture 2  
Module 11 - Lecture 3  
Module 12 - Lecture 1  
Module 12 - Lecture 2  
Module 12 - Lecture 3  
Module 13 - Lecture 1  
Module 13 - Lecture 2  
Module 13 - Lecture 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Advanced manufacturing process for micro sytem fabrication

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lab session 1 - Advanced manufacturing process for micro sytem fabrication

Lab session 2 - EDM Micro Machening

Lab session 3 - EDM Micro Drilling

Lab session 4 - Laser Machening Process

Lab session 5 - Vaccume Assisted Forming

Lab session 6 - Vaccume Forming

Lab session 7 - Photolithiography

Lab session 8 - Replication part 1

Lab session 9 - Replication part 2

Lab session 10 - PCB Making

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Engineering Drawing (Dr. Anupam Saxena)

Subject Co-ordinator - Dr. Anupam Saxena

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lab Session 1

Lab Session 2

Lab Session 3

Lab Session 4

Lab Session 5

Lab Session 6

Lab Session 7

Lab Session 8

Lab Session 9

Lab Session 10

Lab Session 11

Lab Session 12

Lecture 1 - Technical Arts 101

Lecture 2 - Technical Arts 101

Lecture 3 - Technical Arts 101

Lecture 4 - Technical Arts 101

Lecture 5 - Technical Arts 101

Lecture 6 - Technical Arts 101

Lecture 7 - Technical Arts 101

Lecture 8 - Technical Arts 101

Lecture 9 - Technical Arts 101

Lecture 10 - Technical Arts 101

Lecture 11 - Technical Arts 101

Lecture 12 - Technical Arts 101

Lecture 13 - Technical Arts 101

Lecture 14 - Technical Arts 101

Lecture 15 - Technical Arts 101

Lecture 16 - Technical Arts 101

Lecture 17 - Technical Arts 101

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 18 - Technical Arts 101  
Lecture 19 - Technical Arts 101  
Lecture 20 - Technical Arts 101  
Lecture 21 - Technical Arts 101  
Lecture 22 - Technical Arts 101  
Lecture 23 - Technical Arts 101  
Lecture 24 - Technical Arts 101  
Lecture 25 - Technical Arts 101  
Lecture 26 - Technical Arts 101  
Lecture 27 - Technical Arts 101  
Lecture 28 - Technical Arts 101

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:BioMEMS and Microsystems

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1  
Lecture 2 - Lecture 2  
Lecture 3 - Lecture 3  
Lecture 4 - Review Lecture 1,2,3  
Lecture 5 - Lecture 4  
Lecture 6 - Lecture 5  
Lecture 7 - Lecture 6  
Lecture 8 - Review Lecture 4,5,6  
Lecture 9 - Lecture 7  
Lecture 10 - Lecture 8  
Lecture 11 - Lecture 9-10  
Lecture 12 - Lecture-11  
Lecture 13 - Lecture-12  
Lecture 14 - Lecture-13  
Lecture 15 - Lecture-14  
Lecture 16 - Lecture-15  
Lecture 17 - Lecture-16  
Lecture 18 - Lecture-17  
Lecture 19 - Lecture-18  
Lecture 20 - Lecture-19  
Lecture 21 - Review Lecture 7 to 10  
Lecture 22 - Review Lecture 11 to 13  
Lecture 23 - Review Lecture 14 to 16  
Lecture 24 - Lecture-20  
Lecture 25 - Lecture-21  
Lecture 26 - Lecture-22  
Lecture 27 - Lecture-23  
Lecture 28 - Lecture-24  
Lecture 29 - Lecture-25

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Review Lecture 17,18,19  
Lecture 31 - Review Lecture 20,21,22  
Lecture 32 - Lecture-26  
Lecture 33 - Lecture-27  
Lecture 34 - Lecture-28  
Lecture 35 - Lecture-29  
Lecture 36 - Lecture-30  
Lecture 37 - Lecture-31  
Lecture 38 - Lecture-32  
Lecture 39 - Lecture-33  
Lecture 40 - Review lecture 23,24,25  
Lecture 41 - Review lecture 26,27,28  
Lecture 42 - Review lecture 29 to 33

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Manufacturing Systems Technology

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40  
Lecture 41  
Lecture 42  
Lecture 43  
Lecture 44  
Lecture 45  
Lecture 46  
Lecture 47  
Lecture 48

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Manufacturing Systems Technology - Part II

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Quality Engineering
- Lecture 2 - Quality Costs
- Lecture 3 - Product Design
- Lecture 4 - Design of Experiments
- Lecture 5 - Applications of Quality Loss Function
- Lecture 6 - Product Selection Strategies
- Lecture 7 - Robust Design Approaches
- Lecture 8 - Taguchi's Method
- Lecture 9 - Failure mode and effects analysis
- Lecture 10 - Problem Solving : Failure mode and effects analysis - 1
- Lecture 11 - Problem solving : Failure mode and effects analysis - 2
- Lecture 12 - Product quality improvement methods
- Lecture 13 - Quality tools - Part 1
- Lecture 14 - Quality Tools - Part 2
- Lecture 15 - Different types of control charts
- Lecture 16 - Mean, Variance and Standard deviation
- Lecture 17 - X bar chart, R-chart
- Lecture 18 - Plotting methods for control charts
- Lecture 19 - Six Sigma - Part 1
- Lecture 20 - Six Sigma - Part 2
- Lecture 21 - Theory of probability
- Lecture 22 - Determining the defective products using Probability
- Lecture 23 - Sampling based on Permutations and Combinations
- Lecture 24 - Binomial distribution
- Lecture 25 - Poisson distribution
- Lecture 26 - Poisson distribution
- Lecture 27 - Normal Distribution
- Lecture 28 - Overview of control charts and different types of distribution
- Lecture 29 - Fundamental of Robotics and its applications in Automated Systems

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Lecture 30 - Joint configuration systems of Robot

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Basics of Finite Element Analysis

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Finite Element Analysis(FEA)
- Lecture 2 - Introduction of FEA, Nodes, Elements and Shape Functions
- Lecture 3 - Nodes, Elements and Shape Functions
- Lecture 4 - Polynomials as Shape Functions, Weighted Residuals, Elements and Assembly Level Equations
- Lecture 5 - Types of Errors in FEA, Overall FEA Process and Convergence
- Lecture 6 - Strengths of FE Method, Continuity conditions at Interfaces
- Lecture 7 - Key concepts and terminologies
- Lecture 8 - Weighted integral statements
- Lecture 9 - Integration by parts - Review
- Lecture 10 - Gradient and Divergence Theorems-Part - I
- Lecture 11 - Gradient and Divergence Theorems Part - II
- Lecture 12 - Functionals
- Lecture 13 - Variational Operator
- Lecture 14 - Weighted Integral and Weak Formulation
- Lecture 15 - Weak Formulation
- Lecture 16 - Weak Formulation and Weighted Integral
- Lecture 17 - Variational Methods
- Lecture 18 - Rayleigh Ritz Method
- Lecture 19 - Method of Weighted Residuals
- Lecture 20 - Different types of Weighted Residual Methods - Part I
- Lecture 21 - Different types of Weighted Residual Methods - Part II
- Lecture 22 - FEA formulation for 2nd order BVP - Part I
- Lecture 23 - FEA formulation for 2nd order BVP - Part II
- Lecture 24 - Element Level Equations
- Lecture 25 - 2nd Order Boundary Value Problem
- Lecture 26 - Assembly of element equations
- Lecture 27 - Assembly of element equations and implementation of boundary conditions
- Lecture 28 - Assembly process and the connectivity matrix
- Lecture 29 - Radially Symmetric Problems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - One dimensional heat transfer
- Lecture 31 - 1D-Heat conduction with convective effects
- Lecture 32 - Euler-Bernoulli beam
- Lecture 33 - Interpolation functions for Euler-Bernoulli beam
- Lecture 34 - Finite element equations for Euler-Bernoulli beam
- Lecture 35 - Assembly equations for Euler-Bernoulli beam
- Lecture 36 - Boundary conditions for Euler-Bernoulli beam
- Lecture 37 - Shear deformable beams
- Lecture 38 - Finite element formulation for shear deformable beams
- Lecture 39 - Finite element formulation for shear deformable beams
- Lecture 40 - Equal interpolation but reduced integration element
- Lecture 41 - Eigenvalue problems
- Lecture 42 - Eigenvalue problems
- Lecture 43 - Introduction to time dependent problems
- Lecture 44 - Spatial approximation
- Lecture 45 - Temporal approximation for parabolic problems
- Lecture 46 - Temporal approximation for parabolic problems
- Lecture 47 - Temporal approximation for hyperbolic problems
- Lecture 48 - Explicit and implicit method, diagonalization of mass matrix, closure

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Basics of Noise and Its Measurements

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Vibration versus Waves
- Lecture 3 - Nature of Sound
- Lecture 4 - The Decibel Scale
- Lecture 5 - Some Key Terms
- Lecture 6 - Adding Decibels
- Lecture 7 - Modeling Sound Propagation
- Lecture 8 - The Momentum Equation
- Lecture 9 - The Continuity Equation and The Gas Law
- Lecture 10 - 1-D Wave Equation
- Lecture 11 - General Solution for 1-D Wave Equation
- Lecture 12 - Complex Time Signal and Transfer Functions
- Lecture 13 - Transmission line equations
- Lecture 14 - Planar Waves in Closed Tubes
- Lecture 15 - Planar Waves in 1-D Open Tubes
- Lecture 16 - A Semi-Infinite Tube and Overall Summary
- Lecture 17 - 1-D Tubes with Imperfect Terminations
- Lecture 18 - Measuring Impedance Through Kundt's Apparatus
- Lecture 19 - Classification of Microphones
- Lecture 20 - Classification of Microphones - Continuation
- Lecture 21 - Classification of Microphones by Application
- Lecture 22 - Microphone Sensitivity
- Lecture 23 - Microphone Sensitivity- Continuation
- Lecture 24 - Selecting the Right Microphone
- Lecture 25 - Fourier Series Expansion
- Lecture 26 - Fourier Series Expansion - Continuation
- Lecture 27 - Fourier Integral
- Lecture 28 - Fourier Integral - Continuation
- Lecture 29 - Fourier Transform

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fourier Transform - Continuation
- Lecture 31 - Discrete Fourier Transform (DFT)
- Lecture 32 - Discrete Fourier Transform (DFT) - Continuation
- Lecture 33 - DFT - Calculating Frequencies and Padding
- Lecture 34 - DFT - Influence of Duration and Sampling frequency on resolution
- Lecture 35 - FFT and Inverse FFT
- Lecture 36 - Considerations while deciding instrumentation
- Lecture 37 - Considerations while selecting instruments for noise measurements
- Lecture 38 - Measuring impedance through two microphone method
- Lecture 39 - Designing an impedance measurement tube
- Lecture 40 - Octave band analysis
- Lecture 41 - Calculating results in octave bands
- Lecture 42 - Weighting
- Lecture 43 - Short time Fourier transforms (STFT)
- Lecture 44 - Spectrograms
- Lecture 45 - Reverberation time
- Lecture 46 - Anechoic rooms
- Lecture 47 - STC, NRC and sound attenuation
- Lecture 48 - Reverberant rooms

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Manufacturing Process Technology - Part I

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Manufacturing Process Tecnology
- Lecture 2 - Structure of Matter (Bonding of Solids, Crystal Structures)
- Lecture 3 - Brief introduction of non-conventional machining processes
- Lecture 4 - Structure of matters (bonding of solids, crystal structures)
- Lecture 5 - Elastic and Plastic Deformation
- Lecture 6 - Crystal imperfection and dislocation
- Lecture 7 - Plastic Deformation
- Lecture 8 - Material Properties, Stress Strain Diagram for differnt types of materials
- Lecture 9 - Friction and Wear, Solid solutions
- Lecture 10 - Equilibrium Phase Diagram
- Lecture 11 - Iron-carbon equilibrium phase diagram
- Lecture 12 - Control of material properties (Alloying and heat treatment), Mechanical properties and Recrysta
- Lecture 13 - Introduction To Casting Process
- Lecture 14 - Pattern and Mold Design
- Lecture 15 - Mold Making Procedures
- Lecture 16 - Fundamentals of Melting and Furnaces & Pouring and Gating Design
- Lecture 17 - Vertical and Bottom Gating Systems Edit Lesson
- Lecture 18 - Numerical Estimation To Find Mold Filling Time and Mold Design
- Lecture 19 - Effects of friction and velocity distribution in time of filling
- Lecture 20 - Numerical design of gating systems using frictional and bending losses
- Lecture 21 - Principle of cooling and solidification in single and multiphase systems
- Lecture 22 - Estimation of rate of solidification
- Lecture 23 - Principles of cooling and solidification of casting
- Lecture 24 - Modeling of Solidification Rates of Thin Casting in a Metal Mold
- Lecture 25 - Solidification with Predominant Interface Resistance
- Lecture 26 - Solidification with Constant Casting Surface Temperature
- Lecture 27 - Solidification of Casting with Predominant Resistance in Mold and Solidified Metal
- Lecture 28 - Solidification Time for Permanent Mold Casting
- Lecture 29 - Solidification with Constant Casting Surface

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- Lecture 30 - Riser Design and Placement - Part 1
- Lecture 31 - Riser Design and Placement - Part 2
- Lecture 32 - Riser Design and Placement - Part 3
- Lecture 33 - Introduction of Machining Processes
- Lecture 34 - Review of Basic Machining Processes and the Mechanics of Chip Formation
- Lecture 35 - Estimation of Cutting Ratio and Shear Angle
- Lecture 36 - Merchant's Force Analysis
- Lecture 37 - Merchant Theory (Cutting Forces Analysis)
- Lecture 38 - Merchant Theory (Force analysis) Part-2
- Lecture 39 - Lee Shaffer's Solution
- Lecture 40 - Specific Energy Model for Cutting
- Lecture 41 - Modeling of Heat Generation and Cutting Tool Temperature
- Lecture 42 - Temperature in Cutting and Builtup Edge Formation
- Lecture 43 - Metal Cutting Operation
- Lecture 44 - Tool life and Tool wear
- Lecture 45 - Economics of Machining
- Lecture 46 - Joining Process
- Lecture 47 - Principle of Solid State Welding
- Lecture 48 - Numerical Design of Welding Power Sources in Arc Welding

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Nature and Property of Materials

Subject Co-ordinator - Prof. Bishakh Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - History and Evolution of Materials  
Lecture 2 - Classification of Materials  
Lecture 3 - Advanced and Exotic Materials  
Lecture 4 - Mechanical Properties of Materials - I  
Lecture 5 - Mechanical Properties of Materials - II  
Lecture 6 - Mechanical Properties of Materials - III  
Lecture 7 - Bonding between atoms  
Lecture 8 - The Role of Crystal Structure - I  
Lecture 9 - The Role of Crystal Structure - II  
Lecture 10 - The Role of Crystal Structure - III  
Lecture 11 - Metals - I (Ferrous alloys)  
Lecture 12 - Metals - II (Non-Ferrous alloys)  
Lecture 13 - Metals - III (Strengthening and Degradation)  
Lecture 14 - Ceramics - I  
Lecture 15 - Ceramics - II  
Lecture 16 - Polymers  
Lecture 17 - Polymeric Structure  
Lecture 18 - Effects of Glass transition temperature  
Lecture 19 - Polymer Mechanical properties  
Lecture 20 - Composites - I  
Lecture 21 - Composites - II  
Lecture 22 - Composites - III  
Lecture 23 - Smart Materials - I (Introduction)  
Lecture 24 - Smart Materials - II (Piezoelectricity)  
Lecture 25 - Smart Materials - III (Magnetostriction)  
Lecture 26 - Smart Materials - IV (Smart Polymers)  
Lecture 27 - Smart Materials - V (SMA)  
Lecture 28 - Materials Selection in Engineering Design  
Lecture 29 - Numerical

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Numerical
- Lecture 31 - Numerical
- Lecture 32 - Numerical
- Lecture 33 - Optical Properties
- Lecture 34 - Optical Fiber
- Lecture 35 - Thermal Properties
- Lecture 36 - Numerical
- Lecture 37 - Electric Properties - I
- Lecture 38 - Electric Properties - II
- Lecture 39 - Magnetic Properties
- Lecture 40 - Laboratory demonstration

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Manufacturing Process Technology - Part II

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Advanced Machining Processes
- Lecture 2 - Classification of Machining Processes
- Lecture 3 - Silicon growth and Crystallography
- Lecture 4 - Micro Fabrication Technology
- Lecture 5 - Photolithography
- Lecture 6 - Soft Lithography
- Lecture 7 - Introduction to Wet Etching Techniques
- Lecture 8 - Introduction to Dry Etching Techniques
- Lecture 9 - Introduction of Additive Techniques
- Lecture 10 - Introduction to Abrasive Jet Machining Process
- Lecture 11 - Ultrasonic Machining Process
- Lecture 12 - Determination of MRR of Ultrasonic Machining Process
- Lecture 13 - Mechanics of Ultrasonic Machining (USM)
- Lecture 14 - Effect of Process parameters of USM
- Lecture 15 - Ultrasonic Machining Unit
- Lecture 16 - Electrochemical Machining Processes (ECM)
- Lecture 17 - Material Removal Rate of ECM
- Lecture 18 - Electrode Double Layer
- Lecture 19 - Material removal rate of an alloy in ECM
- Lecture 20 - Kinematics and Dynamics of ECM
- Lecture 21 - Temperature and Pressure rise during ECM
- Lecture 22 - Determination of Electrolyte flow velocity in ECM
- Lecture 23 - Effect of heat and Hydrogen bubble generation during ECM Process
- Lecture 24 - Theoretical determination of Tool shape
- Lecture 25 - Design for Electrolyte flow in ECM
- Lecture 26 - Introductions of Electro-chemical Drilling Process
- Lecture 27 - Introduction to Finishing Process
- Lecture 28 - Electric Discharge Machining Process
- Lecture 29 - EDM part-2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Effect of various process parameters on EDM process
- Lecture 31 - Analysis of RC circuit for EDM
- Lecture 32 - Electrodischarge machining system
- Lecture 33 - Effect of various parameters on EDM Process
- Lecture 34 - Tool Electrodes and Dielectric fluids and Electron Beam Machining
- Lecture 35 - Mechanics of Electron Beam Machining Process
- Lecture 36 - Functional Characteristics of EBM Process Edit Lesson
- Lecture 37 - Introduction of Laser Beam Machining Process
- Lecture 38 - Material removal rate of LBM
- Lecture 39 - Heat conduction and Temperature rise during LBM
- Lecture 40 - Modelling of LBM processes
- Lecture 41 - Metal forming Processes Edit Lesson
- Lecture 42 - Yield Criterion used in Metal Forming Processes Edit Lesson
- Lecture 43 - Concept of Principal stress, strain
- Lecture 44 - Trescas' Yield criteria and Rolling Process
- Lecture 45 - Rolling Processes - Part 1
- Lecture 46 - Rolling Processes - Part 2
- Lecture 47 - Additive Manufacturing Processes
- Lecture 48 - Fused Deposition Modeling Process

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Basics of Finite Element Analysis - II

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of the Course
- Lecture 2 - Fundamental principles
- Lecture 3 - Steps followed in FEA
- Lecture 4 - Weak Formulation
- Lecture 5 - Weak Formulation
- Lecture 6 - Assembling element level equations
- Lecture 7 - Errors in FEA Solution
- Lecture 8 - Measures of Errors in FEA Solution
- Lecture 9 - Convergence and Accuracy of Solution - Part I
- Lecture 10 - Convergence and Accuracy of Solution - Part II
- Lecture 11 - Convergence - Part I
- Lecture 12 - Convergence - Part II
- Lecture 13 - Numerical Integration Schemes - Part I
- Lecture 14 - Numerical Integration Schemes - Part II
- Lecture 15 - Approximations - Part I
- Lecture 16 - Approximations - Part II
- Lecture 17 - Approximations - Part III
- Lecture 18 - Gauss Quadrature
- Lecture 19 - Gaussian Quadrature review
- Lecture 20 - Gaussian Quadrature - Part II
- Lecture 21 - Gaussian Quadrature - Part III
- Lecture 22 - Newton-Cotes Quadrature
- Lecture 23 - Two dimensional FEM problem
- Lecture 24 - Two dimensional one variable FEM problem
- Lecture 25 - 2D Finite element problems with single variable (Model equation)
- Lecture 26 - 2D Finite element problems with single variable (Weak formulation)
- Lecture 27 - Elemental level 2D finite element equations
- Lecture 28 - Interpolation functions for 2D finite element problems
- Lecture 29 - Interpolation functions for linear triangular elements - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interpolation functions for linear triangular elements - Part II
- Lecture 31 - Interpolation functions for Triangular and Rectangular elements
- Lecture 32 - Evaluation of Stiffness and Force matrices
- Lecture 33 - Stiffness and Force matrices for Triangular element
- Lecture 34 - Stiffness and Force matrices for Rectangular element
- Lecture 35 - Boundary elements for Finite element Equations
- Lecture 36 - Boundary integrals for Triangular element
- Lecture 37 - Assembly of 2-D finite elements - Part I
- Lecture 38 - Assembly of 2-D finite elements - Part II
- Lecture 39 - 2-D Heat transfer problems - Part I
- Lecture 40 - 2-D Heat transfer problems - Part II
- Lecture 41 - Numerical integration schemes for 2-D problems
- Lecture 42 - Jacobian and transformation matrix for 2-D problems
- Lecture 43 - Numerical Integration Schemes for 2-D Problems
- Lecture 44 - Post-processing
- Lecture 45 - Plane Elasticity Problems
- Lecture 46 - Plane Elasticity Problems
- Lecture 47 - Plane Elasticity Problems
- Lecture 48 - Plane Elasticity Problems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Principles of Vibration Control

Subject Co-ordinator - Prof. Bishakh Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Vibration control
- Lecture 2 - Strategies and Steps in Vibration Control
- Lecture 3 - Strategies, Active control, Detuning and Decoupling
- Lecture 4 - Viscous damping model
- Lecture 5 - Coulomb and Hysteretic damping model
- Lecture 6 - Energy Dissipation in Structural Materials
- Lecture 7 - Material Selection Criterion against Damping
- Lecture 8 - Design for Enhanced Material Damping
- Lecture 9 - Linear Viscoelastic Materials and Models
- Lecture 10 - Maxwell and 3-Parameter Models
- Lecture 11 - Complex modulus and Applications of VEM
- Lecture 12 - Basics of Dynamic Vibration Absorber
- Lecture 13 - Modelling of Dynamic Vibration Absorber
- Lecture 14 - Proof mass Actuator
- Lecture 15 - Springs for Vibration Isolation
- Lecture 16 - Introduction to Active Vibration Control
- Lecture 17 - Basics of Classical Control System
- Lecture 18 - Basics of State Space Control
- Lecture 19 - Controllability and Observability of System
- Lecture 20 - Full State Feedback Control
- Lecture 21 - SMSS Laboratory Demonstration

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Acoustics

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lesson 1 - Course Overview  
Lecture 2 - Lesson 2 - Introduction  
Lecture 3 - Lesson 3 - Nature Of Sound  
Lecture 4 - Lesson 4 - The Decibel scale  
Lecture 5 - Lesson 5 - Key Terms In Acoustics  
Lecture 6 - Lesson 6 - Adding Decibels  
Lecture 7 - Lesson 1 - Important Mathematical Concepts-Complex Algebra  
Lecture 8 - Lesson 2 - Important Mathematical Concepts-Complex Time Signals  
Lecture 9 - Lesson 3 - Important Mathematical Concepts-Transfer Function  
Lecture 10 - Lesson 4 - Important Mathematical Concepts-Pole Zero Plot  
Lecture 11 - Lesson 5 - Important Mathematical Concepts - Bode Plot For Simple Pole  
Lecture 12 - Lesson 6 - Important Mathematical Concepts - Bode Plot For Simple Zero  
Lecture 13 - Lesson 1 - Bode Plots (Magnitude) for Complex Transfer Functions  
Lecture 14 - Lesson 2 - Momentum Equation for 1-D Sound Propagation  
Lecture 15 - Lesson 3 - Continuity Equation for 1-D Sound Propagation  
Lecture 16 - Lesson 4 - Gas Law for 1-D Sound Propagation  
Lecture 17 - Lesson 5 - 1-D Wave Equation  
Lecture 18 - Lesson 6 - Solution for 1-D Wave Equation  
Lecture 19 - Lesson 1 - Waveguide  
Lecture 20 - Lesson 2 - Transmission Line Equations - Part I  
Lecture 21 - Lesson 3 - Transmission Line Equations - Part II  
Lecture 22 - Lesson 4 - Transmission Line Equations - Part III  
Lecture 23 - Lesson 5 - Transmission Line Equations - Part IV  
Lecture 24 - Lesson 6 - Transmission Line Equations - Part V  
Lecture 25 - Lesson 1 - Instantaneous Power  
Lecture 26 - Lesson 2 - Instantaneous Power in a L-R Circuit  
Lecture 27 - Lesson 3 - Power Factor, and Acoustic Power  
Lecture 28 - Lesson 4 - Power Flow into an Infinitely Long Tube  
Lecture 29 - Lesson 5 - Point Sources of Sound

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lesson 6 - Relations for Outward Travelling Spherical Acoustic Wave
- Lecture 31 - Lesson 1 - Specific Acoustic Impedance for a Closed Tube
- Lecture 32 - Lesson 2 - Specific Acoustic Impedance for an Open Tube and an Infinitely Long Tube
- Lecture 33 - Lesson 3 - Specific Acoustic Impedance for a Tube with Imperfect Termination
- Lecture 34 - Lesson 4 - Kundt's Tube
- Lecture 35 - Lesson 5 - Volume Velocity
- Lecture 36 - Lesson 6 - Comparison of Impedances for a Radially Propagating Wave and a Planar Wave
- Lecture 37 - Lesson 1 - Interference of sound sources - Part I
- Lecture 38 - Lesson 2 - Interference of sound sources - Part II
- Lecture 39 - Lesson 3 - Interference of sound sources - Part III
- Lecture 40 - Lesson 4 - Interference of sound sources - Part IV
- Lecture 41 - Lesson 5 - Directivity
- Lecture 42 - Lesson 6 - Complex power, pressure and velocity for a spherical source
- Lecture 43 - Lesson 1 - Noise reduction - Mass Attenuation Method
- Lecture 44 - Lesson 2 - Noise Reduction - Pressure Ratio
- Lecture 45 - Lesson 3 - Noise Reduction - Velocity of Wall
- Lecture 46 - Lesson 4 - 3 Media Problem - Introduction
- Lecture 47 - Lesson 5 - 3 Media Problem - Apply Boundary Conditions
- Lecture 48 - Lesson 6 - 3 Media Problem - Special cases
- Lecture 49 - Lesson 1 - Mufflers
- Lecture 50 - Lesson 2 - Designing of Reactive Mufflers
- Lecture 51 - Lesson 3 - Designing of Dissipative Mufflers
- Lecture 52 - Lesson 4 - Time and Frequency Domain Representation of a Signal
- Lecture 53 - Lesson 5 - Fourier Series
- Lecture 54 - Lesson 6 - Fourier Series
- Lecture 55 - Lesson 1 - Fourier Transform
- Lecture 56 - Lesson 2 - Fourier Transform
- Lecture 57 - Lesson 3 - Fourier Transform
- Lecture 58 - Lesson 4 - Discrete Fourier Transform (DFT)
- Lecture 59 - Lesson 5 - Discrete Fourier Transform (DFT)
- Lecture 60 - Lesson 6 - Discrete Fourier Transform (DFT)
- Lecture 61 - Lesson 1 - Measuring Sound Signals
- Lecture 62 - Lesson 2 - Microphones
- Lecture 63 - Lesson 3 - Microphones
- Lecture 64 - Lesson 4 - Weighting
- Lecture 65 - Lesson 5 - Loudness
- Lecture 66 - Lesson 6 - Loudness
- Lecture 67 - Lesson 1 - Octave Band Analysis - Part I
- Lecture 68 - Lesson 2 - Octave Band Analysis - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Lesson 3 - Octave Band Analysis & Part III
- Lecture 70 - Lesson 4 - Reverberation Time
- Lecture 71 - Lesson 5 - Calculation of Reverberation Time and Sound Transmission Class (STC)
- Lecture 72 - Lesson 6 - Noise Reduction Coefficient (NRC)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Heat Treatment and Surface Hardening - II

Subject Co-ordinator - Dr. Kallol Mondal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Recap - I

Lecture 2 - Recap - II

Lecture 3 - Recap - III

Lecture 4 - Determination of Phase Diagram (Experimentally) - I

Lecture 5 - Determination of Phase Diagram (Experimentally) - II

Lecture 6 - Determination of Phase Diagram (Thermodynamically)

Lecture 7 - Effect of pressure on phase transformation temperature and concept of equilibrium between condens

Lecture 8 - Effect of different parameters on heat treatment and concept of saturation vapor pressure with ex

Lecture 9 - Title

Lecture 10 - G-X diagrams (Part- II) and concept of chemical potential (Micro Sign) from G-X diagrams.

Lecture 11 - Concept of common tangent for equilibrium between two phases

Lecture 12 - Expressions for equilibrium of two phases - I

Lecture 13 - Expressions for equilibrium of two phases - II

Lecture 14 - Expressions for equilibrium of two phases - III

Lecture 15 - Determining nucleation of phases using G-X plot

Lecture 16 -  $\hat{I} G$  for nucleation and overall transformation, concepts of solid state transformation including

Lecture 17 - Introduction to real solutions and expression of  $\hat{I} H_{mix}$  based on the Quasi-Chemical Model (QCM)

Lecture 18 - Expression for  $\hat{I} H_{mix}$  as a function of interaction energy and mole fraction, based on the QCM -

Lecture 19 - Expression for  $\hat{I} H_{mix}$  as a function of interaction energy and mole fraction, based on the QCM -

Lecture 20 - Graphical representation of  $\hat{I} G_{mix}$ ,  $\hat{I} H_{mix}$ , and  $-T\hat{I} S_{mix}$  for real solutions and evolution of eut

Lecture 21 - Effect of  $\hat{I} H_{mix}$  on determination of phase diagrams (same crystal structure)

Lecture 22 - Effect of  $\hat{I} H_{mix}$  on determination of phase diagrams (Continued...)

Lecture 23 - Importance of phase diagrams

Lecture 24 - Effect of heat treatment on microstructure evolution in steel - I

Lecture 25 - Effect of heat treatment on microstructure evolution in steel - II

Lecture 26 - Recap of homogeneous and heterogeneous nucleation for solid to solid transformation

Lecture 27 - Nucleation rate and its dependence on T (temp. of interest),  $\hat{I} T$ ,  $\hat{I} G_v$  and  $\hat{I} G^*$  and, introducti

Lecture 28 - Growth kinetics (Continued...)

Lecture 29 - Growth rate variation with undercooling and kinetics of overall phase transformation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Implication of Avrami's equation with example on excel spreadsheet
- Lecture 31 - Experimental verification of Avrami Equation
- Lecture 32 - Linear regression (least squares) method to find the value of n and k in Avrami equation
- Lecture 33 - In this lecture, method to determine the goodness of fit has been explained. Procedure to estimate
- Lecture 34 - Stereology and quantitative metallography - I
- Lecture 35 - Stereology and quantitative metallography - II
- Lecture 36 - Grain size measurements methods
- Lecture 37 - Statistical tools for analysis and reporting of obtained data with examples
- Lecture 38 - Evolution of TTT and CCT diagram from f vs. t plots
- Lecture 39 - TTT, CCT continue and hardenability of steel
- Lecture 40 - Importance of heat treatment practices in real life (with examples)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Phase Transformation in Materials

Subject Co-ordinator - Dr. Krishanu Biswas

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Brief Introduction

Lecture 2 - Define Phase, Equilibrium

Lecture 3 - Free Energy, Stability of Phases

Lecture 4 - Gibbs Free Energy of Binary Solution

Lecture 5 - Ideal Solution and Chemical Potential

Lecture 6 - Thermodynamics of solid solutions

Lecture 7 - G vs X curves

Lecture 8 - Solid solutions

Lecture 9 - Heterogeneous phase equilibria

Lecture 10 - G vs X curves for eutectic system

Lecture 11 - G-X plot for peritectic system

Lecture 12 - Effect of temperature of solid solubility, Influence of interfaces on Equilibrium

Lecture 13 - Introduction of Diffusion

Lecture 14 - Mechanism of Diffusion, Fick's I law

Lecture 15 - Fick's II law

Lecture 16 - Fick's II law (Continued...), Diffusion and Temperature

Lecture 17 - Interfacial Free Energy, Solid/Vapor Interface

Lecture 18 - Boundaries in single phase solids

Lecture 19 - High angle grain boundaries, Equilibrium in poly-crystalline materials, Interphase interfaces in

Lecture 20 - Interphase interfaces in solids (Continued...)

Lecture 21 - CSL Boundaries

Lecture 22 - Types of Nucleations

Lecture 23 - Homogeneous Nucleation

Lecture 24 - Homogeneous Nucleation (Continued...)

Lecture 25 - Heterogeneous Nucleation

Lecture 26 - Heterogeneous nucleation (Continued...)

Lecture 27 - Growth

Lecture 28 - Atomic mechanism of growth

Lecture 29 - Dendritic Solidification

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Growth rate for dendrite formation
- Lecture 31 - Alloy solidification
- Lecture 32 - Alloy solidification (Continued...)
- Lecture 33 - Eutectic
- Lecture 34 - Eutectic
- Lecture 35 - Solidification of casting / ingot
- Lecture 36 - Precipitation hardenable alloy
- Lecture 37 - Precipitation age- hardening alloy (Continued...)
- Lecture 38 - Age hardening alloy
- Lecture 39 - Eutectoid transformation
- Lecture 40 - Eutectoid transformation (Continued...)
- Lecture 41 - Eutectoid transformation in steel (Continued...)
- Lecture 42 - Martensite
- Lecture 43 - Martensite (Continued...)
- Lecture 44 - Martensite (Continued...) and TTT curves
- Lecture 45 - TTT diagram
- Lecture 46 - Recovery, Recrystallization and Grain growth
- Lecture 47 - Recovery
- Lecture 48 - Recrystallization
- Lecture 49 - Recrystallization (Continued...)
- Lecture 50 - Introduction to spinodal decomposition

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Manufacturing of Composites

Subject Co-ordinator - Prof. J. Ramkumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Composites
- Lecture 2 - Matrices
- Lecture 3 - Fiber reinforcements
- Lecture 4 - Fiber reinforcements (Continued...)
- Lecture 5 - Composites properties
- Lecture 6 - Composites testing
- Lecture 7 - Selection of material
- Lecture 8 - Selection of material (Continued...)
- Lecture 9 - Design for Manufacturing
- Lecture 10 - Design for Manufacturing (Continued...)
- Lecture 11 - Composite Manufacturing Processes
- Lecture 12 - Filament winding Processes
- Lecture 13 - Resin transfer moulding
- Lecture 14 - Pultrusion
- Lecture 15 - Compression Moulding Process
- Lecture 16 - Vacuum Impregnation Methods
- Lecture 17 - Stacking of Composites
- Lecture 18 - Thermoplastic Composites Manufacturing Processes - Part 1
- Lecture 19 - Thermoplastic Composites Manufacturing Processes - Part 2 (Continued...)
- Lecture 20 - Non-destructive testing methods for composite materials
- Lecture 21 - Metal Matrix Composites
- Lecture 22 - Metal Matrix Composites applications (Continued...)
- Lecture 23 - Processing of Metal Matrix Composites - Part 1
- Lecture 24 - Processing of Metal Matrix Composites - Part 2
- Lecture 25 - Ceramic Matrix Composites
- Lecture 26 - Fabrication of Ceramic Matrix Composites (CMCs)
- Lecture 27 - Carbon - Carbon Composites
- Lecture 28 - Polymer Matrix and Nano Composites
- Lecture 29 - Machining of Composites

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Repair of Composites

Lecture 31 - Manufacturing Processes

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Applied Ergonomics

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Work Systems
- Lecture 31 - Measures of Productivity
- Lecture 32 - Productivity Measurement
- Lecture 33 - Work Study
- Lecture 34 - Motion and time study
- Lecture 35 - (Missing)
- Lecture 36 - (Missing)
- Lecture 37 - (Missing)
- Lecture 38 - (Missing)
- Lecture 39 - (Missing)
- Lecture 40 - Industrial accidents
- Lecture 41 - Human Errors
- Lecture 42 - Workers compensation laws
- Lecture 43 - Organisation Ergonomics - Part 1
- Lecture 44 - Organisation Ergonomics - Part 2
- Lecture 45 - Job Satisfaction
- Lecture 46 - Worker behavior

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Sustainability through Green Manufacturing Systems - An App

Subject Co-ordinator - Dr. Deepu Philip, Dr. Amandeep Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basics of Production

Lecture 2 - Basics of Production (Continued...)

Lecture 3 - Sustainability and Manufacturing

Lecture 4 - Introduction to Simulation

Lecture 5 - Introduction to Simulation (Continued...)

Lecture 6 - Basic Statistical Concepts for Sustainable Manufacturing Analysis

Lecture 7 - Basic Statistical Concepts for Sustainable Manufacturing Analysis (Continued...)

Lecture 8 - Life Cycle Assessment

Lecture 9 - Life Cycle Assessment Elements

Lecture 10 - Life Cycle Assessment Procedure

Lecture 11 - Life Cycle Assessment (Continued...)

Lecture 12 - Sustainability Framework

Lecture 13 - Basic Modeling Concepts for Factory Simulation

Lecture 14 - Basic Modeling Concepts for Factory Simulation (Continued...)

Lecture 15 - Green Manufacturing Modelling

Lecture 16 - Green Manufacturing Modelling (Continued...) Indices for Green Manufacturing

Lecture 17 - Green Manufacturing Modelling (Continued...) Developing Green Manufacturing System

Lecture 18 - Productivity and Sustainability

Lecture 19 - Productivity and Sustainability (Continued...)

Lecture 20 - Green Manufacturing Techniques

Lecture 21 - Green Manufacturing Techniques (Continued...)

Lecture 22 - Renewable Sources of Energy

Lecture 23 - Renewable Sources of Energy (Continued...)

Lecture 24 - Renewable energy in India and Industrial Symbiosis

Lecture 25 - Demonstration of Various Instruments Used for Green Machining

Lecture 26 - Laboratory demonstration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Noise Management and Control

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview  
Lecture 2 - Introduction  
Lecture 3 - Nature Of Sound  
Lecture 4 - Beats  
Lecture 5 - The Decibel Scale  
Lecture 6 - Key Terms in Acoustics  
Lecture 7 - Decibel Scale - Part 1  
Lecture 8 - Decibel Scale - Part 2  
Lecture 9 - Decibel Scale - Part 3  
Lecture 10 - Complex Numbers  
Lecture 11 - Complex Time Function  
Lecture 12 - Linear Systems  
Lecture 13 - Transfer Functions  
Lecture 14 - Introduction to One Dimensional Wave Equation  
Lecture 15 - The Momentum Equation  
Lecture 16 - The Continuity Equation and The Gas Law  
Lecture 17 - One Dimensional Wave Equation  
Lecture 18 - Solution for One Dimensional Wave Equation  
Lecture 19 - Transmission Line Equations  
Lecture 20 - One Dimensional Example Problems  
Lecture 21 - Impedance  
Lecture 22 - Pressure Wave Travels in a Closed Tube  
Lecture 23 - Standing Wave Formation in a Closed Tube With Rigid Termination  
Lecture 24 - Pressure Wave Travels in an Open Tube  
Lecture 25 - 1-D sound wave propagation  
Lecture 26 - 1-D sound wave propagation  
Lecture 27 - Radially propagating sound waves in spherical coordinate system - I  
Lecture 28 - Radially propagating sound waves in spherical coordinate system - II  
Lecture 29 - Complex impedance for radially propagating sound waves in spherical coordinate system

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Volume velocity - I
- Lecture 31 - Interference of 1-D spherically propagating sound waves - I
- Lecture 32 - Interference of 1-D spherically propagating sound waves - II
- Lecture 33 - Noise sources and introduction to microphones
- Lecture 34 - Classification of microphones - I
- Lecture 35 - Classification of microphones - II
- Lecture 36 - Classification of microphones - III
- Lecture 37 - Microphone Parameters
- Lecture 38 - Understanding microphone specifications
- Lecture 39 - Noise Source
- Lecture 40 - Noise Source
- Lecture 41 - Noise Source
- Lecture 42 - Noise Source
- Lecture 43 - Noise Source
- Lecture 44 - Noise Source
- Lecture 45 - Measuring Sound Power Level - Understanding standard octave bands
- Lecture 46 - Measuring Sound Power Level - Fan noise - Part I
- Lecture 47 - Measuring Sound Power Level - Fan noise - Part II
- Lecture 48 - Measuring Sound Power Level - Fan noise - Part III
- Lecture 49 - Weighting
- Lecture 50 - Noise coming from Motors
- Lecture 51 - Noise coming from Motors and Pumps
- Lecture 52 - Noise coming from Pump and Motor Working Simultaneously
- Lecture 53 - Noise coming from Compressors
- Lecture 54 - Example problems regarding Noise coming from Compressor
- Lecture 55 - Noise Spread Mechanisms
- Lecture 56 - Reverberation time
- Lecture 57 - Reverberation time example problem
- Lecture 58 - Noise from Adjacent Room
- Lecture 59 - Acoustic Enclosures
- Lecture 60 - Acoustic Enclosures - Example Problems
- Lecture 61 - Large acoustical enclosures - I
- Lecture 62 - Large acoustical enclosures - II
- Lecture 63 - Acoustic barriers - I
- Lecture 64 - Acoustic barriers - II
- Lecture 65 - Acoustic barriers - III
- Lecture 66 - Helmholtz resonator - I

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Design Practice

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Brief introduction of Design systems

Lecture 2 - Product Development

Lecture 3 - Basic protocols of industrial design

Lecture 4 - Design thinking and innovation

Lecture 5 - Brain Storming

Lecture 6 - Design prototyping

Lecture 7 - Generic Phases of the Design

Lecture 8 - Configurational Design Aspects

Lecture 9 - Concurrent Engineering

Lecture 10 - Concurrent Engineering - 2

Lecture 11 - Concurrent Engineering Approaches

Lecture 12 - Concurrent Engineering Approaches - 2

Lecture 13 - Benefits of concurrent engineering

Lecture 14 - Concurrent engineering environment influencing dimensions

Lecture 15 - Concurrent engineering environment influencing dimensions - 2

Lecture 16 - Program and product Interface dimensions in Concurrent engineering

Lecture 17 - Product Development Methodology

Lecture 18 - Elements of concurrent engineering

Lecture 19 - Business relationships in concurrent engineering

Lecture 20 - Organizational elements in concurrent engineering

Lecture 21 - Techniques for the Implementation of concurrent engineering environment

Lecture 22 - Average quality loss

Lecture 23 - Robustness in Design

Lecture 24 - Robustness in Design - 2

Lecture 25 - Material selection in Engineering design

Lecture 26 - Material selection in Engineering Design.

Lecture 27 - Basic steps in Material Selection Process

Lecture 28 - Design of Work Systems

Lecture 29 - Motion Study

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Axiomatic Design
- Lecture 31 - Introduction to group technology
- Lecture 32 - Failure Mode Effect Analysis

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Composites

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition of the composite materials
- Lecture 2 - Composite materials and its applications
- Lecture 3 - Classification of the composite materials
- Lecture 4 - What Makes fiber so strong?
- Lecture 5 - Advantages and limitations of composite materials
- Lecture 6 - Properties of the composite materials.
- Lecture 7 - Different Types of Fiber
- Lecture 8 - Production process and different types of Glass Fiber
- Lecture 9 - Graphite Fibers
- Lecture 10 - Aramid and Boron Fibers
- Lecture 11 - Ceramic Fibers
- Lecture 12 - Matrix - Properties and classifications
- Lecture 13 - Polymers as matrix material and its classification
- Lecture 14 - Thermosets and thermoplastics
- Lecture 15 - Properties of thermosets and thermoplastics
- Lecture 16 - Thermoset materials and its production methods
- Lecture 17 - Thermoplastics and metals as matrix materials
- Lecture 18 - Ceramic and carbon matrices
- Lecture 19 - What is a good fabrication process of a composite?
- Lecture 20 - Fabrication of Thermoset Composites
- Lecture 21 - Hand Lay-Up Process
- Lecture 22 - Bag Molding Process
- Lecture 23 - Resin Transfer Molding Process
- Lecture 24 - Fabrication of Thermoplastic, Metal and Ceramic Matrix based Composites
- Lecture 25 - Terminologies and basic concepts
- Lecture 26 - Orthotropic material
- Lecture 27 - Modeling of unidirectional composites
- Lecture 28 - Composite density as a function of mass fraction and volume fraction
- Lecture 29 - Calculation of longitudinal modulus for unidirectional composites

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Failure modes of unidirectional composite
- Lecture 31 - Failure of Unidirectional Lamina
- Lecture 32 - Minimum Volume Fraction and Critical Volume Fraction
- Lecture 33 - Example based on Failure of Composite Material
- Lecture 34 - Example based on Minimum and Critical Volume Fraction
- Lecture 35 - Transverse Modulus of Unidirectional Composite
- Lecture 36 - Halpin-Tsai Relation for Transverse Modulus
- Lecture 37 - Transverse modulus of unidirectional composites
- Lecture 38 - Transverse strength of unidirectional composites
- Lecture 39 - Poisson's ratio of unidirectional composites
- Lecture 40 - Failure modes of composite materials
- Lecture 41 - Failure modes of composite materials
- Lecture 42 - Other properties
- Lecture 43 - Concept of Tensor
- Lecture 44 - Stress Transformation (Two Dimensional)
- Lecture 45 - Analysis of Specially Orthotropic Lamina
- Lecture 46 - Analysis of Generally Orthotropic Lamina
- Lecture 47 - Transformation of Engineering Constants - Part I
- Lecture 48 - Transformation of Engineering Constants - Part II
- Lecture 49 - Variation of elastic constants with respect to fiber orientation for generally orthotropic lamina
- Lecture 50 - Generally orthotropic lamina
- Lecture 51 - Generalized Hooke's law for anisotropic materials
- Lecture 52 - Generalized Hooke's law for anisotropic materials
- Lecture 53 - Elastic constants for Specially orthotropic materials
- Lecture 54 - Elastic constants for Specially orthotropic materials in plane stress
- Lecture 55 - Relation Between Engineering Constants and Elements of Stiffness and Compliance Matrices - Part I
- Lecture 56 - Relation Between Engineering Constants and Elements of Stiffness and Compliance Matrices - Part II
- Lecture 57 - Stress Strain Relations for A Lamina With Arbitrary Orientation - Part I
- Lecture 58 - Stress- Strain Relation for A Lamina With Arbitrary Orientation - Part II
- Lecture 59 - Strength of An Orthotropic Lamina
- Lecture 60 - Importance of Sign of Shear Stress in context of Strength of A Unidirectional Lamina
- Lecture 61 - Strain displacement relations for a laminate
- Lecture 62 - Stress-strain relations for individual layers of a laminate
- Lecture 63 - Resultant forces and moments
- Lecture 64 - Relations between force and moment resultants and mid-plane strains and curvatures
- Lecture 65 - Physical significance of extensional stiffness matrix [A], coupling matrix [B] and bending stiffness matrix [D]
- Lecture 66 - Lamination sequence (standard laminate code)
- Lecture 67 - Calculation of A, B and D Matrices.
- Lecture 68 - Simplification of Stiffness Matrices - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Simplification of Stiffness Matrices - Part II
- Lecture 70 - Quasi-Isotropic Laminates - Part I
- Lecture 71 - Quasi-Isotropic Laminates - Part II
- Lecture 72 - Failure of Composite Laminates

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Product Design and Manufacturing

Subject Co-ordinator - Dr. Amandeep Singh, Prof. J. Ramkumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to product design and Manufacturing
- Lecture 2 - Introduction to product design and Manufacturing (Continued...)
- Lecture 3 - Fundamentals of Manufacturing towards Product Development
- Lecture 4 - Fundamentals of Manufacturing towards Product Development (Continued...)
- Lecture 5 - Engineering Design Process
- Lecture 6 - Product design morphology
- Lecture 7 - Product characteristics
- Lecture 8 - Elements of Visual Design - Part 1
- Lecture 9 - Elements of Visual Design - Part 2
- Lecture 10 - Elements of Visual Design - Part 3
- Lecture 11 - Translating Customer Needs
- Lecture 12 - Translating Customer Needs
- Lecture 13 - Value Engineering, an introduction
- Lecture 14 - Value Engineering Methodology - Part 1
- Lecture 15 - Value Engineering Methodology - Part 2, FAST diagramming
- Lecture 16 - Value Engineering Methodology - Part 3
- Lecture 17 - Value Engineering, case study
- Lecture 18 - Materials Selection - Part 1
- Lecture 19 - Materials Selection - Part 2
- Lecture 20 - Manufacturing Process Selection - Part 1
- Lecture 21 - Manufacturing Process Selection - Part 2
- Lecture 22 - Product Costing
- Lecture 23 - Design for Manufacturing
- Lecture 24 - Design for Assembly
- Lecture 25 - Design for Maintenance
- Lecture 26 - Design for Environment - Part 1
- Lecture 27 - Design for Environment - Part 2
- Lecture 28 - Quality Control
- Lecture 29 - Quality Assurance

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- Lecture 30 - Patent - Part 1
- Lecture 31 - Patent - Part 2
- Lecture 32 - Creativity techniques - Part 1
- Lecture 33 - Creativity techniques - Part 2
- Lecture 34 - Frugal Innovation
- Lecture 35 - Rapid Prototyping, an introduction
- Lecture 36 - Rapid Prototyping Modelling
- Lecture 37 - Rapid Prototyping Processes - Part 1
- Lecture 38 - Rapid Prototyping Processes - Part 2
- Lecture 39 - Laboratory demonstration; 3D printing - Part 1
- Lecture 40 - Laboratory demonstration; 3D printing - Part 2
- Lecture 41 - Laboratory demonstration; 3D printing - Part 3
- Lecture 42 - Plant Layout Planning - Part 1
- Lecture 43 - Plant Layout Planning - Part 2
- Lecture 44 - Laboratory demonstration; Plant Simulation - Part 1
- Lecture 45 - Laboratory demonstration; Plant Simulation - Part 2
- Lecture 46 - Laboratory demonstration; Plant Simulation - Part 3
- Lecture 47 - Computer Integrated Manufacturing - Part 1
- Lecture 48 - Computer Integrated Manufacturing - Part 2
- Lecture 49 - Reverse Engineering
- Lecture 50 - Managing Competitiveness

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Phase Equilibria in Materials - Nature and Properties of Ma

Subject Co-ordinator - Dr. Ashish Garg

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Thermodynamics

Lecture 2 - Basic Thermodynamics

Lecture 3 - Phase Stability in Materials

Lecture 4 - Effects of Temperature and Pressure on Single Components System

Lecture 5 - Clausius-Clapeyron Equation and Binary Solution

Lecture 6 - Calculation of Configurational Entropy

Lecture 7 - Chemical Potential

Lecture 8 - Phase Stability in Binary Solution

Lecture 9 - Activity and Thermodynamics of Regular Solution

Lecture 10 - Thermodynamic of Real Solution

Lecture 11 - Free Energy Curves and Various Systems

Lecture 12 - Solubility Limits 2-phase Co-existence

Lecture 13 - Phase Diagram Formation

Lecture 14 - Phase Diagram Construction

Lecture 15 - Phase Diagram Construction

Lecture 16 - Intermetallics and Phase Diagrams

Lecture 17 - Phase Rule

Lecture 18 - Gibb's Phase Rule

Lecture 19 - Gibb's Phase Rule

Lecture 20 - Phase Fraction Calculation in a Phase Diagram

Lecture 21 - Microstructure evolution in Cu-Ni binary system

Lecture 22 - Microstructure evolution (Continued...)

Lecture 23 - Phase evolution in hypoeutectic region

Lecture 24 - Phase evolution at Eutectic point

Lecture 25 - Phase Diagrams of Cu-Ni and Al-Si

Lecture 26 - Phase Diagrams of Pb-Sn and Fe-C

Lecture 27 - Phase Diagram of Fe-C (Continued...)

Lecture 28 - Fe-C Phase Diagram (Continued...)

Lecture 29 - Fe-C Phase Diagram (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Phase Diagrams for non-Ferrous Alloys
- Lecture 31 - Method of measuring Phase diagram
- Lecture 32 - Methods of measuring phase diagram (Continued...)
- Lecture 33 - Methods of measuring phase diagram
- Lecture 34 - Ternary Phase Diagram
- Lecture 35 - Ternary Phase Diagram (Continued...)
- Lecture 36 - Ternary system with two phases
- Lecture 37 - Ternary system with three phases
- Lecture 38 - Ternary phase diagram with 4 phases
- Lecture 39 - Application of Phases diagrams
- Lecture 40 - Summary of Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Advanced Composites

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basics of composite materials
- Lecture 2 - Different type of Fibers
- Lecture 3 - Properties of single layer continuous fiber composites
- Lecture 4 - Properties of single layer continuous fiber composites
- Lecture 5 - Strength of single layer continuous fiber composites
- Lecture 6 - Strength of single layer continuous fiber composites
- Lecture 7 - Concept of Tensor
- Lecture 8 - General Anisotropic Material
- Lecture 9 - Specially Orthotropic Material
- Lecture 10 - Specially Orthotropic Material Under Plane Stress
- Lecture 11 - Stress and Strain Transformation
- Lecture 12 - Transformation of Stiffness and Compliance Matrices
- Lecture 13 - Strain - Displacement relations
- Lecture 14 - Relations for stress and strain along thickness of laminate
- Lecture 15 - Stress - Strain variation along Laminate thickness
- Lecture 16 - Force and Moment resultant - Part 1
- Lecture 17 - Force and Moment resultant - Part 2
- Lecture 18 - Important observation related to [A], [B] and [D] matrices
- Lecture 19 - Quasi-Isotropic Laminates
- Lecture 20 - Maximum Stress Theory
- Lecture 21 - Maximum Strain Theory
- Lecture 22 - Importance of Sign of Shear Stress.
- Lecture 23 - Failure Initiation in Composite Laminate.
- Lecture 24 - Progressive Failure of Laminae in A Laminate
- Lecture 25 - Governing equations for composite plates
- Lecture 26 - Force equilibrium in Z-direction
- Lecture 27 - Moment equilibrium equations
- Lecture 28 - Equilibrium equations for composite plates
- Lecture 29 - Boundary conditions associated with different edges of composite plate - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Boundary conditions associated with different edges of composite plate - Part 2
- Lecture 31 - Generalized Solution for Semi-Infinite Plate - Part I
- Lecture 32 - Generalized Solution for Semi-Infinite Plate - Part II
- Lecture 33 - Particular Solution for Semi-Infinite Plate
- Lecture 34 - Particular Solution for Semi-Infinite Plate
- Lecture 35 - Particular Solution for Semi-Infinite Plate
- Lecture 36 - Particular Solution for Semi-Infinite Plate
- Lecture 37 - Solution for governing equation related to semi-infinite composite plate
- Lecture 38 - Nature of displacement  $u_0(x)$  and how it gets influence by important parameters of lamination sequence
- Lecture 39 - Semi-infinite plate loaded in the x-direction - Part 1
- Lecture 40 - Semi-infinite plate loaded in the x-direction - Part 2
- Lecture 41 - Thermal effects in composite laminates - Part 1
- Lecture 42 - Thermal effects in composite laminates - Part 2
- Lecture 43 - Thermal effects in composite laminates - Part 3
- Lecture 44 - Finite Rectangular Plate
- Lecture 45 - Different Boundary Conditions in Finite Rectangular Plate
- Lecture 46 - Example Based On a Finite Rectangular Plate
- Lecture 47 - Example Based On a Finite Rectangular Plate
- Lecture 48 - Example Based On a Finite Rectangular Plate
- Lecture 49 - Anticlastic curvature
- Lecture 50 - Principle of virtual work
- Lecture 51 - Virtual work method
- Lecture 52 - Virtual work method
- Lecture 53 - Beam (two term solution)
- Lecture 54 - 3rd Interpretation of special Galerkin method
- Lecture 55 - Role of  $D_{16}$  and  $D_{26}$  Terms On Laminated Plate Response
- Lecture 56 - Role of  $D_{16}$  and  $D_{26}$  Terms On Laminated Plate Response
- Lecture 57 - Role of  $D_{16}$  and  $D_{26}$  Terms On Laminated Plate Response
- Lecture 58 - Role of  $D_{16}$  and  $D_{26}$  Terms On Laminated Plate Response
- Lecture 59 - Free Vibration in Composite Plate
- Lecture 60 - Free Vibration in Composite Plate
- Lecture 61 - Buckling of composite plates
- Lecture 62 - Force equilibrium in z-direction for buckling of composite plates
- Lecture 63 - Moment equilibrium around x, y and z-directions for buckling of composite plates
- Lecture 64 - Buckling of an infinitely long composite plate
- Lecture 65 - Buckling of a simply supported finite plate
- Lecture 66 - Composite plate under bidirectional compression
- Lecture 67 - Shear Buckling in Rectangular Composite Plate
- Lecture 68 - Shear Buckling in Rectangular Composite Plate

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Introduction to Short-Fiber Composites
- Lecture 70 - Theories of Stress Transfer
- Lecture 71 - Theories of Stress Transfer
- Lecture 72 - Modulus of Short-Fiber Composites and Closure

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Engineering Metrology

Subject Co-ordinator - Dr. Amandeep Singh, Prof. J. Ramkumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to measurements and metrology

Lecture 2 - Instruments in measurement systems

Lecture 3 - Instruments in measurement systems

Lecture 4 - General concepts and definitions in metrology

Lecture 5 - Standards of measurement

Lecture 6 - Limits, Fits, and Tolerances - Part 1

Lecture 7 - Limits, Fits, and Tolerances - Part 2

Lecture 8 - Limits, Fits, and Tolerances - Part 3

Lecture 9 - Limits, Fits, and Tolerances - Part 4

Lecture 10 - Linear Measurements - Part 1

Lecture 11 - Linear Measurements - Part 2

Lecture 12 - Laboratory demonstration, Vernier Caliper

Lecture 13 - Laboratory demonstration, Dial gauge and vernier, micrometer, surface plate, feeler gauge

Lecture 14 - Angular Measurements - Part 1

Lecture 15 - Angular Measurements - Part 2

Lecture 16 - Laboratory demonstration, Vernier height gauge

Lecture 17 - Laboratory demonstration, Thread gauge, spirit level

Lecture 18 - Laboratory demonstration, Combination set, slip gauges, sine bar

Lecture 19 - Comparators - Part 1

Lecture 20 - Comparators - Part 2

Lecture 21 - Transducers - Part 1

Lecture 22 - Transducers - Part 2

Lecture 23 - Screw thread metrology

Lecture 24 - Gears metrology - Part 1

Lecture 25 - Gears metrology - Part 2

Lecture 26 - Laboratory demonstration, Gear Vernier

Lecture 27 - Surface metrology

Lecture 28 - Temperature measurements

Lecture 29 - Pressure measurements - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pressure measurements - Part 2
- Lecture 31 - Strain measurements - Part 1
- Lecture 32 - Strain measurements - Part 2
- Lecture 33 - Optical measurements and Nanometrology - Part 1
- Lecture 34 - Optical measurements and Nanometrology - Part 2
- Lecture 35 - Optical measurements and Nanometrology - Part 3
- Lecture 36 - Statistics in Metrology, an introduction - Part 1
- Lecture 37 - Statistics in Metrology, an introduction - Part 2
- Lecture 38 - Data and scales in measurements
- Lecture 39 - Discrete and continuous data
- Lecture 40 - Statistics for metrology, fundamental concepts - Part 1
- Lecture 41 - Statistics for metrology, fundamental concepts - Part 2
- Lecture 42 - Statistics for metrology, fundamental concepts - Part 3
- Lecture 43 - Probability distributions for estimating measurement
- Lecture 44 - Normal distribution
- Lecture 45 - Statistics for proportions
- Lecture 46 - Chi square distribution, and Data outlier detection
- Lecture 47 - Quality Control, introduction
- Lecture 48 - Quality Control, control charts for variables
- Lecture 49 - Quality Control, control charts for attributes
- Lecture 50 - Quality Control, critical aspects
- Lecture 51 - 3D measurements, Coordinate Measuring Machine (CMM)
- Lecture 52 - Laboratory demonstration, Coordinate Measuring Machine (CMM)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Smart Materials and Intelligent System Design

Subject Co-ordinator - Prof. Bisakh Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Smart Materials
- Lecture 2 - Piezoelectric Material
- Lecture 3 - Magnetostrictive Material
- Lecture 4 - Active Smart Polymer
- Lecture 5 - Shape Memory Alloys
- Lecture 6 - Introduction to composites
- Lecture 7 - Classification of Composites
- Lecture 8 - Micromechanics and Macromechanics of Composites
- Lecture 9 - Classical Laminated Plate Theory
- Lecture 10 - ABD Matrices
- Lecture 11 - Modelling of piezoelectric material 1
- Lecture 12 - Modelling of piezoelectric material 2
- Lecture 13 - Modelling of Magnetostrictive material
- Lecture 14 - Modelling of Shape memory Alloys
- Lecture 15 - Smart Actuators
- Lecture 16 - Smart Materials based MEMS
- Lecture 17 - Smart MEMS Applications
- Lecture 18 - Energy Harvesting
- Lecture 19 - Concept of Self Healing

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Design Practice-II

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Design concepts
- Lecture 2 - Computer Aided Design (CAD)
- Lecture 3 - Geometrical transformation
- Lecture 4 - Composition of geometrical transformation
- Lecture 5 - Geometric modeling
- Lecture 6 - Representation of curves
- Lecture 7 - Parametric representation of synthetic curves
- Lecture 8 - Curve fitting problem (Hermite case)
- Lecture 9 - Problem solving (based on Bezier curve)
- Lecture 10 - Representation of Surfaces
- Lecture 11 - Introduction to Micro-Electro mechanical Systems (MEMS)
- Lecture 12 - Lab-on-Chip
- Lecture 13 - Introduction to Sensors
- Lecture 14 - Introduction to Transducers
- Lecture 15 - Introduction to device fabrications
- Lecture 16 - Introduction to Silicon as a MEMS material
- Lecture 17 - Etching processes
- Lecture 18 - Types of Photolithography
- Lecture 19 - Introduction to actuators
- Lecture 20 - Designing of the Micro-Valve
- Lecture 21 - Electrochemical valves
- Lecture 22 - Micropumps
- Lecture 23 - Designing of peristaltic pumps
- Lecture 24 - Different types of pumps and sensors
- Lecture 25 - Computer Numerical Control
- Lecture 26 - Numerical control programming
- Lecture 27 - NC part programming
- Lecture 28 - Introduction to rapid prototyping
- Lecture 29 - Different types of rapid prototyping technologies

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- Lecture 30 - Fused Deposition Modeling
- Lecture 31 - LAB demonstration of Fused Deposition Modelling Techniques
- Lecture 32 - LAB demonstrtion of Fused Deposition Modelling Process
- Lecture 33
- Lecture 34
- Lecture 35
- Lecture 36
- Lecture 37

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Rapid Manufacturing

Subject Co-ordinator - Prof. J. Ramkumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Rapid Manufacturing - Part 1
- Lecture 2 - Introduction to Rapid Manufacturing - Part 2
- Lecture 3 - Introduction to Rapid Manufacturing - Part 3
- Lecture 4 - Product Development Process - Part 1
- Lecture 5 - Product Development Process - Part 2
- Lecture 6 - Product Development Process - Part 3
- Lecture 7 - Design for Modularity (Manufacturing)
- Lecture 8 - Design for Modularity (Assembly; Part 1)
- Lecture 9 - Design for Modularity (Assembly; Part 2)
- Lecture 10 - Design for Modularity
- Lecture 11 - Subtractive versus Rapid Manufacturing
- Lecture 12 - Reverse Engineering - Part 1
- Lecture 13 - Reverse Engineering - Part 2
- Lecture 14 - Laboratory Demonstration, Co-ordinate Measuring Machine - Part 1
- Lecture 15 - Laboratory Demonstration, Co-ordinate Measuring Machine - Part 2
- Lecture 16 - Laboratory Demonstration, 3D scanners - Part 1
- Lecture 17 - Laboratory Demonstration, 3D scanners - Part 2
- Lecture 18 - Polymerization Processes - Part 1
- Lecture 19 - Polymerization Processes - Part 2
- Lecture 20 - Powder based processes - Part 1
- Lecture 21 - Powder based processes - Part 2
- Lecture 22 - Powder based processes - Part 3
- Lecture 23 - Extrusion based processes - Part 1
- Lecture 24 - Extrusion based processes - Part 2
- Lecture 25 - Sheet Stacking processes
- Lecture 26 - 3D printing processes
- Lecture 27 - Laboratory Demonstration, 3D printing - Part 1
- Lecture 28 - Laboratory Demonstration, 3D printing - Part 2
- Lecture 29 - Laboratory Demonstration, 3D printing - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Beam Deposition processes
- Lecture 31 - Materials in Rapid Manufacturing - Part 1
- Lecture 32 - Materials in Rapid Manufacturing - Part 2
- Lecture 33 - Post-processing concerns - Part 1
- Lecture 34 - Post-processing concerns - Part 2
- Lecture 35 - Product costing for Rapid Manufacturing - Part 1
- Lecture 36 - Product costing for Rapid Manufacturing - Part 2
- Lecture 37 - Rapid Product Development, CAD/CAM - Part 1
- Lecture 38 - Rapid Product Development, CAD/CAM - Part 2
- Lecture 39 - Rapid Product Development, CAD/CAM - Part 3
- Lecture 40 - Rapid Product Development, CAE and CIM
- Lecture 41 - Rapid Product Development, Technomatix, Plant Simulation 10 - Part 1
- Lecture 42 - Rapid Product Development, Technomatix, Plant Simulation 10 - Part 2
- Lecture 43 - Rapid Product Development, Technomatix, Plant Simulation 10 - Part 3
- Lecture 44 - Rapid Manufacturing, case studies

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Turbulent Combustion: Theory and Modelling

Subject Co-ordinator - Prof. Ashoke De

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Combustion
- Lecture 2 - Introduction to Combustion (Continued...)
- Lecture 3 - Introduction to Combustion (Continued...)
- Lecture 4 - Introduction to Combustion (Continued...) + Combustion and Thermochemistry
- Lecture 5 - Combustion and Thermochemistry
- Lecture 6 - Combustion and Thermochemistry (Continued...)
- Lecture 7 - Combustion and Thermochemistry (Continued...) + Chemical Kinetics
- Lecture 8 - Chemical Kinetics (Continued...)
- Lecture 9 - Chemical Kinetics (Continued...)
- Lecture 10 - Chemical Kinetics (Continued...) + Combustion Chemistry
- Lecture 11 - Combustion Chemistry (Continued...)
- Lecture 12 - Heat and Mass Transfer
- Lecture 13 - Heat and Mass Transfer + Coupling of Chemical Kinetics and Thermodynamics
- Lecture 14 - Coupling of Chemical Kinetics and Thermodynamics (Continued...)
- Lecture 15 - Coupling of Chemical Kinetics and Thermodynamics + Laminar Premixed Flames
- Lecture 16 - Laminar Premixed Flames (Continued...)
- Lecture 17 - Laminar Premixed Flames (Continued...)
- Lecture 18 - Laminar Premixed Flames (Continued...) + Laminar Non-Premixed Flames
- Lecture 19 - Laminar Non-Premixed Flames (Continued...)
- Lecture 20 - Laminar Non-Premixed Flames (Continued...)
- Lecture 21 - Laminar Non-Premixed Flames
- Lecture 22 - Laminar Non-Premixed Flames (Continued...)
- Lecture 23 - Laminar Non-Premixed Flames (Continued...)
- Lecture 24 - Laminar Non-Premixed Flames (Continued...)
- Lecture 25 - Laminar Non-Premixed Flames (Continued...)
- Lecture 26 - Laminar Non-Premixed Flames + Turbulence
- Lecture 27 - Turbulence
- Lecture 28 - Turbulence
- Lecture 29 - Turbulence

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Turbulence  
Lecture 31 - Turbulence  
Lecture 32 - Turbulence  
Lecture 33 - Turbulence  
Lecture 34 - Turbulence  
Lecture 35 - Turbulence  
Lecture 36 - Turbulence  
Lecture 37 - Turbulence  
Lecture 38 - Turbulence  
Lecture 39 - Turbulence  
Lecture 40 - Turbulence  
Lecture 41 - Turbulence  
Lecture 42 - Turbulence  
Lecture 43 - Turbulence  
Lecture 44 - Turbulence  
Lecture 45 - Turbulence  
Lecture 46 - Turbulent Combustion  
Lecture 47 - Turbulent Combustion  
Lecture 48 - Turbulent Combustion  
Lecture 49 - Turbulent Combustion  
Lecture 50 - Turbulent Combustion  
Lecture 51 - Turbulent Combustion  
Lecture 52 - Turbulent Combustion  
Lecture 53 - Turbulent Combustion  
Lecture 54 - Turbulent Combustion  
Lecture 55 - Turbulent Combustion  
Lecture 56 - Turbulent Combustion  
Lecture 57 - Turbulent Combustion  
Lecture 58 - Multiphase Combustion  
Lecture 59 - Multiphase Combustion  
Lecture 60 - Multiphase Combustion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Manufacturing Automation

Subject Co-ordinator - Prof. Sounak Kumar Choudhury

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Manufacturing Automation
- Lecture 2 - Various Aspects of Manufacturing Automation
- Lecture 3 - Part Transfer Mechanisms
- Lecture 4 - Automated Flow Lines
- Lecture 5 - Analysis of Automated Flow Lines
- Lecture 6 - Vibratory Bowl Feeder
- Lecture 7 - Analysis of Vibratory Bowl Feeder
- Lecture 8 - Reciprocating Tube Hopper Feeder
- Lecture 9 - Centreboard Hopper Feeder and its analysis
- Lecture 10 - Reciprocating fork and External Gate Hopper Feeders
- Lecture 11 - Rotary Disc Feeder and Centrifugal Hopper Feeder
- Lecture 12 - Bladed Wheel and Tumbling Barrel Hopper Feeders
- Lecture 13 - Rotary Centreboard and Magnetic Feeders
- Lecture 14 - Part Orienting Devices
- Lecture 15 - Feed Tracks and their analysis
- Lecture 16 - Powered Feed Track and Escapements
- Lecture 17 - Various Escapements and Part Placing Mechanisms
- Lecture 18 - Design for Automatic Assembly
- Lecture 19 - Performance and Economics of Assembly Systems
- Lecture 20 - Performance of Indexing and Free Transfer Machines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Computer Integrated Manufacturing

Subject Co-ordinator - Prof. J. Ramkumar, Prof. Amandeep Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to CIM - Part 1  
Lecture 2 - Introduction to CIM - Part 2  
Lecture 3 - Computers and Manufacturing Systems - Part 1  
Lecture 4 - Computers and Manufacturing Systems - Part 2  
Lecture 5 - Computers and Manufacturing Systems - Part 3  
Lecture 6 - Computer Graphics - Part 1  
Lecture 7 - Computer Graphics - Part 2  
Lecture 8 - Computer Graphics - Part 3  
Lecture 9 - Computer Graphics - Part 4  
Lecture 10 - Geometric Modelling - Part 1  
Lecture 11 - Geometric Modelling - Part 2  
Lecture 12 - Computer Numerical Control - Part 1  
Lecture 13 - Computer Numerical Control - Part 2  
Lecture 14 - Computer Numerical Control - Part 3  
Lecture 15 - Computer Numerical Control - Part 4  
Lecture 16 - CNC Machining - Part 1  
Lecture 17 - CNC Machining - Part 2  
Lecture 18 - CNC Tooling  
Lecture 19 - CNC Part Programming - Part 1  
Lecture 20 - CNC Part Programming - Part 2  
Lecture 21 - CNC Part Programming - Part 3  
Lecture 22 - CNC Part Programming - Part 4  
Lecture 23 - Laboratory Demonstration, Computer Aided Design - Part 1  
Lecture 24 - Laboratory Demonstration, Computer Aided Design - Part 2  
Lecture 25 - CAM softwares  
Lecture 26 - Laboratory Demonstration, Computer Aided Manufacturing - Part 1  
Lecture 27 - Laboratory Demonstration, Computer Aided Manufacturing - Part 2  
Lecture 28 - Group Technology  
Lecture 29 - Computer Aided Process Planning - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Computer Aided Process Planning - Part 2
- Lecture 31 - Flexible Manufacturing System
- Lecture 32 - Robotics
- Lecture 33 - Programmable Logic Controller
- Lecture 34 - Automatic Identification and Data Capture
- Lecture 35 - Computer Aided Quality Control - Part 1
- Lecture 36 - Computer Aided Quality Control - Part 2
- Lecture 37 - Laboratory Demonstration, Coordinate Measuring Machine
- Lecture 38 - Rapid Manufacturing - Part 1
- Lecture 39 - Rapid Manufacturing - Part 2
- Lecture 40 - Laboratory demonstration, Rapid Manufacturing - Part 1
- Lecture 41 - Laboratory demonstration, Rapid Manufacturing - Part 2
- Lecture 42 - Laboratory Demonstration, CAD using Fusion 360, an introduction
- Lecture 43 - Laboratory Demonstration, CAD using Fusion 360, Rendering and 3D printing
- Lecture 44 - Material Handling
- Lecture 45 - Laboratory Demonstration, Plant Simulation software - Part 1
- Lecture 46 - Laboratory Demonstration, Plant Simulation software - Part 2
- Lecture 47 - Laboratory Demonstration, Plant Simulation software - Part 3
- Lecture 48 - Computers in Manufacturing Industry, current scenario - Part 1
- Lecture 49 - Computers in Manufacturing Industry, current scenario - Part 2
- Lecture 50 - Computers in Manufacturing Industry, current scenario - Part 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Machining Science

Subject Co-ordinator - Prof. Sounak Kumar Choudhury

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Machining
- Lecture 2 - Mechanism of plastic deformation
- Lecture 3 - Basic machining parameters, Cutting Tools and Types of Machining
- Lecture 4 - Types of Chips, Tool nomenclature and tool angles
- Lecture 5 - Tool Nomenclature in Normal Rake System and conversion of angles
- Lecture 6 - Selection of Tool angles
- Lecture 7 - Forces in machining, Merchant's Circle Diagram
- Lecture 8 - Stress, Strain and Strain Rate and Shear Plane Angle
- Lecture 9 - Numerical Examples; Lee and Shaffer's model
- Lecture 10 - Friction in metal cutting
- Lecture 11 - Practical Machining Operations
- Lecture 12 - Slab Milling; Measurement of Cutting Forces
- Lecture 13 - Dynamometers; Tool Wear and Tool Life
- Lecture 14 - Factors affecting tool life; Abrasive Machining Processes
- Lecture 15 - Mechanics of Grinding Process
- Lecture 16 - Chip length and specific energy in Grinding
- Lecture 17 - Grinding wheel wear; Oblique Cutting
- Lecture 18 - Rake angles in oblique cutting; Economics of Machining
- Lecture 19 - Economics of Machining (Continued...); Thermal aspects of machining
- Lecture 20 - Surface finish

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Foundations of Cognitive Robotics

Subject Co-ordinator - Prof. Bishakh Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Cognitive Robotics (Private)

Lecture 2 - Smart Materials - I (Private)

Lecture 3 - Smart Materials - II (Private)

Lecture 4 - Smart Materials - III (Private)

Lecture 5 - Architecture of the Brain

Lecture 6 - Architecture of the Brain (Continued...)

Lecture 7 - Nerve Cells

Lecture 8 - Introduction to Synchronisation Models

Lecture 9 - Synchronisation models (Continued...)

Lecture 10 - Introduction to EEG

Lecture 11 - Theories of Intelligence - I

Lecture 12 - Theories of Intelligence - II

Lecture 13 - Kuramoto Model

Lecture 14 - Child Robot Interaction

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Robotics

Subject Co-ordinator - Prof. Ashish Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Robotics
- Lecture 2 - Robot Joints and Work Volume
- Lecture 3 - Spatial transformations
- Lecture 4 - Homogenous Transformtions
- Lecture 5 - Practice Problems with MATLAB in Rotation matrices
- Lecture 6 - Kinematics: Derivation of Link Transformations
- Lecture 7 - Problem Solving DH Parameters
- Lecture 8 - Forward Kinematics
- Lecture 9 - Inverse Kinematics
- Lecture 10 - Problems in Kinematics
- Lecture 11 - Inverse Kinematics of PUMA Robot
- Lecture 12 - Jacobian and Singularity
- Lecture 13 - Velocity and Static Forces
- Lecture 14 - Dynamics - Lagrangian Euler
- Lecture 15 - Newton Euler Dynamics
- Lecture 16 - Trajectory Planning
- Lecture 17 - Inverse Dynamics using MATLAB
- Lecture 18 - Sensors
- Lecture 19 - Actuators and Basic Control System
- Lecture 20 - Block Diagram Reduction and Position Regulator
- Lecture 21 - Control of a single joint
- Lecture 22 - Non Linear Control of Manipulators
- Lecture 23 - Force Control
- Lecture 24 - Manipulator Mechanism Design
- Lecture 25 - Industrial Robots and Applications
- Lecture 26 - Specifications and Programming
- Lecture 27 - VAL programming
- Lecture 28 - Experiment With PUMA Robot Using VAL- II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Muffler Acoustics - Application to Automotive Exhaust Noise

Subject Co-ordinator - Prof. Akhilesh Mimani

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Acoustic Wave Propagation
- Lecture 2 - D'Alemberts's solution and 1-D Continuity equation
- Lecture 3 - Muffler Acoustics-Application to Automotive Exhaust Noise Control
- Lecture 4 - Linearization of governing equations, and Development of 1-D Acoustic wave and Helmholtz equation
- Lecture 5 - Solution of 1-D Helmholtz equation: Propagation in 1-D ducts/pipes
- Lecture 6 - 1-D Acoustic Wave Equation in Ducts Carrying Uniform Mean Flow: Derivation
- Lecture 7 - 1-D Acoustic Wave Equation in Ducts Carrying Uniform Mean Flow: Solution
- Lecture 8 - 3-D Acoustic Wave Equation in Rectangular and Circular Waveguides: Derivation, Modal Solution and
- Lecture 9 - Sound Pressure Level, Intensity Level and Sound Power Level
- Lecture 10 - Acoustic Impedance and Reflection Coefficient
- Lecture 11 - Lumped System Analysis: Inertance and Compliance
- Lecture 12 - Lumped Analysis of a Uniform Pipe Closed/Open at an End, Concept of End Correction
- Lecture 13 - Helmholtz Resonator, Electro-Acoustic Analogy and Layout of a typical engine exhaust system
- Lecture 14 - Muffler Performance Measures: Insertion Loss
- Lecture 15 - Muffler Performance Measures: Transmission Loss and Level Difference
- Lecture 16 - Lumped Analysis of a Tube, Simple Area Discontinuity and Transfer Matrices
- Lecture 17 - Sudden area Discontinuity (Continued...)
- Lecture 18 - Simple Expansion Chamber Analysis Using Transfer Matrix Method
- Lecture 19 - Transmission Loss (TL) Graph for a Simple Expansion Muffler (MATLAB)
- Lecture 20 - Extended-Inlet and Extended-Outlet Muffler Analysis
- Lecture 21 - Extended-Inlet and Extended-Outlet Muffler Analysis (Continued...)
- Lecture 22 - TL Analysis of Extended-Inlet and Extended-Outlet Muffler (MATLAB)
- Lecture 23 - TL Analysis of Side-Inlet and Side-Outlet Muffler Using Transfer Matrix Method
- Lecture 24 - Wave Propagation in Gradually Varying Area Ducts: Webster's Horn Equation
- Lecture 25 - Webster's Horn Equation (Continued...) and Exponential Ducts
- Lecture 26 - Solution of Webster's Horn Equation for Conical Ducts
- Lecture 27 - TL analysis for Conical Muffler Configurations (MATLAB)
- Lecture 28 - Segmentation Approach for Analysing Gradually Varying Area Ducts (MATLAB)
- Lecture 29 - Acoustic Intensity (Energy Flux) in a Pipe with Mean Flow, and Transmission Loss Expression

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Aeroacoustic State Variables Transfer Matrix for a Tubular Element (Uniform Pipe)
- Lecture 31 - Transfer Matrix for Extended-Inlet and Outlet Element and Use of Perforated Elements in Commercial Configurations
- Lecture 32 - Two-interacting Duct Configurations: Development of Equations and Concentric Tube Resonators
- Lecture 33 - Concentric Tube Resonator: Partially Perforated Pipe or Airway (MATLAB)
- Lecture 34 - Review of Perforate Impedance Expressions
- Lecture 35 - MATLAB Demonstration for Fully and Partially Perforated CTR
- Lecture 36 - Cross-Flow elements: Setting-up the Equations
- Lecture 37 - Cross-Flow elements: MATLAB Demonstration for Simple Configurations
- Lecture 38 - Plug Mufflers, Three-pass Perforated Element Muffler (Commercial Configurations) - MATLAB
- Lecture 39 - Multiply-Connected Mufflers: HQ Tubes
- Lecture 40 - TL Analysis of HQ Tubes (MATLAB): Network Analysis and Analytical Formula
- Lecture 41 - Transmission Loss in terms of Scattering and Impedance Matrix Parameters
- Lecture 42 - Rectangular Chamber Muffler: Characterization and TL Analysis using 3-D Piston-driven Model
- Lecture 43 - Circular Chambers: Characterization and TL Analysis Using 3-D Piston-driven Model
- Lecture 44 - Analytical Mode-Matching for Extended-Inlet and Outlet Muffler: Setting-up of the Equations
- Lecture 45 - MATLAB Demonstration for Transmission Loss Calculations
- Lecture 46 - Dissipative Mufflers (Lined Circular duct) - A Brief Discussion
- Lecture 47 - Summary of the Topics Covered in This Course, Topics to be Covered in a Future Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Elements of Solar Energy Conversion

Subject Co-ordinator - Prof. Jishnu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Manufacturing Processes - Casting and Joining

Subject Co-ordinator - Prof. Sounak Kumar Choudhury

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Casting: Introduction to Casting
- Lecture 2 - Various aspects of Casting
- Lecture 3 - Patterns and Moulds
- Lecture 4 - Sand Mould and Gating System
- Lecture 5 - Gating System Design
- Lecture 6 - Aspiration Effects and Riser Design
- Lecture 7 - Solidification of Metals and Alloys
- Lecture 8 - Stress, Strain and Strain Rate and Shear Plane Angle
- Lecture 9 - Steps in Sand Casting Processes
- Lecture 10 - Expendable Mould Casting Processes
- Lecture 11 - Permanent Mould Casting
- Lecture 12 - Various Casting Processes and Cost Analysis
- Lecture 13 - Cost analysis, Casting Defects and Product Design
- Lecture 14 - Introduction to Joining Processes
- Lecture 15 - Characteristic Features of Welding Processes
- Lecture 16 - Various Welding Processes
- Lecture 17 - Advanced Welding Processes
- Lecture 18 - Characteristic Features of Arc Welding
- Lecture 19 - Shielded metal arc welding, MIG and TIG Welding
- Lecture 20 - Gas Welding, Brazing and Soldering, Welding Defects

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Computational Fluid Dynamics and Heat Transfer

Subject Co-ordinator - Prof. Gautam Biswas

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Historical Perspectives and Introduction to the Course
- Lecture 2 - Finite Difference Method - Basic Idea of Discretization
- Lecture 3 - Explicit and Implicit Formulations, Stability Analysis - Part 1
- Lecture 4 - Stability Analysis - Part 2
- Lecture 5 - Important Aspects of Flow Modelling - Part 1
- Lecture 6 - Important Aspects of Flow Modelling - Part 2
- Lecture 7 - Important Aspects of Flow Modelling - Part 3
- Lecture 8 - Applications of Our Knowledge to a Problem of Practical Interest and Setting up an Algorithm
- Lecture 9 - Finite Volume Method - Part 1
- Lecture 10 - Finite Volume Method - Part 2
- Lecture 11 - Finite Volume Method - Part 3
- Lecture 12 - Introduction to Finite Element Method (Preliminary Concepts)
- Lecture 13 - Introduction to Finite Element Method (Galerkin Weighted Residual Method)
- Lecture 14 - Introduction to Finite element Method (Elemental contributions and formation of Global Matrix)
- Lecture 15 - Vorticity Stream Function Approach (Formulation and Algorithm)
- Lecture 16 - Vorticity-Stream Function Approach For Solving Navier-Stokes Equations
- Lecture 17 - Solving Navier-Stokes Equations For Incompressible Flows using SIMPLE Algorithm - Part 1
- Lecture 18 - Solving Navier-Stokes Equations For Incompressible Flows using SIMPLE Algorithm - Part 2
- Lecture 19 - Solving Navier-Stokes Equations For Incompressible Flows using MAC Algorithm - Part 2
- Lecture 20 - MAC Algorithm (Pressure - Velocity Iteration and the Solution)
- Lecture 21 - MAC Algorithm (Solution of Energy Equation)
- Lecture 22 - A Finite Volume Method to solve NS Equations in 3D Complex Geometry - Part 1
- Lecture 23 - A Finite Volume Method to solve NS Equations in 3D Complex Geometry - Part 2
- Lecture 24 - A Finite Volume Method to solve NS Equations in 3D Complex Geometry - Part 3
- Lecture 25 - Mathematical Approaches to Turbulent Flows (Preliminaries and Modeling Framework)
- Lecture 26 - Mathematical Approaches to Turbulent Flows (Modeling on the basis of RANS)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Production Technology: Theory and Practice

Subject Co-ordinator - Prof. Sounak Kumar Choudhury

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Engineering Materials and Their Properties - 1
- Lecture 2 - Engineering Materials and Their Properties - 2
- Lecture 3 - Engineering Materials and Their Properties - 3
- Lecture 4 - Metal Machining-1: Introduction to Machining
- Lecture 5 - Metal Machining-2: Mechanism of plastic deformation
- Lecture 6 - Metal Machining-3: Types of Chips, Tool nomenclature and tool angles
- Lecture 7 - Metal Machining-4: Selection of Tool angles, Forces in machining
- Lecture 8 - Metal Machining-5: Merchant's Circle Diagram
- Lecture 9 - Metal Machining-6: Friction in Metal Cutting
- Lecture 10 - Metal Machining-7: Practical Machining Operations; Force Measurement
- Lecture 11 - Metal Machining-8: Force Measurement
- Lecture 12 - Metal Machining-9: Tool Wear and Tool Life
- Lecture 13 - Metal Machining-10: Factors affecting Tool Life
- Lecture 14 - Metal Machining-11: Abrasive Machining Processes
- Lecture 15 - Metal Machining-12: Abrasive Machining Processes
- Lecture 16 - Metal Machining-13: Grinding; Economics of Machining
- Lecture 17 - Machining-14: Economics of Machining
- Lecture 18 - Non-Traditional Machining-1: Introduction; Classification
- Lecture 19 - Non-Traditional Machining-2: Various Non-Traditional Machining Processes
- Lecture 20 - Non-Traditional Machining-3, Computer Numerical Control (CNC) -1
- Lecture 21 - Computer Numerical Control (CNC) - 2
- Lecture 22 - Computer Numerical Control (CNC) - 3
- Lecture 23 - Engineering Metrology
- Lecture 24 - Laboratory Demonstration/Hands-On Practice - 1
- Lecture 25 - Laboratory Demonstration/Hands-On Practice - 2
- Lecture 26 - Laboratory Demonstration/Hands-On Practice - 3
- Lecture 27 - Laboratory Demonstration/Hands-On Practice - 4
- Lecture 28 - Laboratory Demonstration/Hands-On Practice - 5
- Lecture 29 - Laboratory Demonstration/Hands-On Practice - 6

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Lecture 30	-	Laboratory Demonstration/Hands-On Practice	-	7
Lecture 31	-	Laboratory Demonstration/Hands-On Practice	-	8
Lecture 32	-	Laboratory Demonstration/Hands-On Practice	-	9
Lecture 33	-	Laboratory Demonstration/Hands-On Practice	-	10

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Turbomachinery

Subject Co-ordinator - Prof. Subrata Sarkar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Classification
- Lecture 2 - Introduction and Classification (Continued...)
- Lecture 3 - Review of the Fundamental Laws
- Lecture 4 - Equation of Motion in Rotating Frame
- Lecture 5 - Euler Equation for Turbomachinery
- Lecture 6 - Euler Equation for Turbomachinery: Illustration
- Lecture 7 - Problem Session - Chapter-1: Applications of Euler Equation
- Lecture 8 - Similarity Analysis - I
- Lecture 9 - Similarity Analysis - II
- Lecture 10 - Similarity Analysis - III
- Lecture 11 - Problem Session - II
- Lecture 12 - Cassade Analysis - I
- Lecture 13 - Cassade Analysis - II
- Lecture 14 - Cassade Analysis - III
- Lecture 15 - Cassade Analysis - IV
- Lecture 16 - Cassade Analysis (Problem Session)
- Lecture 17 - Gas Turbine Cycle Analysis - I
- Lecture 18 - Gas Turbine Cycle Analysis - II
- Lecture 19 - Gas Turbine Cycle Analysis - III
- Lecture 20 - Gas Turbine Cycle Analysis - IV
- Lecture 21 - Gas Turbine Cycle Analysis - V
- Lecture 22 - Illustrative Examples Gas Turbine Cycle
- Lecture 23 - Illustrative Examples Jet Propulsion
- Lecture 24 - Axial Flow Compressor - I
- Lecture 25 - Axial Flow Compressor - II
- Lecture 26 - Axial Flow Compressor - III
- Lecture 27 - Axial Flow Compressor - IV
- Lecture 28 - Illustrative Examples Axial Flow Compressor
- Lecture 29 - Centrifugal Compressor - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Centrifugal Compressor - II
- Lecture 31 - Centrifugal Compressor - III
- Lecture 32 - Axial Flow Turbine - I
- Lecture 33 - Axial Flow Turbine - II
- Lecture 34 - Axial Flow Turbine - III
- Lecture 35 - Axial Flow Turbine - IV
- Lecture 36 - Axial Flow Turbine - V
- Lecture 37 - Axial Flow Steam Turbine - I
- Lecture 38 - Axial Flow Steam Turbine - II
- Lecture 39 - Axial Flow Steam Turbine - III
- Lecture 40 - Axial Flow Steam Turbine - IV
- Lecture 41 - Axial Flow Steam Turbine - V
- Lecture 42 - Axial Flow Steam Turbine - VI
- Lecture 43 - Hydraulic Turbines - I (Pelton Wheel)
- Lecture 44 - Hydraulic Turbines - II (Illustrations on Pelton Wheel)
- Lecture 45 - Hydraulic Turbines - III (Reaction Turbine)
- Lecture 46 - Hydraulic Turbines - IV (Cavitation)
- Lecture 47 - Hydraulic Turbines - V (Illustrations on Reaction Turbine)
- Lecture 48 - CFD and Turbomachinery - I
- Lecture 49 - CFD and Turbomachinery - II
- Lecture 50 - CFD and Turbomachinery - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Robot Motion Planning

Subject Co-ordinator - Prof. Ashish Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Joints and Degrees of Freedom
- Lecture 3 - Work Volume and Rotation Transformation
- Lecture 4 - Transformations
- Lecture 5 - Kinematics
- Lecture 6 - Bug Algorithms
- Lecture 7 - Configuration Space
- Lecture 8 - C Obstacle
- Lecture 9 - Topology of C Space
- Lecture 10 - Road Map Methods
- Lecture 11 - Cell Decomposition Methods
- Lecture 12 - Sampling Based Planning
- Lecture 13 - Potential Field Methods - I
- Lecture 14 - Navigation Function and Potential Field in 3D
- Lecture 15 - Basic Search Algorithms
- Lecture 16 - Motion Planning with Kinematic Constraints
- Lecture 17 - Controllability
- Lecture 18 - Kinematic Constraints and Multifinger Robot
- Lecture 19 - Multifinger Robot Hands
- Lecture 20 - Optimization in Motion Planning

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC: Metal Additive Manufacturing

Subject Co-ordinator - Prof. Amandeep Singh Oberoi, Prof. Janakranjan Ramkumar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Metal Additive Manufacturing
- Lecture 2 - Additive Manufacturing Processes: Classification and Challenges
- Lecture 3 - Additive Manufacturing Processes: Applications and Challenges
- Lecture 4 - Metal Additive Manufacturing, Glossary - Part 1
- Lecture 5 - Metal Additive Manufacturing, Glossary - Part 2
- Lecture 6 - CAD for Additive Manufacturing
- Lecture 7 - Basic Processes - Part 1
- Lecture 8 - Basic Processes - Part 2
- Lecture 9 - Laser Based Processes - Part 1
- Lecture 10 - Laser Based Processes - Part 2
- Lecture 11 - Electron Beam Process
- Lecture 12 - Powder/Wire Fed Systems
- Lecture 13 - Solidification of Parts - Part 1
- Lecture 14 - Solidification of Parts - Part 2
- Lecture 15 - Solidification of Parts - Part 3
- Lecture 16 - Process Parameters
- Lecture 17 - MAM Printed Parts: Mechanical Properties, Hardness
- Lecture 18 - MAM Printed Parts: Mechanical Properties, Strength
- Lecture 19 - Common Defects and Post Processing
- Lecture 20 - Design for Additive Manufacturing (DFAM) - Part 1
- Lecture 21 - Design for Additive Manufacturing (DFAM) - Part 2
- Lecture 22 - Topology Optimization Techniques
- Lecture 23 - On-Machine Sensing in MAM - Part 1
- Lecture 24 - On-Machine Sensing in MAM - Part 2
- Lecture 25 - In-situ Control Systems
- Lecture 26 - Additive Manufacturing of Metal Matrix Composites - Part 1
- Lecture 27 - Additive Manufacturing of Metal Matrix Composites - Part 2
- Lecture 28 - Additive Manufacturing of Metal Matrix Composites - Part 3
- Lecture 29 - Additive Manufacturing of Metal Matrix Composites - Part 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Reverse Engineering in MAM - Part 1
- Lecture 31 - Reverse Engineering in MAM - Part 2
- Lecture 32 - Reverse Engineering in MAM - Laboratory Demonstration - I
- Lecture 33 - Reverse Engineering in MAM - Laboratory Demonstration - II
- Lecture 34 - CAD and Topology Optimization Laboratory Demonstration - I
- Lecture 35 - CAD and Topology Optimization Laboratory Demonstration - II
- Lecture 36 - Non-Destructive Testing - Part 1
- Lecture 37 - Non-Destructive Testing - Part 2
- Lecture 38 - Sustainability in MAM - Part 1
- Lecture 39 - Sustainability in MAM - Part 2
- Lecture 40 - Sustainability in MAM - Part 3
- Lecture 41 - Metal 3D Printing Laboratory Demonstration - I
- Lecture 42 - Metal 3D Printing Laboratory Demonstration - II
- Lecture 43 - Safety in MAM
- Lecture 44 - Costing in MAM - Part 1
- Lecture 45 - Costing in MAM - Part 2
- Lecture 46 - Costing in MAM - Part 3
- Lecture 47 - Industry 4.0 and MAM

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Conduction and Convection: Fundamentals and Applications

Subject Co-ordinator - Prof. Gautam Biswas

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Advanced Robotics

Subject Co-ordinator - Prof. Ashish Dutta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

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Lecture 30

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Applied Numerical Methods

Subject Co-ordinator - Prof. Malay K. Das

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Social Innovation in Industry 4.0

Subject Co-ordinator - Prof. Janakranjan Ramkumar, Prof. Amandeep Singh Oberoi

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Engineering Thermodynamics in Hindi

Subject Co-ordinator - Prof. Jayant K. Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Advanced Machining Processes (2024)

Subject Co-ordinator - Prof. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Advanced Manufacturing Processes
- Lecture 2 - Ultrasonic Machining
- Lecture 3
- Lecture 4
- Lecture 5 - Abrasive Jet Machining
- Lecture 6 - Adrasive Jet Micro-Machining and Mask Materials for AJMM
- Lecture 7 - Electro-Chemical Machining
- Lecture 8 - Electrochemical Machining - I
- Lecture 9 - Electrochemical Machining - II
- Lecture 10 - Electrochemical Machining - III
- Lecture 11 - Electrochemical Machining - IV
- Lecture 12 - Electrochemical Machining - V
- Lecture 13 - Electrochemical Machining - VI
- Lecture 14 - Electrochemical Machining - VII
- Lecture 15 - Electrochemical Machining - VIII
- Lecture 16 - Machining Applications
- Lecture 17 - Electric Discharge Machining - I
- Lecture 18 - Electric Discharge Machining - II
- Lecture 19 - Electric Discharge Machining - III
- Lecture 20 - Electric Discharge Machining - IV
- Lecture 21 - Electric Discharge Machining - IV and Electron Beam Machining - I
- Lecture 22 - Electron Beam Machining - II
- Lecture 23 - Laser Beam Machining - I
- Lecture 24 - Laser Beam Machining - II
- Lecture 25 - Silicon and Processing of Silicon - I
- Lecture 26 - Silicon and Processing of Silicon - II
- Lecture 27 - Polymer Processing
- Lecture 28 - Advanced Finishing Processes
- Lecture 29 - Lab Session-I: Water Abrasive Jet Machining Process

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lab Session-II: Electro-discharge Machining Process - I
- Lecture 31 - Lab Session-III: Electro-discharge Machining Process - II
- Lecture 32 - Lab Session-IV: Laser Beam Machining
- Lecture 33 - Lab Session-V: Photolithiography



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Computational Fluid Dynamics (Prof. S. Chakraborty)

Subject Co-ordinator - Prof. S. Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Computational Fluid Dynamics and Principles of Conservation

Lecture 2 - Conservation of Mass and Momentum

Lecture 3 - Navier Stokes Equation (Continued.)

Lecture 4 - Energy Equation and General Structure of Conservation Equations

Lecture 5 - Classification of Partial Differential Equations and Physical Behaviour

Lecture 6 - Classification of Partial Differential Equations and Physical Behaviour (Continued.)

Lecture 7 - Approximate Solutions of Differential Equations

Lecture 8 - Approximate Solutions of Differential Equations

Lecture 9 - Weighted Residual Approach and Introduction to Discretization

Lecture 10 - Fundamentals of Discretization

Lecture 11 - Fundamentals of Discretization

Lecture 12 - Fundamentals of Discretization

Lecture 13 - Finite Volume Method

Lecture 14 - Finite Volume Method

Lecture 15 - Finite Volume Method

Lecture 16 - Important Consequences of Discretization of Unsteady State Problems

Lecture 17 - Important Consequences of Discretization of Time Dependent Diffusion Type Problems (Continued.)

Lecture 18 - Discretization of Hyperbolic Equations

Lecture 19 - PART 1

Lecture 20 - PART 1

Lecture 21 - Solution of Systems of Linear Algebraic Equations

Lecture 22 - Solution of Systems of Linear Algebraic Equations

Lecture 23 - Solution of Systems of Linear Algebraic Equations

Lecture 24 - Elimination Methods

Lecture 25 - Iterative Methods for Numerical Solution of Systems of Linear Algebraic Equations

Lecture 26 - Iterative Methods for Numerical Solution of Systems of Linear Algebraic Equations (Continued.)

Lecture 27 - Iterative Methods

Lecture 28 - PART 1

Lecture 29 - Gradient Search Methods (Continued.)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Discretization of Convection-Diffusion Equations
- Lecture 31 - Discretization of Convection-Diffusion Equations
- Lecture 32 - Discretization of Convection- Diffusion Equations
- Lecture 33 - Discretization of Convection -Diffusion Equations
- Lecture 34 - Discretization of Convection-Diffusion Equations
- Lecture 35 - Discretization of Navier Stokes Equations
- Lecture 36 - Discretization of Navier Stokes Equations ( Continued.)
- Lecture 37 - Discretization of Navier Stokes Equations ( Continued. )
- Lecture 38 - PART 1
- Lecture 39 - Unstructured Grid Formulation (Continued.)
- Lecture 40 - What is there in implementing a CFD Code
- Lecture 41 - Introduction to Turbulence Modeling
- Lecture 42 - Introduction to Turbulence Modeling (Continued.)
- Lecture 43 - End Semester Questions Review

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Fundamentals of Industrial Oil Hydraulics and Pneumatics

Subject Co-ordinator - Prof. R.N. Maiti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Hydraulic and Pneumatic System
- Lecture 2 - Basic Components, Symbols and Circuits
- Lecture 3 - Incompressible Fluids - Some Fundamental Properties
- Lecture 4 - Incompressible Fluid Flow related to Fluid Drive
- Lecture 5 - Capillary Fluid (incompressible) Flow and Hydrodynamic Lubrication
- Lecture 6 - Basis for Calculating Hydraulic Systems
- Lecture 7 - Different types of Valves - Features and Operations - I
- Lecture 8 - Hydraulic Valves (General) Different types of Valves - Features and Operations - II
- Lecture 9 - Hydraulic Circuits and Valves
- Lecture 10 - Hydraulic Servomechanism and Servo and Proportional Control Valves
- Lecture 11 - Basic Spool Valve Design Analysis
- Lecture 12 - General Control Valve Analysis
- Lecture 13 - Critical Centre Spool Valve Analysis
- Lecture 14 - Critical Centre Spool Valve Analysis - Stroking Forces
- Lecture 15 - Proportional Solenoid Pilot Operated Two Stage Pressure Relief Valve
- Lecture 16 - Proportional Solenoid Pilot Operated Two Stage Pressure Relief Valve (Continued...)
- Lecture 17 - Introduction to Positive Displacement Hydrostatic Units (Hydraulic Pumps and Motors)
- Lecture 18 - Basic features of some Hydraulic Pumps and Motors
- Lecture 19 - Analysis of an axial - Piston Swash Plate type Hydrostatic Pump (Discharge Flow Characteristics)
- Lecture 20 - Analysis of an axial - Piston Swash Plate type Hydrostatic Pump (Estimation of Torque on Drive S)
- Lecture 21 - Analysis of an Axial - Piston Swash Plate type Hydrostatic unit (Pressure Ripple and Swash Plate
- Lecture 22 - Design Analysis of Gear Pumps - I
- Lecture 23 - Design Analysis of Gear Pumps - II
- Lecture 24 - Basic Concept of Hydrostatic Transmission (HST) System
- Lecture 25 - Selection of HST units and components
- Lecture 26 - Regenerative Circuits
- Lecture 27 - Introduction to Fluid Logic
- Lecture 28 - Basic Devices, Symbols and Circuits
- Lecture 29 - Logic Circuits

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design Analysis of ORBIT Motor - I
- Lecture 31 - Design Analysis of ORBIT Motor - II
- Lecture 32 - Design Analysis of ORBIT Motor - III
- Lecture 33 - Application and Selection of Accumulators - Part I
- Lecture 34 - Application and Selection of Accumulators - Part II
- Lecture 35 - Hydraulic Circuits in Industrial Applications
- Lecture 36 - Air preparation - Compressor and Accessories
- Lecture 37 - Pneumatic Circuits
- Lecture 38 - Analysis of Three - Way (Spool and Flapper Nozzle Valve)
- Lecture 39 - Analysis of Flapper Nozzle Valves
- Lecture 40 - Flow Force Compensation and Spool Design (Electro - hydraulic valves)
- Lecture 41 - Premier and Guide to Oil - hydraulic fluids ; and Introduction to Fluid Power Symbols
- Lecture 42 - Symbols in Oil Hydraulics
- Lecture 43 - AppendicesTutorial on Basic Calculation on HST System and Hydraulic Fluids

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Machinery fault diagnosis and signal processing

Subject Co-ordinator - Prof. A.R. Mohanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Principles of Maintenance
- Lecture 3 - Failure Modes Effects and Criticality Analysis
- Lecture 4 - Fault Diagnostics and Prognostics
- Lecture 5 - Basics of Machinery Vibration
- Lecture 6 - Engineering Applications of Vibration
- Lecture 7 - Rotordynamics
- Lecture 8 - Time Domain Signal Analysis
- Lecture 9 - Frequency Domain Signal Analysis
- Lecture 10 - Computer Aided Data Acquisition
- Lecture 11 - FFT Analysis
- Lecture 12 - Modulation and Sidebands
- Lecture 13 - Envelope Analysis
- Lecture 14 - Cepstrum Analysis
- Lecture 15 - Order Analysis
- Lecture 16 - Basics of Instrumentation
- Lecture 17 - Sensors and Transducers
- Lecture 18 - Data Recording and Transmission
- Lecture 19 - Vibration Transducers
- Lecture 20 - Vibration Monitoring
- Lecture 21 - Basics of Noise and Noise Monitoring
- Lecture 22 - Numericals in Noise Vibration and Data Acquisition
- Lecture 23 - Unbalance Detection
- Lecture 24 - Field Balancing
- Lecture 25 - Misalignment Detection
- Lecture 26 - Cracked Shaft Detection
- Lecture 27 - Looseness and Rub Detection
- Lecture 28 - Ball and Journal Bearings
- Lecture 29 - Gear Fault Detection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fans, Blowers and Compressors
- Lecture 31 - Pumps and Turbines
- Lecture 32 - Contaminant Analysis
- Lecture 33 - Oil Analysis
- Lecture 34 - Fault Detection in Motors and Transformers
- Lecture 35 - Motor Current Signature Analysis
- Lecture 36 - Thermography
- Lecture 37 - Ultrasonics
- Lecture 38 - Acoustic Emission and Eddy Current Testing
- Lecture 39 - Radiography, Dye Penetrant Test and Visual Inspection
- Lecture 40 - Case Studies

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Solar Energy Technology

Subject Co-ordinator - Prof. V.V. Satyamurty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Energy and Dependence on External Sources and Sun, Physical Descriptions and Reactions
- Lecture 2 - Sun - Earth Geometry
- Lecture 3 - Terminology Extra - Terrestrial Radiation Terrestria Radiation
- Lecture 4 - Measuring Instruments
- Lecture 5 - Estimation of Solar Radiation or Details
- Lecture 6 - Radiation Processing - Long Term
- Lecture 7 - Evaluation of the Apparent Sunrise and Sunset Angles
- Lecture 8 - Estimation of Daily/Monthly Average daily Tilt Factor Under Terrestrial Conditions
- Lecture 9 - Solar Collector Basics
- Lecture 10 - Transmission - Absorptance Product
- Lecture 11 - Daily (Or Monthly Average Daily) Transmittance - Absorptance Product Analytical Evaluation
- Lecture 12 - Theory of Flat Plate Collectors - Liquid Based (A)
- Lecture 13 - Theory of Flat Plate Collectors - Liquid Based (B)
- Lecture 14 - Theory of Flat Plate Collectors - Liquid Based (C)
- Lecture 15 - Mean temperature and Heat Capacity Effects
- Lecture 16 - Theory of Air Based Solar Flat Plate Collectors
- Lecture 17 - Theory of Air Based Solar Flat Plate Collectors (Continued.)
- Lecture 18 - Other Collector Geometries
- Lecture 19 - Concentrating Collectors
- Lecture 20 - Concentrating Collectors (Continued.)
- Lecture 21 - Concentrating Collectors (Continued.)
- Lecture 22 - Compound Parabolic Collectors
- Lecture 23 - Exercise - I
- Lecture 24 - Exercise - I (Continued.)
- Lecture 25 - Device and System Performance
- Lecture 26 - Long Term Solar Energy System Performance
- Lecture 27 - Exercise - I (Continued.)
- Lecture 28 - Long Term Solar Energy System Performance Simplified Design Methods
- Lecture 29 - Long Term Solar Energy System Performance Simplified Design Methods (Continued.)

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- Lecture 30 - Monthly Average Daily Utilizability
- Lecture 31 - The  $\phi(\bar{h}) - f$  chart method (Continued.)
- Lecture 32 - The  $\phi(\bar{h}) - f$  chart method Tank Losses and Finite Heat Exchanger
- Lecture 33 - Exercise - 2
- Lecture 34 - Exercise - 2 (Continued.)
- Lecture 35 - Exercise - 2 (Continued.)
- Lecture 36 - Economic Analysis
- Lecture 37 - Life Cycle Savings
- Lecture 38 - Passive Devices
- Lecture 39 - Passive Architecture, Overhangs and Wing Walls
- Lecture 40 - Passive Architecture, Overhangs and Wing Walls (Continued.)
- Lecture 41 - Summary
- Lecture 42 - Summary (Continued.)
- Lecture 43 - Summary (Continued.)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Technology of Surface Coating

Subject Co-ordinator - Prof. A.K. Chattopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - CVD Reaction
- Lecture 3 - Adhesion of Surface Coating
- Lecture 4 - CVD System
- Lecture 5 - CDV of Tic
- Lecture 6 - Chemical Vapour Deposition of Nitride Coating
- Lecture 7 - Chemical Vapour Deposition of Carbo-Nitride Coating
- Lecture 8 - Chemical Vapour Deposition of Chromium
- Lecture 9 - Chemical Vapour Deposition of Aluminium Oxide
- Lecture 10 - Chemical Vapour Deposition of Diamond
- Lecture 11 - Vacuum Evaporation Deposition
- Lecture 12 - Reactive Evaporation Deposition
- Lecture 13 - Cathodic Arc Evaporation Deposition
- Lecture 14 - Sputtering
- Lecture 15 - Magnetron Sputtering
- Lecture 16 - Unbalanced Magnetron Sputtering
- Lecture 17 - Radio frequency and pulsed DC sputtering
- Lecture 18 - Sputter Deposition of Nitride Coating
- Lecture 19 - Sputter Deposition of Molybdenum Di Sulphide Coating
- Lecture 20 - Influence of Architecture of Sputter Deposited Molybdenum Di Sulphide Coating
- Lecture 21 - Electro Plating, Anodizing and Electro-Less Plating
- Lecture 22 - Coating of Monolayer Abrasive Grain by Electro Plating
- Lecture 23 - Mechanism of Wetting
- Lecture 24 - Coating on Ceramics by Wetting
- Lecture 25 - Coating of Monolayer Abrasive Grain by Wetting
- Lecture 26 - Coating on Abrasive Grain
- Lecture 27 - Combustion Spray Process
- Lecture 28 - Plasma Spray Process
- Lecture 29 - Mechanical, Chemical and Ion-Assisted Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Combustion Spray Process
- Lecture 31 - Production of Low Vacuum
- Lecture 32 - Production of High Vacuum
- Lecture 33 - Measurement of Low Pressure and Gas Flow in Coating Deposition System
- Lecture 34 - Physical Characterization
- Lecture 35 - Assessment of Coating Hardness
- Lecture 36 - Assessment of Friction and Wear of Coating
- Lecture 37 - Assessment of Surface Roughness and Thickness of Coating
- Lecture 38 - Assessment of Adhesion of Coating
- Lecture 39 - Performance Evaluation of TiN Coated Tool
- Lecture 40 - Performance Evaluation of HFCVD Diamond Coated Tool

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Vibration of Structures

Subject Co-ordinator - Prof. A. Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Transverse Vibrations of Strings - I
- Lecture 2 - Transverse Vibrations of Strings - II
- Lecture 3 - Axial and Torsional Vibrations of Bars
- Lecture 4 - Variational Formulation - I
- Lecture 5 - Variational Formulation - II
- Lecture 6 - Modal Analysis - I
- Lecture 7 - Modal Analysis - II
- Lecture 8 - Properties of the Eigenvalue Problem
- Lecture 9 - Modal Analysis
- Lecture 10 - Modal Analysis
- Lecture 11 - The Initial Value Problem
- Lecture 12 - Forced Vibration Analysis - I
- Lecture 13 - Forced Vibration Analysis - II
- Lecture 14 - Forced Vibration Analysis - III
- Lecture 15 - Damping in Structures
- Lecture 16 - Axially Translating Strings
- Lecture 17 - d' Alembert's Solution - I
- Lecture 18 - d' Alembert's Solution - II
- Lecture 19 - Harmonic Waves and Energetics of Wave Motion
- Lecture 20 - Scattering of Waves
- Lecture 21 - Applications of Wave Solution - I
- Lecture 22 - Applications of Wave Solution - II
- Lecture 23 - Beam Models - I
- Lecture 24 - Beam Models - II
- Lecture 25 - Modal Analysis of Beams
- Lecture 26 - Applications of Modal Solution
- Lecture 27 - Approximate Methods
- Lecture 28 - Topic in Beam Vibration - I
- Lecture 29 - Topic in Beam Vibration - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Wave Propagation in Beams
- Lecture 31 - Dynamics of Curved Beams
- Lecture 32 - Vibrations of Rings and Arches
- Lecture 33 - Dynamics of Membranes
- Lecture 34 - Vibrations of Rectangular Membrane
- Lecture 35 - Vibrations of Circular Membrane
- Lecture 36 - Special Problems in Membrane Vibrations
- Lecture 37 - Dynamics of Plates
- Lecture 38 - Vibrations of Rectangular Plates
- Lecture 39 - Vibrations of Circular Plates
- Lecture 40 - Special Problems in Plate Vibrations

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Basic Thermodynamics

Subject Co-ordinator - Prof. S.K. Som

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Fundamental Concepts
- Lecture 2 - Zeroth Law and Fundamental Concepts
- Lecture 3 - Different Kind of Energy and First Law - I
- Lecture 4 - First Law - II
- Lecture 5 - First Law - III
- Lecture 6 - Second Law and Its Corollaries - I
- Lecture 7 - Second Law and Its Corollaries - II
- Lecture 8 - Second Law and Its Corollaries - III
- Lecture 9 - Second Law and Its Corollaries - IV
- Lecture 10 - Second Law and Available Energy - I
- Lecture 11 - Second Law and Available Energy - II
- Lecture 12 - Second Law and Available Energy - III
- Lecture 13 - Thermodynamic Property Relations - I
- Lecture 14 - Thermodynamic Property Relations - II
- Lecture 15 - Joule-Kelvin Expansion
- Lecture 16 - Properties of Pure Substances - I
- Lecture 17 - Properties of Pure Substances - II
- Lecture 18 - Properties of Pure Substances
- Lecture 19 - Properties of Ideal Gases
- Lecture 20 - Vapors Power Cycle - I
- Lecture 21 - Vapor Power Cycle - II
- Lecture 22 - Vapor Power Cycle - III
- Lecture 23 - Vapor Power Cycle - IV
- Lecture 24 - Gas Power Cycle - I
- Lecture 25 - Gas Power Cycle - II
- Lecture 26 - Gas Power Cycle - III
- Lecture 27 - Thermodynamics of Reacting System - I
- Lecture 28 - Thermodynamics of Reacting System - II
- Lecture 29 - Thermodynamics of Reacting System - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Thermodynamics of Multi Component System - I
- Lecture 31 - Thermodynamics of Multi Component System - II
- Lecture 32 - Thermodynamics of Multi Component System - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Design of Machine Elements I

Subject Co-ordinator - Prof. G. Chakraborty, Prof. B. Maiti, Prof. S.K. Roychowdhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Design Philosophy  
Lecture 2 - Design And Manufacturing  
Lecture 3 - Engineering Materials  
Lecture 4 - Engineering Materials  
Lecture 5 - Simple Stresses In Machine Elements  
Lecture 6 - Simple Stresses In Machine Elements  
Lecture 7 - Compound Stresses In Machine Elements  
Lecture 8 - Design For Strength  
Lecture 9 - Design for Strength  
Lecture 10 - Design For Strength  
Lecture 11 - Design for Strength  
Lecture 12 - Design for Strength  
Lecture 13 - Design of Fasteners - I  
Lecture 14 - Design of Fasteners - II  
Lecture 15 - Design Of Keys and Splines  
Lecture 16 - Threaded Fasteners  
Lecture 17 - Design Of Threaded Fasteners  
Lecture 18 - Power Screws  
Lecture 19 - Design Of Power Screws  
Lecture 20 - Shaft Coupling - I  
Lecture 21 - Shaft Coupling - II  
Lecture 22 - Rivet Joints  
Lecture 23 - Design of Welded Joints - I  
Lecture 24 - Design of Welded Joints - II  
Lecture 25 - Design of Joints With Eccentric Loading  
Lecture 26 - Design of Joints With Variable Loading  
Lecture 27 - Design of Springs  
Lecture 28 - Design Of Springs  
Lecture 29 - Design Of Springs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Belt Drives
- Lecture 31 - Belt Drives
- Lecture 32 - Belt Drives
- Lecture 33 - Design for Strength
- Lecture 34 - Design of Shafts
- Lecture 35 - Design of Machine Elements - I (V & W)
- Lecture 36 - Design of Machine Elements - II (V & W)
- Lecture 37 - Design of Cylinders & Pressure Vessels - II
- Lecture 38 - Design of Cylinders & Pressure Vessels - III
- Lecture 39 - Design of Brakes - I
- Lecture 40 - Design of Brakes - II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Manufacturing Processes II

Subject Co-ordinator - Prof. S. Paul, Prof. A.B. Chattopadhyay, Prof. A.K. Chattopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Instructional Objectives - I (Manufacturing Process II)

Lecture 2 - Instructional Objectives - II

Lecture 3 - On Tool Geometry

Lecture 4 - Interrelations Among The Tool Angles

Lecture 5 - Mechanism of Chip Formation

Lecture 6 - Orthogonal and Oblique Cutting

Lecture 7 - Use of Chip Breaker in Machining

Lecture 8 - Machining Forces

Lecture 9 - Analytical and Experimental

Lecture 10 - Dynamometers for Measuring Cutting Forces

Lecture 11 - CTCEAC

Lecture 12 - CCTCFA

Lecture 13 - Concept of Machinability and its Improvement

Lecture 14 - Tool Life

Lecture 15 - Conventional Cutting Tool Maths

Lecture 16 - Advanced Tool Materials

Lecture 17 - Kinematics System of Centre Lathe

Lecture 18 - General Purpose Machine Tool Drills

Lecture 19 - Kinematic Systems and Operations

Lecture 20 - Configuration and Kinematic System

Lecture 21 - Mounting of jobs and Cutting Tools in Machine

Lecture 22 - Mounting of jobs and Cutting Tools in Machine

Lecture 23 - Construction, Operation and Tool Layout

Lecture 24 - Use of Attachments In Machine Tools

Lecture 25 - Forces Developing and Acting In Machine Tools

Lecture 26 - Estimation of Machining Time

Lecture 27 - Broaching - Principle Systems and Applications

Lecture 28 - Grinding Principle and Application

Lecture 29 - Abrasive Processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Abrasive Processes (Grinding)
- Lecture 31 - Super finishing Processes
- Lecture 32 - Production of Screw Threads
- Lecture 33 - Gear Manufacturing
- Lecture 34 - Jigs and Fixtures For Machine Shops
- Lecture 35 - Design and Applications of Jigs and Fixtures
- Lecture 36 - Non Traditional Manufacturing
- Lecture 37 - Ultrasonic Machining
- Lecture 38 - Water Jet Machining and Abrasive Water Jet
- Lecture 39 - Electro - Chemical Machining
- Lecture 40 - Electro - Discharge Machining
- Lecture 41 - EBM and LBM

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Refrigeration and Air Conditioning

Subject Co-ordinator - Prof. M. Ramgopal, Prof. R.C. Arora

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - History of Refrigeration
- Lecture 2 - Refrigerant Compressors & Development
- Lecture 3 - Applications of RTAC
- Lecture 4 - Review of Fundamentals Thermodynamics - I
- Lecture 5 - Review of Fundamentals
- Lecture 6 - Fundamentals of Fluid Flow
- Lecture 7 - Fundamentals of Heat Transfer
- Lecture 8 - Methods of Producing low Temperatures
- Lecture 9 - Air Cycle Refrigeration Systems
- Lecture 10 - Vapour Compression Refrigeration Systems
- Lecture 11 - Vapour Compression Refrigeration Systems (Continued...)
- Lecture 12 - Vapour Compression Refrigeration Systems (Continued...)
- Lecture 13 - Vapour Compression Refrigeration Systems (Continued...)
- Lecture 14 - Vapour Absorption Refrigeration Systems
- Lecture 15 - Vapour Absorption Refrigeration System
- Lecture 16 - Vapour Absorption Refrigeration Systems (Continued...)
- Lecture 17 - Vapour Absorption Refrigeration Systems (Continued...)
- Lecture 18 - Worked Out Examples - I
- Lecture 19 - Worked Out Examples - II
- Lecture 20 - Refrigeration System Components
- Lecture 21 - Refrigeration System Components
- Lecture 22 - Refrigeration System Components
- Lecture 23 - Refrigeration System Components
- Lecture 24 - Refrigeration System Components
- Lecture 25 - Refrigeration System Components
- Lecture 26 - Refrigeration System Components
- Lecture 27 - Refrigeration System Components
- Lecture 28 - Refrigeration System Components
- Lecture 29 - Refrigeration System Components

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Refrigeration System Components
- Lecture 31 - Refrigeration System Components
- Lecture 32 - Analysis of Complete Vapour Compression System
- Lecture 33 - Refrigerants
- Lecture 34 - Psychrometry
- Lecture 35 - Psychrometric Processes
- Lecture 36 - Inside Design Condition Thermal Comfort
- Lecture 37 - Psychrometry of Air Conditioning Systems
- Lecture 38 - Air Conditioning Systems
- Lecture 39 - Cooling and Heating Load Calculation
- Lecture 40 - Cooling and Heating Load Calculations
- Lecture 41 - Cooling and Heating Load Calculations (Continued...)
- Lecture 42 - Cooling and Heating Load Calculations (Continued...)
- Lecture 43 - Selection of Air Conditioning Systems
- Lecture 44 - Transmission and Distribution of Air
- Lecture 45 - Transmission and Distribution of Air (Continued..)
- Lecture 46 - Space Air Distribution

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Fluid Mechanics

Subject Co-ordinator - Prof. S.K. Som

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Fundamental Concepts - Part I
- Lecture 2 - Introduction and Fundamental Concepts - Part II
- Lecture 3 - Introduction and Fundamental Concepts - Part III
- Lecture 4 - Fluid Statics - Part I
- Lecture 5 - Fluid Statics - Part II
- Lecture 6 - Fluid Statics - Part III
- Lecture 7 - Fluid Statics - Part IV
- Lecture 8 - Fluid Statics - Part V
- Lecture 9 - Fluid Statics - Part VI
- Lecture 10 - Kinematics of Fluid - Part I
- Lecture 11 - Kinematics of Fluid - Part II
- Lecture 12 - Kinematics of Fluid - Part III
- Lecture 13 - Conservation Equations in Fluid Flow - Part I
- Lecture 14 - Conservation Equations in Fluid Flow - Part II
- Lecture 15 - Conservation Equations in Fluid Flow - Part III
- Lecture 16 - Conservation Equations in Fluid Flow - Part IV
- Lecture 17 - Conservation Equations in Fluid Flow - Part V
- Lecture 18 - Conservation Equations in Fluid Flow - Part VI
- Lecture 19 - Conservation Equations in Fluid Flow - Part VII
- Lecture 20 - Conservation Equations in Fluid Flow - Part VIII
- Lecture 21 - Conservation Equations in Fluid Flow - Part IX
- Lecture 22 - Fluid Flow Applications - Part I
- Lecture 23 - Fluid Flow Applications - Part II
- Lecture 24 - Fluid Flow Applications - Part III
- Lecture 25 - Fluid Flow Applications - Part IV
- Lecture 26 - Fluid Flow Applications - Part V
- Lecture 27 - Fluid Flow Applications - Part VI
- Lecture 28 - Fluid Flow Applications - Part VII
- Lecture 29 - Incompressible Viscous Flows - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Incompressible Viscous Flows - Part II
- Lecture 31 - Incompressible Viscous Flows - Part III
- Lecture 32 - Incompressible Viscous Flows - Part IV
- Lecture 33 - Application of ViscousFlow Through Pipes - Part I
- Lecture 34 - Application of ViscousFlow Through Pipes - Part II
- Lecture 35 - Application of ViscousFlow Through Pipes - Part III
- Lecture 36 - Principles of Similarity - Part I
- Lecture 37 - Principles of Similarity - Part II
- Lecture 38 - Principles of Similarity - Part III
- Lecture 39 - Flow of Ideal Fluids - Part I
- Lecture 40 - Flow of Ideal Fluids - Part II
- Lecture 41 - Flows with a Free Surface - Part I
- Lecture 42 - Flows with a Free Surface - Part II
- Lecture 43 - Flows with a Free Surface - Part III
- Lecture 44 - A Few Unsteady Flow Phenomena in Practice - Part I
- Lecture 45 - A Few Unsteady Flow Phenomena in Practice - Part II
- Lecture 46 - Introduction to Laminar Boundary Layer - Part I
- Lecture 47 - Introduction to Laminar Boundary Layer - Part II
- Lecture 48 - Introduction to Turbulent Flow - Part I
- Lecture 49 - Introduction to Turbulent Flow - Part II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Introduction to Fluid Machines and Compressible Flow

Subject Co-ordinator - Prof. S.K. Som

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Fluid Machines 1
- Lecture 2 - Energy Transfer in Fluid Machines Part - I
- Lecture 3 - Energy Transfer in Fluid Machines Part - II
- Lecture 4 - Energy Transfer - impulse and Reaction Machines, efficiencies of Fluid Machines
- Lecture 5 - Principles of Similarity in Fluid Machines
- Lecture 6 - Concept of specific speed and introduction to Impulse Hydraulic Turbine
- Lecture 7 - Analysis of force on the Bucket of Pelton wheel and Power Generation
- Lecture 8 - Specific speed, Governing and Limitation of a Pelton Turbine
- Lecture 9 - Introduction to reaction Type of Hydraulic Turbine - A Francis Turbine
- Lecture 10 - Analysis of Force on Francis Runner and Power Generation
- Lecture 11 - Axial Flow Machine and Draft Tube
- Lecture 12 - Governing of Reaction Turbine
- Lecture 13 - Introduction to Rotodynamic Pumps
- Lecture 14 - Flow and Energy Transfer in a Centrifugal Pump
- Lecture 15 - Characteristics of a Centrifugal Pump
- Lecture 16 - Matching of Pump and System Characteristics
- Lecture 17 - Diffuser and Cavitation
- Lecture 18 - Axial Flow Pump
- Lecture 19 - Reciprocating Pump - Part I
- Lecture 20 - Reciprocating Pump - Part II
- Lecture 21 - Centrifugal Compressor - Part I
- Lecture 22 - Centrifugal Compressor - Part II
- Lecture 23 - Centrifugal Compressor - Part III
- Lecture 24 - Axial Flow Compressor - Part I
- Lecture 25 - Axial Flow Compressor - Part II
- Lecture 26 - Introduction to Compressible Flow - Part I
- Lecture 27 - Introduction to Compressible Flow - Part II
- Lecture 28 - Thermodynamic Relations and Speed of Sound
- Lecture 29 - Disturbance propagation, Stagnation and Sonic Properties

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Effects of Area Variation on Properties in an Isentropic Flow
- Lecture 31 - Choking in a Converging Nozzle
- Lecture 32 - Isentropic Flow through Convergent - Divergent Duct
- Lecture 33 - Normal Shock - Part I
- Lecture 34 - Normal Shock - Part II
- Lecture 35 - Normal Shock - Part III
- Lecture 36 - Normal Shock - Part IV
- Lecture 37 - Normal Shock - Part V
- Lecture 38 - Oblique Shock - Part I
- Lecture 39 - Oblique Shock - Part II
- Lecture 40 - Introduction to Expansion Wave and Prandtl Meyer Flow



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Introduction to Fluid Mechanics and Fluid Engineering

Subject Co-ordinator - Prof. S. Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introductory Concepts

Lecture 2 - Introductory Concepts (Continued...)

Lecture 3 - Introductory Concepts (Continued...)

Lecture 4 - Viscosity

Lecture 5 - Viscosity (Continued...)

Lecture 6 - Viscosity (Continued...) and Surface Tension

Lecture 7 - Surface Tension (Continued...) and Fluid Statics

Lecture 8 - Fluid Statics (Continued...)

Lecture 9 - Fluid Statics (Continued...)

Lecture 10 - Fluid Statics (Continued...) and Fluid Under Rigid Body Motion

Lecture 11 - Fluid Kinematics

Lecture 12 - Fluid Kinematics (Continued...)

Lecture 13 - Fluid Kinematics (Continued...)

Lecture 14 - Fluid Kinematics (Continued...)

Lecture 15 - Fluid Kinematics (Continued...)

Lecture 16 - Dynamics of Inviscid Flows

Lecture 17 - Dynamics of Inviscid Flows (Continued...)

Lecture 18 - Dynamics of Inviscid Flows (Continued...)

Lecture 19 - Dynamics of Inviscid Flows (Continued...)

Lecture 20 - Dynamics of Inviscid Flows (Continued...)

Lecture 21 - Integral Forms of Control Volume Conservation Equations (Reynolds Transport Theorem)

Lecture 22 - Integral Forms of Control Volume Conservation Equations (Reynolds Transport Theorem) (Continued...)

Lecture 23 - Integral Forms of Control Volume Conservation Equations (Reynolds Transport Theorem) (Continued...)

Lecture 24 - Integral Forms of Control Volume Conservation Equations (Reynolds Transport Theorem) (Continued...)

Lecture 25 - Integral Forms of Control Volume Conservation Equations (Reynolds Transport Theorem) (Continued...)

Lecture 26 - Integral Forms of Control Volume Conservation Equations (Reynolds Transport Theorem) (Continued...)

Lecture 27 - Integral Forms of Control Volume Conservation Equations (Reynolds Transport Theorem) (Continued...)

Lecture 28 - Dynamics of Viscous Flows

Lecture 29 - Dynamics of Viscous Flows

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- Lecture 30 - Some Exact Solutions of Navier Stokes Equation
- Lecture 31 - Some Exact Solutions of Navier Stokes Equation (Continued...)
- Lecture 32 - Some Exact Solutions of Navier Stokes Equation (Continued...)
- Lecture 33 - Introduction to Turbulence
- Lecture 34 - Introduction to Turbulence (Continued...)
- Lecture 35 - Introduction to Turbulence (Continued...)
- Lecture 36 - Introduction to Turbulence (Continued...)
- Lecture 37 - Boundary Layer Theory
- Lecture 38 - Boundary Layer Theory (Continued...)
- Lecture 39 - Boundary Layer Theory (Continued...)
- Lecture 40 - Boundary Layer Theory (Continued...) and Flow Past Immersed Bodies
- Lecture 41 - Flow past Immersed Bodies (Continued...)
- Lecture 42 - Potential Flow Past Immersed Bodies
- Lecture 43 - Potential Flow (Continued...) and Flow Past Immersed Bodies of Special Shapes
- Lecture 44 - Flow Past Immersed Bodies (Continued...) and Sports Ball Aerodynamics
- Lecture 45 - Pipe Flow
- Lecture 46 - Pipe Flow (Continued...)
- Lecture 47 - Pipe Flow (Continued...)
- Lecture 48 - Principles of Similarity and Dimensional Analysis
- Lecture 49 - Introduction to Fluid Machines
- Lecture 50 - Introduction to Fluid Machines (Continued...)
- Lecture 51 - Introduction to Fluid Machines (Continued...)
- Lecture 52 - Introduction to Fluid Machines (Continued...)
- Lecture 53 - Introduction to Fluid Machines (Continued...)
- Lecture 54 - Compressible Flows
- Lecture 55 - Compressible Flows (Continued...)
- Lecture 56 - Compressible Flows (Continued...)
- Lecture 57 - Compressible Flows (Continued...)
- Lecture 58 - Compressible Flows (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Micro fluidics

Subject Co-ordinator - Prof. S. Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Microfluidics  
Lecture 2 - Microfluidics  
Lecture 3 - Microfluidics  
Lecture 4 - Equations of Conservation  
Lecture 5 - Navier Stokes Equation  
Lecture 6 - Navier Stokes Equation (Continued...)  
Lecture 7 - Energy Equation  
Lecture 8 - Energy Equation (Continued...) and Species Conservation Equation  
Lecture 9 - Pressure-driven Microflows  
Lecture 10 - Pressure-driven Microflows (Continued...)  
Lecture 11 - Pressure-driven Microflows (Continued...)  
Lecture 12 - Pressure-driven Microflows (Continued...)  
Lecture 13 - Pressure -driven Microflows (Continued...)  
Lecture 14 - Some Examples of Unsteady Flows  
Lecture 15 - Some Examples of Unsteady Flows (Continued...)  
Lecture 16 - Some Examples of Unsteady Flows (Continued...)  
Lecture 17 - Stokes Drag on a Sphere  
Lecture 18 - Stokes Drag on a Sphere (Continued...) and Introduction to Lubrication Theory  
Lecture 19 - Lubrication Theory (Continued...)  
Lecture 20 - Lubrication Theory (Continued...)  
Lecture 21 - Boundary Condition in Fluid Mechanics  
Lecture 22 - Boundary Condition in Fluid Mechanics  
Lecture 23 - Surface Tension Driven Flows  
Lecture 24 - Surface Tension Driven Flows (Continued...)  
Lecture 25 - Surface Tension Driven Flows (Continued...)  
Lecture 26 - Surface Tension Driven Flows (Continued...)  
Lecture 27 - Surface Tension Driven Flows (Continued...) and Modulating Surface Tension  
Lecture 28 - Modulating Surface Tension (Continued...)  
Lecture 29 - Thin Film Dynamics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Thin Film Dynamics (Continued...)
- Lecture 31 - Thin Film Dynamics (Continued...)
- Lecture 32 - Thin Film Dynamics (Continued...)
- Lecture 33 - Lab on a CD
- Lecture 34 - Lab on a CD (Continued...)
- Lecture 35 - Introduction to Microfabrication
- Lecture 36 - Electrokinetics
- Lecture 37 - Electrokinetics (Continued...)
- Lecture 38 - Electrokinetics (Continued...)
- Lecture 39 - Electrokinetics (Continued...)
- Lecture 40 - Electrokinetics (Continued...)
- Lecture 41 - Electrokinetics (Continued...)
- Lecture 42 - Dispersion
- Lecture 43 - Introduction to Nanofluidics
- Lecture 44 - Introduction to Nanofluidics (Continued...) and Molecular Dynamics Simulations
- Lecture 45 - Introduction to Molecular Dynamics Simulations (Continued...)
- Lecture 46 - Biomicrofluidics
- Lecture 47 - Biomicrofluidics (Continued...)
- Lecture 48 - Nanofluidic Energy Conversion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Conduction and Convection Heat Transfer

Subject Co-ordinator - Prof. S.K. Som, Prof. S. Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Fundamental Concepts - I
- Lecture 2 - Introduction and Fundamental Concepts - II
- Lecture 3 - Heat Conduction Equation
- Lecture 4 - Heat Conduction Equation and Different Types of Boundary Conditions
- Lecture 5 - 1D Steady State Heat Conduction In Plane Wall Without Generation of Thermal Energy
- Lecture 6 - 1D Steady State Heat Conduction In Plane Wall With Generation of Thermal Energy
- Lecture 7 - Problems on 1D Steady State Heat Conduction In Plane Wall
- Lecture 8 - 1D Steady State Heat Conduction In Cylindrical Geometry
- Lecture 9 - 1D Steady State Heat Conduction In Cylindrical Geometry (Continued...)
- Lecture 10 - 1D Steady State Heat Conduction in Spherical Geometry
- Lecture 11 - Heat Transfer from Extended Surfaces (Fins)
- Lecture 12 - Heat Transfer from Extended Surfaces (Continued...)
- Lecture 13 - Two-dimensional Steady State Heat Conduction
- Lecture 14 - Unsteady State Heat Conduction
- Lecture 15 - Unsteady State Heat Conduction (Continued...)
- Lecture 16 - One Dimensional Unsteady State Heat Conduction - I
- Lecture 17 - One Dimensional Unsteady State Heat Conduction - II
- Lecture 18 - Introduction to Convection
- Lecture 19 - Convection - I
- Lecture 20 - Review of Fluid Mechanics - I
- Lecture 21 - Review of Fluid Mechanics - II
- Lecture 22 - Review of Fluid Mechanics - III
- Lecture 23 - Review of Fluid Mechanics - IV
- Lecture 24 - Review of Fluid Mechanics - V
- Lecture 25 - Review of Fluid Mechanics - VI
- Lecture 26 - Review of Fluid Mechanics - VIII
- Lecture 27 - Energy Equation - I
- Lecture 28 - Energy Equation - II and Thermal Boundary Layer - I
- Lecture 29 - Thermal Boundary Layer - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Integral Method for Thermal BL Analysis
- Lecture 31 - Internal Forced Convection - I
- Lecture 32 - Internal Forced Convection - II
- Lecture 33 - Internal Forced Convection - III
- Lecture 34 - Internal Forced Convection - IV
- Lecture 35 - Free Convection - I (Natural Convection)
- Lecture 36 - Free Convection - II (Natural Convection)
- Lecture 37 - Boiling and Condensation - I
- Lecture 38 - Boiling and Condensation - II
- Lecture 39 - Heat Exchanger - I
- Lecture 40 - Heat Exchanger - II
- Lecture 41 - Heat Exchanger - II (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Vibrations of Structures

Subject Co-ordinator - Prof. A. Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Transverse Vibrations of Strings - I
- Lecture 2 - Transverse Vibrations of Strings - II
- Lecture 3 - Axial and Torsional Vibrations of Bars
- Lecture 4 - Variational Formulation - I
- Lecture 5 - Variational Formulation - II
- Lecture 6 - Modal Analysis - I
- Lecture 7 - Modal Analysis - II
- Lecture 8 - Properties of the Eigenvalue Problem
- Lecture 9 - Modal Analysis
- Lecture 10 - Modal Analysis
- Lecture 11 - The Initial Value Problem
- Lecture 12 - Forced Vibration Analysis - I
- Lecture 13 - Forced Vibration Analysis - II
- Lecture 14 - Forced Vibration Analysis - III
- Lecture 15 - Damping in Structures - I
- Lecture 16 - Damping in Structures - II
- Lecture 17 - Beam Models - I
- Lecture 18 - Beam Models - II
- Lecture 19 - Modal Analysis of Beams
- Lecture 20 - Application of Modal Solution
- Lecture 21 - Approximate Methods
- Lecture 22 - Topics in Beam Vibrations - I
- Lecture 23 - Topics in Beam Vibrations - II
- Lecture 24 - Dynamics of Curved Beams
- Lecture 25 - Vibrations of Rings and Arches - I
- Lecture 26 - Vibrations of Rings and Arches - II
- Lecture 27 - Dynamics of Membranes
- Lecture 28 - Vibrations of Rectangular Membranes
- Lecture 29 - Vibrations of Circular Membranes - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Vibrations of Circular Membranes - II
- Lecture 31 - Dynamics of Plates
- Lecture 32 - Vibrations of Rectangular Plates
- Lecture 33 - Vibrations of Circular Plates
- Lecture 34 - Special Problems in Plate Vibrations - I
- Lecture 35 - Special Problems in Plate Vibrations - II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fluid Machines

Subject Co-ordinator - Prof. S.K. Som

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Definition of Fluid Machines and Energy Transfer in Fluid Machines - Part I  
Lecture 2 - Energy Transfer in Fluid Machines - Part II  
Lecture 3 - Impulse and Reaction Machines  
Lecture 4 - Principles of Similarity in Fluid Machine  
Lecture 5 - Concept of Specific Speed  
Lecture 6 - Basic Principles, Analysis of Force and Power Generation - Part I  
Lecture 7 - Basic Principles, Analysis of Force and Power Generation - Part II  
Lecture 8 - Specific Speed Governing and Limitations of Impulse Turbine  
Lecture 9 - Tutorial - I  
Lecture 10 - Tutorial - II  
Lecture 11 - Introduction and Analysis of Force on Francis Turbine (Radial Flow) - Part I  
Lecture 12 - Analysis of Force (Part-II) and Power Generation  
Lecture 13 - Draft Tube  
Lecture 14 - Tutorial - III  
Lecture 15 - Tutorial - IV  
Lecture 16 - Axial Flow Turbine  
Lecture 17 - Governing of Reaction Turbine  
Lecture 18 - Introduction to Rotodynamic Pumps  
Lecture 19 - Flow and Energy Transfer to Centrifugal Pumps  
Lecture 20 - Tutorial - V  
Lecture 21 - Characteristics of a Centrifugal Pump  
Lecture 22 - Matching of Pump and System Characteristics  
Lecture 23 - Diffuser and Cavitation  
Lecture 24 - Tutorial - VI  
Lecture 25 - Tutorial - VIII  
Lecture 26 - Axial Flow Pump  
Lecture 27 - Reciprocating Pump - Part I  
Lecture 28 - Reciprocating Pump - Part II  
Lecture 29 - Tutorial - VIII

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Basic Principles and Energy Transfer in Centrifugal Compressor - Part I
- Lecture 31 - Basic Principles and Energy Transfer in Centrifugal Compressor - Part II
- Lecture 32 - Basic Principles and Energy Transfer in Centrifugal Compressor - Part III
- Lecture 33 - Basic Principles and Energy Transfer in Centrifugal Compressor - Part IV and Losses in Centrifugal Compressor
- Lecture 34 - Performance Characteristics of Centrifugal Compressors - Part I
- Lecture 35 - Performance Characteristics of Centrifugal Compressors - Part II
- Lecture 36 - Basic Principles and Energy Transfer in Axial Flow Compressor - Part I
- Lecture 37 - Basic Principles and Energy Transfer in Axial Flow Compressor - Part II
- Lecture 38 - Fans and Blowers - Part I
- Lecture 39 - Fans and Blowers - Part II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Computer numerical control (CNC) of machine tools and processes

Subject Co-ordinator - Prof. Asimava Roy Choudhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to computer control & role of computers in automation

Lecture 2 - Introduction (Continued...) - binary logic and logic gates

Lecture 3 - Classification of Computer numerical control (CNC) & Point to point and continuous control

Lecture 4 - Classification (Continued...) - Closed loop and open loop control

Lecture 5 - Tutorial involving simple calculations on different aspects of CNC controls

Lecture 6 - Questions, MCQ Discussions on Motors, Encoders, Decoders and Programming Practice

Lecture 7 - Stepper motors, Permanent magnet DC motors

Lecture 8 - Binary circuits and decoders

Lecture 9 - Tachogenerator, printed circuit motors, Encoders

Lecture 10 - Programming Practice - I

Lecture 11 - Programming Practice - II

Lecture 12 - Computer Aided Offline Programming

Lecture 13 - Interpolators - Linear

Lecture 14 - Interpolators - Curvilinear

Lecture 15 - Questions on Programming and Interpolation

Lecture 16 - 3-D Machining - Basic Concepts

Lecture 17 - Curved Surface Geometry

Lecture 18 - Cutter Path Generation for Curved Surfaces

Lecture 19 - Cutter Path Generation (Concluding Part) and Current Status - CNC Machining and Related Processes

Lecture 20 - Questions and Discussions on Curved Surface Machining

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Non Traditional Abrasive Machining Processes - Ultrasonic,

Subject Co-ordinator - Prof. Asimava Roy Choudhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Non-traditional abrasive machining

Lecture 2 - Ultrasonic Machining

Lecture 3 - Ultrasonic Machining (Continued...)

Lecture 4 - Ultrasonic Machining - Free Impacts and Problem Solving

Lecture 5 - Ultrasonic Machining - Problems and MCQs

Lecture 6 - USM - Horn Design

Lecture 7 - USM - Horn Design (Continued...)

Lecture 8 - Ultrasonic Machining - Feed Mechanism, Head design and other aspects

Lecture 9 - Ultrasonic Machining - Effects of Various Inputs on the Output

Lecture 10 - Ultrasonic Machining - Numerical and MCQs

Lecture 11 - A JM (Abrasive jet machining)

Lecture 12

Lecture 13 - A JM - Numerical problems

Lecture 14 - A JM - Process Parameters and Response Characteristics take - home assignment discussing

Lecture 15 - A JM - MCQs

Lecture 16

Lecture 17 - AWJM - Equipment

Lecture 18 - AWJM - Numerical Problems

Lecture 19 - AWJM - Application Equipment Details

Lecture 20 - AWJM - MCQs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Fluid Mechanics

Subject Co-ordinator - Dr. Suman Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Lagrangian and Eulerian Approach, Types of fluid flow
- Lecture 2 - Streamlines, Streakline and Pathline
- Lecture 3 - Acceleration of fluid flow
- Lecture 4 - Deformation and Conservation of mass of fluid a element
- Lecture 5 - Angular deformation of a fluid element, vorticity and streamfunction and velocity potential
- Lecture 6 - Euler's equation
- Lecture 7 - Bernoulli's equation - Part I
- Lecture 8 - Kinematic viscosity, Reynolds number
- Lecture 9 - Non-Newtonian fluids
- Lecture 10 - Problems and Solutions
- Lecture 11 - Problems and Solutions
- Lecture 12 - Surface Tension - Part I
- Lecture 13 - Surface Tension - Part II
- Lecture 14 - Governing equation of fluid statics
- Lecture 15 - Manometers
- Lecture 16 - Force on a surface immersed in fluid - Part I
- Lecture 17 - Force on a surface immersed in fluid - Part II
- Lecture 18 - Force on a surface immersed in fluid - Part III, Stability of solid bodies in fluid - Part I
- Lecture 19 - Stability of solid bodies in fluid - Part II
- Lecture 20 - Fluid under rigid body motion
- Lecture 21 - Lagrangian and Eulerian approaches
- Lecture 22 - Concept of different flow lines
- Lecture 23 - Acceleration of fluid flow
- Lecture 24 - Deformation of fluid elements - Part I
- Lecture 25 - Derivation of continuity equation
- Lecture 26 - Problems and Solutions
- Lecture 27 - Deformation of fluid elements - Part II
- Lecture 28 - Deformation of fluid elements - Part III
- Lecture 29 - Stream Function

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Circulation, Velocity Potential
- Lecture 31 - Euler's equation
- Lecture 32 - Bernoulli's equation - Part I
- Lecture 33 - Bernoulli's equation - Part II
- Lecture 34 - Bernoulli's equation - Part III
- Lecture 35 - Euler's equation in streamline coordinates
- Lecture 36
- Lecture 37
- Lecture 38
- Lecture 39
- Lecture 40
- Lecture 41
- Lecture 42
- Lecture 43
- Lecture 44
- Lecture 45
- Lecture 46
- Lecture 47
- Lecture 48
- Lecture 49
- Lecture 50
- Lecture 51 - Navier-Stokes equation - Part I
- Lecture 52 - Navier-Stokes equation - Part II
- Lecture 53 - Navier-Stokes equation - Part III
- Lecture 54 - Navier-Stokes equation - Part IV
- Lecture 55 - Pipe Flow - Part I
- Lecture 56 - Pipe Flow - Part II
- Lecture 57 - Pipe Flow - Part III
- Lecture 58 - Pipe Flow - Part IV
- Lecture 59 - Principle of Similarity and Dynamical Analysis - Part I
- Lecture 60 - Principle of Similarity and Dynamical Analysis - Part II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Spur and Helical Gear Cutting

Subject Co-ordinator - Prof. Asimava Roy Choudhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Simple Gear Calculations
- Lecture 3 - Gear Geometry
- Lecture 4 - Helical Gear Problems
- Lecture 5 - Numerical Problem MCQ
- Lecture 6 - Numerical Problem Milling of Helical Gears
- Lecture 7 - Simple and Compound Indexing
- Lecture 8 - Differential Indexing
- Lecture 9 - Helical Gear Cutting on Milling Machine
- Lecture 10 - Numerical Problems on Gear Milling
- Lecture 11 - Gear Shaping - I
- Lecture 12 - Gear Shaping - II
- Lecture 13 - Gear Shaping - III
- Lecture 14 - Gear Shaping - IV
- Lecture 15 - Gear Hobbing - I
- Lecture 16 - Gear Hobbing - II
- Lecture 17 - Gear Hobbing - III
- Lecture 18 - Gear Hobbing - IV
- Lecture 19 - Gear Hobbing - V
- Lecture 20 - Gear Hobbing - VI

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Laws of Thermodynamics

Subject Co-ordinator - Prof. Suman Chakraborty, Prof. S.K. Som

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Definition of System, Properties and State of a System
- Lecture 2 - Properties of pure substances
- Lecture 3 - Properties of pure substances (Continued...)
- Lecture 4 - Heat and Work
- Lecture 5 - Tutorial 1
- Lecture 6 - Zeroth Law of Thermodynamics
- Lecture 7 - First law of thermodynamics for closed systems - Part I
- Lecture 8 - First law of thermodynamics for closed systems - Part II, some examples
- Lecture 9 - Tutorial 2
- Lecture 10 - First law of thermodynamics for open systems
- Lecture 11 - Tutorial 3
- Lecture 12 - Second law and its corollaries - Part I
- Lecture 13 - Second law and its corollaries - Part II
- Lecture 14 - Second law and its corollaries - Part III
- Lecture 15 - Definition of entropy and entropy change in closed systems
- Lecture 16 - Entropy change in closed systems (Continued...)
- Lecture 17 - Tutorial 4
- Lecture 18 - Entropy and its transport
- Lecture 19 - Tutorial 5
- Lecture 20 - Introduction to Third Law
- Lecture 21 - Review of learning concepts

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Energy Conservation and Waste Heat Recovery

Subject Co-ordinator - Prof. PK Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to waste heat recovery  
Lecture 2 - Introduction to waste heat recovery (Continued...)  
Lecture 3 - Introduction to waste heat recovery (Continued...)  
Lecture 4 - Introduction to waste heat recovery (Continued...)  
Lecture 5 - Thermodynamic principles of waste heat recovery  
Lecture 6 - Thermodynamic principles of waste heat recovery (Continued...)  
Lecture 7 - Thermodynamic principles of waste heat recovery (Continued...)  
Lecture 8 - Thermodynamic principles of waste heat recovery (Continued...)  
Lecture 9 - Reversible Cycles  
Lecture 10 - Reversible Cycles (Continued...)  
Lecture 11 - Entropy  
Lecture 12 - Entropy (Continued...)  
Lecture 13 - Entropy (Continued...), Exergy  
Lecture 14 - Exergy, Second Law efficiency  
Lecture 15 - Second Law efficiency (Continued...)  
Lecture 16 - Recapitulation of common power cycles  
Lecture 17 - Recapitulation of common power cycles (Continued...)  
Lecture 18 - Recapitulation of common power cycles (Continued...)  
Lecture 19 - Recapitulation of common power cycles (Continued...)  
Lecture 20 - Recapitulation of common power cycles (Continued...)  
Lecture 21 - Recapitulation of common power cycles (Continued...)  
Lecture 22 - Gas Turbine cycle  
Lecture 23 - Combined cycle  
Lecture 24 - Combined cycle (Continued...)  
Lecture 25 - Combined Cycle (Continued...)  
Lecture 26 - Heat recovery steam generator  
Lecture 27 - Thermodynamic cycles for low temperature application  
Lecture 28 - Thermodynamic cycles for low temperature application (Continued...), Cogeneration  
Lecture 29 - Heat Exchanger

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heat Exchanger (Continued...)
- Lecture 31 - Heat Exchanger (Continued...)
- Lecture 32
- Lecture 33
- Lecture 34
- Lecture 35
- Lecture 36
- Lecture 37 - Heat Pipe - Part I
- Lecture 38 - Heat Pipe - Part II
- Lecture 39 - Heat Pipe - Part III
- Lecture 40 - Direct Conversion - Introduction to TEG
- Lecture 41 - Thermoelectric Generators - Functioning and Applications
- Lecture 42 - TEG - performance analysis
- Lecture 43 - TEG - performance optimization
- Lecture 44 - Direct Conversion - Magneto Hydro dynamics (MHD)
- Lecture 45 - Direct Conversion - Thermo-Ionic generation
- Lecture 46 - Direct Conversion - Thermo Photo Voltaic generation (TPV)
- Lecture 47 - Heat Pumps - I
- Lecture 48 - Heat Pumps - II
- Lecture 49 - Heat Pumps - III
- Lecture 50 - Waste Heat Recovery from Incinerator Plants
- Lecture 51 - Energy Storage Systems - I
- Lecture 52 - Energy Storage Systems - II
- Lecture 53 - Energy Storage Systems - III
- Lecture 54 - Energy Storage Systems - IV
- Lecture 55 - Energy Storage Systems - V
- Lecture 56 - Energy Storage Systems - VI
- Lecture 57
- Lecture 58
- Lecture 59
- Lecture 60
- Lecture 61
- Lecture 62
- Lecture 63
- Lecture 64
- Lecture 65
- Lecture 66
- Lecture 67
- Lecture 68 - Corrigendum

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Mechanical Micro Machining

Subject Co-ordinator - Prof. Ajay M Sidpara

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Introduction (Continued...)  
Lecture 4 - Introduction (Continued...)  
Lecture 5 - Introduction (Continued...)  
Lecture 6 - Introduction (Continued...)  
Lecture 7 - Scaling Laws  
Lecture 8 - Scaling laws (Continued...)  
Lecture 9 - Scaling laws (Continued...)  
Lecture 10 - Difference between macro and micro machining  
Lecture 11 - Difference between macro and micro machining (Continued...)  
Lecture 12 - Difference between micro and macro machining (Continued...)  
Lecture 13 - Difference between micro and macro machining (Continued...)  
Lecture 14 - Difference between macro and micro machining (Continued...)  
Lecture 15 - Difference between macro and micro machining (Continued...)  
Lecture 16 - Difference between macro and micro machining (Continued...)  
Lecture 17 - Difference between macro and micro machining (Continued...)  
Lecture 18 - Difference between macro and micro machining (Continued...)  
Lecture 19 - Difference between macro and micro machining (Continued...)  
Lecture 20 - Difference between macro and micro machining (Continued...)  
Lecture 21 - Difference between macro and micro machining (Continued...)  
Lecture 22 - Component of the machine tool  
Lecture 23 - Components of the machine tool (Continued...)  
Lecture 24 - Components of the machine tool (Continued...)  
Lecture 25 - Components of the machine tool (Continued...)  
Lecture 26 - Components of the machine tool (Continued...)  
Lecture 27 - Errors in machine tool (Continued...)  
Lecture 28 - Errors in machine tool (Continued...)  
Lecture 29 - Errors in machine tool (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Errors in machine tool (Continued...)
- Lecture 31 - Components of machine tool
- Lecture 32 - Components of machine tool (Continued...)
- Lecture 33 - Components of machine tool (Continued...)
- Lecture 34 - Components of machine tool (Continued...)
- Lecture 35 - Components of machine tool (Continued...)
- Lecture 36 - Components of machine tool (Continued...)
- Lecture 37 - Components of machine tool (Continued...)
- Lecture 38 - Components of machine tool (Continued...)
- Lecture 39 - Components of machine tool (Continued...)
- Lecture 40 - Components of machine tool (Continued...)
- Lecture 41 - Components of machine tool (Continued...)
- Lecture 42 - Components of machine tool (Continued...)
- Lecture 43 - Components of machine tool (Continued...)
- Lecture 44 - Components of machine tool (Continued...)
- Lecture 45 - Components of machine tool (Continued...)
- Lecture 46 - Components of machine tool (Continued...)
- Lecture 47 - Components of machine tool (Continued...)
- Lecture 48 - Components of machine tool (Continued...)
- Lecture 49 - Micro tools
- Lecture 50 - Micro tools (Continued...)
- Lecture 51 - Micro tools (Continued...)
- Lecture 52 - Fabrication of micro tool by EDM process
- Lecture 53 - Micro tools (Continued...)
- Lecture 54 - Micro machines
- Lecture 55 - Micro machines (Continued...)
- Lecture 56 - Diamond turning
- Lecture 57 - Diamond turning (Continued...)
- Lecture 58 - Diamond turning (Continued...)
- Lecture 59 - Diamond turning (Continued...)
- Lecture 60 - Sensors and metrology for micro machining
- Lecture 61 - Sensors and metrology for micro machining (Continued...)
- Lecture 62 - Sensors and metrology for micro machining (Continued...)
- Lecture 63 - 3D surface measurement using interferometer

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Machinery Fault Diagnosis and Signal Processing

Subject Co-ordinator - Prof. Amiya Ranjan Mohanty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Maintenance Principles
- Lecture 3 - FMECA
- Lecture 4 - Fault Diagnostics and Prognostics
- Lecture 5 - Machine Learning in CBM
- Lecture 6 - Basics of Vibration
- Lecture 7 - Free and Forced Response
- Lecture 8 - Vibration and Shock Isolation
- Lecture 9 - Rotordynamics
- Lecture 10 - Practical Examples of Vibration
- Lecture 11 - Time Domain Analysis
- Lecture 12 - Frequency Domain Analysis
- Lecture 13 - Non Stationary Signal Analysis
- Lecture 14 - Modulation and Beats
- Lecture 15 - Orbit and Order Analysis
- Lecture 16 - Computer aided data acquisition
- Lecture 17 - Orbit and Order Analysis
- Lecture 18 - Data Recording
- Lecture 19 - Cepstrum Analysis
- Lecture 20 - Hilbert Transform in Condition Monitoring
- Lecture 21 - Introduction to MATLAB
- Lecture 22 - Signal Processing using MATLAB
- Lecture 23 - Numericals in Signal Processing and Data Acquisition
- Lecture 24 - Signal Hetrodnying
- Lecture 25 - Practical Signals
- Lecture 26 - Basics Of Instrumentation
- Lecture 27 - Signal Conditioning And Filtering
- Lecture 28 - Errors In Measurements
- Lecture 29 - Dynamic Range And Frequency Response

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Overview Of Transducers For Cbm
- Lecture 31 - Accelerometers
- Lecture 32 - Vibration Monitoring
- Lecture 33 - Rotational Speed Measurements
- Lecture 34 - Basics of Noise
- Lecture 35 - Noise Monitoring
- Lecture 36 - Introduction to Faults in Rotating Machines
- Lecture 37 - Unbalance Detection
- Lecture 38 - Field Balancing
- Lecture 39 - Misalignment
- Lecture 40 - Crack and Looseness
- Lecture 41 - Journal and Anti-Friction Bearings
- Lecture 42 - Gears
- Lecture 43 - Pumps and Cavitation
- Lecture 44 - IC Engines
- Lecture 45 - Machinery Diagnostic Chart
- Lecture 46 - Principles of Motor Current Signature Analysis
- Lecture 47 - Faults in Electrical Machines
- Lecture 48 - Thermography
- Lecture 49 - Wear Debris Analysis
- Lecture 50 - Oil Analysis
- Lecture 51 - Ultrasonics
- Lecture 52 - Eddy Current and Acoustic Emission
- Lecture 53 - Radiography, Dye Penetrant Tests
- Lecture 54 - Tool Condition Monitoring
- Lecture 55 - Experimental Modal Analysis
- Lecture 56 - Introduction to Failure Analysis
- Lecture 57 - Railway Locomotive Noise and Vibration Monitoring
- Lecture 58 - Paper Mill Vibration Monitoring
- Lecture 59 - Overview of CBM facilities at IIT Kharagpur
- Lecture 60 - Future of Condition based Monitoring

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC: Metal Cutting and Machine Tools

Subject Co-ordinator - Prof. Asimava Roy Choudhury

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Geometry of single point turning tools - 1
- Lecture 3 - Geometry of turning tools - 2
- Lecture 4 - Geometry of single point turning tools - 3
- Lecture 5 - Geometry of cutting tools and numerical problems
- Lecture 6 - Different types of tools and mcq
- Lecture 7 - Mechanism of chip formation
- Lecture 8 - Mechanics of material removal
- Lecture 9 - Measurement of Cutting Forces
- Lecture 10 - Numerical problems and MCQ
- Lecture 11 - Tool wear and Tool life
- Lecture 12 - Wear and life of cutting tools - 2
- Lecture 13 - The lathe
- Lecture 14 - Calculations on mechanisms in machine tools
- Lecture 15 - Numerical problems on lathe
- Lecture 16 - Milling machines
- Lecture 17 - Milling machine - indexing
- Lecture 18 - Gear cutting CNC and non traditional machining
- Lecture 19 - CNC and non-traditional machining methods
- Lecture 20 - Numerical problems for week 4
- Lecture 21 - Live Session

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Gear and Gear Unit Design - Theory and Practice

Subject Co-ordinator - Prof. Rathindranath Maiti

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - Motivation and Theme of the Course
- Lecture 2 - Laws of Gearing, Kinematics and Geometry - Part I
- Lecture 3 - Laws of Gearing, Kinematics and Geometry - Part II
- Lecture 4 - Involute Toothed Gear- Properties and Terminology
- Lecture 5 - Tutorial
- Lecture 6 - Involute Straight Tooth Spur Gear
- Lecture 7 - Helical Tooth Spur Gear and Loads on Gear Shaft
- Lecture 8 - Design of Bevel Gear
- Lecture 9 - Crossed Helical Gear - I
- Lecture 10 - Crossed Helical Gear - II and Worm Gear
- Lecture 11 - Gear Unit Design - Selection of Stage Ratios, Pinion and Gear Teeth Numbers
- Lecture 12 - Gear Unit Design - First Stage Pinion and Gear Design- I (Module on Beam Strength Basis)
- Lecture 13 - Gear Unit Design - Failure of Gear Tooth (Probable Dynamic Load and Wear Load Capacity)
- Lecture 14 - Gear Unit Design - 1st. Stage Pinion and Gear Design-II (Probable Dynamic Load and Wear Load Capacity)
- Lecture 15 - Gear Unit Design - 1st. Layout (After Gear Design)
- Lecture 16 - Bearing Arrangement - Gear Box Shafts
- Lecture 17 - Bearing Load Calculation - Intermediate Shaft
- Lecture 18 - Bearing Selection and Introduction to Shaft Design Verification
- Lecture 19 - Design Verification of Gear Box Shafts
- Lecture 20 - Development (Layout) of Intermediate Shaft
- Lecture 21 - Development (Layout) of Input Shaft and Integral Pinion
- Lecture 22 - Development (Layout) of Output Shaft and 2nd. Stage (Output) Gear
- Lecture 23 - Development (Layout) of Output Shaft (Continued...), Loads on Shaft and Bearings
- Lecture 24 - Output Shaft-Bearing Lives
- Lecture 25 - Design Verification of Output Shaft
- Lecture 26 - Design Verification of Input Shaft (including Bearing Life Estimation)
- Lecture 27 - Finalizing Design including the Sizes of the Keys
- Lecture 28 - Development of Plan and Elevation of Gear Reduction Unit - I
- Lecture 29 - Development of Plan and Elevation of Gear Reduction Unit - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Development of Plan and Elevation of Gear Reduction Unit - III
- Lecture 31
- Lecture 32
- Lecture 33 - Involute Spur Gear Tooth Correction
- Lecture 34 - Involute Spur Gear Tooth Correction
- Lecture 35 - Involute Spur Gear Tooth Correction
- Lecture 36 - Involute Spur Gear Tooth Correction
- Lecture 37 - Involute Spur Gear Tooth Correction
- Lecture 38 - Tooth Tip Interference, Avoidance and Contact Ratio in Involute Internal Gearing
- Lecture 39
- Lecture 40
- Lecture 41
- Lecture 42
- Lecture 43
- Lecture 44
- Lecture 45 - Live Session

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Traditional and Non-Traditional Optimization Tools

Subject Co-ordinator - Prof. Dilip Kumar Pratihari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Principle of Optimization
- Lecture 2 - Traditional Methods of Optimization
- Lecture 3 - Traditional Methods of Optimization (Continued...)
- Lecture 4 - Binary-Coded Genetic Algorithm (BCGA)
- Lecture 5 - Binary-Coded Genetic Algorithm (BCGA) (Continued...)
- Lecture 6 - Binary-Coded Genetic Algorithm (BCGA) (Continued...)
- Lecture 7 - Binary-Coded Genetic Algorithm (BCGA) (Continued...)
- Lecture 8 - Binary-Coded Genetic Algorithm (BCGA) (Continued...)
- Lecture 9 - Schema Theorem of BCGA
- Lecture 10 - Schema Theorem of BCGA (Continued...)
- Lecture 11 - Constraint Handling
- Lecture 12 - Real-Coded GA
- Lecture 13 - Faster Genetic Algorithms
- Lecture 14 - Faster Genetic Algorithms (Continued...)
- Lecture 15 - Faster Genetic Algorithms (Continued...)
- Lecture 16 - Faster Genetic Algorithms (Continued...)
- Lecture 17 - Scheduling GA
- Lecture 18 - Scheduling GA (Continued...)
- Lecture 19 - Scheduling GA (Continued...)
- Lecture 20 - Simulated Annealing
- Lecture 21 - Particle Swarm Optimization
- Lecture 22 - Multi-Objective Optimization
- Lecture 23 - Multi-Objective Optimization (Continued...)
- Lecture 24 - Multi-Objective Optimization (Continued...)
- Lecture 25 - Multi-Objective Optimization (Continued...)
- Lecture 26 - Multi-Objective Optimization (Continued...)
- Lecture 27 - Intelligent Optimization Toolture
- Lecture 28 - A Practical Optimization Problem
- Lecture 29 - A Practical Optimization Problem (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - A Practical Optimization Problem (Continued...)
- Lecture 31 - A Practical Optimization Problem (Continued...)
- Lecture 32 - A Practical Optimization Problem (Continued...)
- Lecture 33 - A Practical Optimization Problem (Continued...)
- Lecture 34 - A Practical Optimization Problem (Continued...)
- Lecture 35 - A Practical Optimization Problem (Continued...)
- Lecture 36 - A Practical Optimization Problem (Continued...)
- Lecture 37 - Genetic Algorithm as Evolution Tool
- Lecture 38 - Genetic Algorithm as Evolution Tool (Continued...)
- Lecture 39 - Genetic Algorithm as Evolution Tool (Continued...)
- Lecture 40 - Genetic Algorithm as Evolution Tool (Continued...)
- Lecture 41 - Genetic Algorithm as Evolution Tool (Continued...)
- Lecture 42 - Genetic Algorithm as Evolution Tool (Continued...)
- Lecture 43 - Summary 1
- Lecture 44 - Summary 2
- Lecture 45 - Summary 3

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC: Mechanism and Robot Kinematics

Subject Co-ordinator - Dr. Anirvan Das Gupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Nomenclature
- Lecture 3 - Kinematic Diagram
- Lecture 4 - Degree of Freedom - I
- Lecture 5 - Degree of Freedom - II
- Lecture 6 - Degree of Freedom - Failure
- Lecture 7 - Grashof Criteria - I
- Lecture 8 - Grashof Criteria - II
- Lecture 9 - Geometry and Representation of Vectors
- Lecture 10 - Displacement Analysis
- Lecture 11 - Displacement Analysis
- Lecture 12 - Displacement Analysis
- Lecture 13 - Displacement Analysis
- Lecture 14 - Displacement Analysis
- Lecture 15 - Displacement Analysis
- Lecture 16 - Displacement Analysis
- Lecture 17 - Displacement Analysis
- Lecture 18 - Displacement Analysis
- Lecture 19 - Displacement Analysis
- Lecture 20 - Velocity Analysis
- Lecture 21 - Velocity Analysis
- Lecture 22 - Velocity Analysis
- Lecture 23 - Velocity Analysis
- Lecture 24 - Velocity Analysis
- Lecture 25 - Velocity Analysis
- Lecture 26 - Velocity Analysis
- Lecture 27 - Velocity Analysis
- Lecture 28 - Velocity Analysis
- Lecture 29 - Serial Manipulator Velocity Analysis - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Serial Manipulator Velocity Analysis - II
- Lecture 31 - Serial Manipulator Velocity Analysis - III
- Lecture 32 - Parallel Manipulator Velocity Analysis
- Lecture 33 - Path Generation Problem
- Lecture 34 - Acceleration Analysis - I
- Lecture 35 - Acceleration Analysis - II
- Lecture 36 - Force Analysis - I
- Lecture 37 - Force Analysis - II
- Lecture 38 - Coordinate transformation - I
- Lecture 39 - Coordinate transformation - II
- Lecture 40 - Coordinate transformation - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Heat Exchangers: Fundamentals and Design Analysis

Subject Co-ordinator - Prof. Prasanta Kr Das, Prof. Somnath Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Applications of Heat Exchangers
- Lecture 3 - Classification of Heat Exchangers
- Lecture 4 - Classification of Heat Exchangers (Continued...)
- Lecture 5 - Design and Simulation of Heat Exchangers
- Lecture 6 - Design and Simulation
- Lecture 7 - Design and Simulation of Heat Exchangers - Numerical Problem
- Lecture 8 - Design and Simulation of Heat Exchangers - Numerical Problem (Continued...)
- Lecture 9 - Design and Simulation of Heat Exchangers - Numerical Problem (Continued...)
- Lecture 10 - Tubular Heat Exchanger Types
- Lecture 11 - Tubular Heat Exchanger Types
- Lecture 12 - Tubular Heat Exchanger
- Lecture 13 - Tubular Heat Exchanger
- Lecture 14 - Tubular Heat Exchanger
- Lecture 15 - Tubular Heat Exchanger
- Lecture 16 - Enhancement of Heat Transfer compact Heat Exchangers
- Lecture 17 - Extended Surface Heat Transfer
- Lecture 18 - Extended Surface Heat Transfer
- Lecture 19 - Extended Surface Heat Exchangers
- Lecture 20 - Analysis of fin plates of finned tube heat exchanger
- Lecture 21 - Finned tube heat exchanger
- Lecture 22 - Finned tube heat exchanger (Continued...)
- Lecture 23 - Finned tube heat exchanger (Continued...)
- Lecture 24 - Plate fin heat exchanger
- Lecture 25 - Plate fin heat exchanger (Continued...)
- Lecture 26 - Plate fin heat exchanger (Continued...)
- Lecture 27 - Plate fin heat exchanger
- Lecture 28 - Plate fin heat exchanger
- Lecture 29 - Plate fin heat exchanger

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Plate fin heat exchanger
- Lecture 31 - Plate fin heat exchanger
- Lecture 32 - Plate fin heat exchanger
- Lecture 33 - Plate fin heat exchanger
- Lecture 34 - Plate fin heat exchanger
- Lecture 35 - Plate fin heat exchanger
- Lecture 36 - Phase change heat exchangers
- Lecture 37 - Phase change heat exchangers (Continued...)
- Lecture 38 - Surface Condenser
- Lecture 39 - Surface Condenser (Continued...)
- Lecture 40 - Surface Condenser (Continued...)
- Lecture 41 - Surface Condenser (Continued...)
- Lecture 42 - In tube condensation
- Lecture 43 - Heat pipes and Heat pipe heat exchangers
- Lecture 44 - Heat pipes and Heat pipe heat exchangers (Continued...)
- Lecture 45 - Heat pipes and Heat exchangers
- Lecture 46 - Heat pipes and Heat exchangers (Continued...)
- Lecture 47 - Micro Heat Exchanger Introduction
- Lecture 48 - Micro scale Heat Transfer
- Lecture 49 - Micro scale Heat Transfer (Continued...)
- Lecture 50 - Micro Channel
- Lecture 51 - Micro Heat Exchanger
- Lecture 52 - Regenerators
- Lecture 53 - Fixed Bed Regenerator Analysis
- Lecture 54 - Design and Simulation of Regenerator (Fixed Bed)
- Lecture 55 - Fixed Bed Regenerator (Numerical)
- Lecture 56 - Fixed Bed Regenerator (Numerical) (Continued...)
- Lecture 57 - Fouling in Heat Exchangers
- Lecture 58 - Fouling in Heat Exchangers (Continued...)
- Lecture 59 - Fouling in Heat Exchangers (Continued...)
- Lecture 60 - Direct Contact heat exchanger
- Lecture 61 - Direct Contact heat exchanger (Continued...)
- Lecture 62 - Heat exchanger network synthesis
- Lecture 63 - Heat exchanger network
- Lecture 64 - Heat exchanger network (Continued...)
- Lecture 65 - Heat Exchanger Testing
- Lecture 66 - Heat Exchanger Testing (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Robotics

Subject Co-ordinator - Prof. Dilip Kumar Pratihari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Robots and Robotics  
Lecture 2 - Introduction to Robots and Robotics (Continued...)  
Lecture 3 - Introduction to Robots and Robotics (Continued...)  
Lecture 4 - Introduction to Robots and Robotics (Continued...)  
Lecture 5 - Introduction to Robots and Robotics (Continued...)  
Lecture 6 - Introduction to Robots and Robotics (Continued...)  
Lecture 7 - Introduction to Robots and Robotics (Continued...)  
Lecture 8 - Introduction to Robots and Robotics (Continued...)  
Lecture 9 - Introduction to Robots and Robotics (Continued...)  
Lecture 10 - Introduction to Robots and Robotics (Continued...)  
Lecture 11 - Robot Kinematics  
Lecture 12 - Robot Kinematics (Continued...)  
Lecture 13 - Robot Kinematics (Continued...)  
Lecture 14 - Robot Kinematics (Continued...)  
Lecture 15 - Robot Kinematics (Continued...)  
Lecture 16 - Robot Kinematics (Continued...)  
Lecture 17 - Robot Kinematics (Continued...)  
Lecture 18 - Robot Kinematics (Continued...)  
Lecture 19 - Robot Kinematics (Continued...)  
Lecture 20 - Robot Kinematics (Continued...)  
Lecture 21 - Trajectory Planning  
Lecture 22 - Trajectory Planning (Continued...)  
Lecture 23 - Singularity Checking  
Lecture 24 - Robot Dynamics  
Lecture 25 - Robot Dynamics (Continued...)  
Lecture 26 - Robot Dynamics (Continued...)  
Lecture 27 - Robot Dynamics (Continued...)  
Lecture 28 - Robot Dynamics (Continued...)  
Lecture 29 - Robot Dynamics (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Control Scheme
- Lecture 31 - Sensors
- Lecture 32 - Sensors (Continued...)
- Lecture 33 - Sensors (Continued...)
- Lecture 34 - Robot Vision
- Lecture 35 - Robot Vision (Continued...)
- Lecture 36 - Robot Vision (Continued...)
- Lecture 37 - Robot Motion Planning
- Lecture 38 - Robot Motion Planning (Continued...)
- Lecture 39 - Robot Motion Planning (Continued...)
- Lecture 40 - Robot Motion Planning (Continued...)
- Lecture 41 - Intelligent Robot
- Lecture 42 - Biped Walking
- Lecture 43 - Biped Walking (Continued...)
- Lecture 44 - Summary
- Lecture 45 - Summary (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Computational Fluid Dynamics

Subject Co-ordinator - Prof. S. Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to CFD
- Lecture 2 - Classification of partial differential equations
- Lecture 3 - Examples of partial differential equations
- Lecture 4 - Examples of partial differential equations (Continued...)
- Lecture 5 - Nature of the characteristics of partial differential equation
- Lecture 6 - Euler-Lagrangian equation
- Lecture 7 - Approximate Solutions of Differential Equations
- Lecture 8 - Variational formulation
- Lecture 9 - Example of variational formulation and introduction to weighted residual method
- Lecture 10 - Weighted residual method (Continued...)
- Lecture 11 - Point Collocation method, the Galerkin's method and the 'M' form
- Lecture 12 - Finite element method (FEM) of discretization
- Lecture 13 - Finite element method of discretization (Continued...)
- Lecture 14 - Finite difference method (FDM) of discretization
- Lecture 15 - Well posed boundary value problem
- Lecture 16 - Finite volume method (FVM) of discretization
- Lecture 17 - Illustrative examples of finite volume method
- Lecture 18 - Illustrative examples of finite volume method (Continued...)
- Lecture 19 - Basic rules of finite volume discretization
- Lecture 20 - Implementation of boundary conditions in FVM
- Lecture 21 - Implementation of boundary conditions in FVM (Continued...)
- Lecture 22 - 1-D Unsteady state diffusion problem
- Lecture 23 - 1-D Unsteady state diffusion problem (Continued...)
- Lecture 24 - Consequences of Discretization of Unsteady State Problems
- Lecture 25 - FTCS scheme
- Lecture 26 - CTCS scheme (Leap frog scheme) and Dufort-Frankel scheme
- Lecture 27 - Part 1
- Lecture 28 - Solution to linear algebraic equations (Continued...)
- Lecture 29 - Elimination methods

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gaussian elimination and LU Decomposition methods
- Lecture 31 - Illustrative example of elimination method
- Lecture 32 - Tri-Diagonal Matrix Algorithm (TDMA)
- Lecture 33 - Elimination Methods
- Lecture 34 - Elimination Methods
- Lecture 35 - Iteration methods
- Lecture 36 - Generalized analysis of Iteration method
- Lecture 37 - Further discussion on Iterative methods
- Lecture 38 - Illustrative examples of Iterative methods
- Lecture 39 - Gradient Search based methods
- Lecture 40 - Steepest descent method (Continued...)
- Lecture 41 - Conjugate gradient method
- Lecture 42 - Convection diffusion equation
- Lecture 43 - Central difference scheme applied to convection-diffusion equation
- Lecture 44 - Upwind scheme
- Lecture 45 - Illustrative examples
- Lecture 46 - Exact solution of 1-D steady state convection diffusion equation (Continued...)
- Lecture 47 - Exponential scheme
- Lecture 48 - Generalized convection diffusion formulation
- Lecture 49 - 2-D convection diffusion problem
- Lecture 50 - False (numerical) diffusion scheme and the QUICK scheme
- Lecture 51 - Discretization of Navier Stokes equation
- Lecture 52 - Discretization of Navier Stokes equation (Continued...)
- Lecture 53 - Concept of staggered grid
- Lecture 54 - SIMPLE algorithm
- Lecture 55 - Salient features of SIMPLE algorithm
- Lecture 56 - Illustrative examples on the use of SIMPLE algorithm
- Lecture 57 - SIMPLER algorithm
- Lecture 58 - Illustrative examples of SIMPLER algorithm
- Lecture 59 - What is there in implementing a CFD Code
- Lecture 60 - Some representative case studies

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Concepts of Thermodynamics

Subject Co-ordinator - Prof. Aditya Bandopadhyay, Prof. Suman Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introductory Concepts
- Lecture 2 - Properties of Pure Substances
- Lecture 3 - Properties of Pure Substances (Continued...)
- Lecture 4 - Introduction to Property Tables
- Lecture 5 - Properties of Pure Substances
- Lecture 6 - Properties of Pure Substances
- Lecture 7 - Use of Computer as Means of Learning Thermodynamics
- Lecture 8 - Properties of Pure Substances (Continued...)
- Lecture 9 - Properties of Pure Substances Spring - Piston Problem
- Lecture 10 - Heat and Work
- Lecture 11 - Heat and Work
- Lecture 12 - Heat and Work
- Lecture 13 - Heat and Work
- Lecture 14 - First Law of Thermodynamics for a Control Mass System
- Lecture 15 - Enthalpy and Specific Heats
- Lecture 16 - First Law for a Control Mass System
- Lecture 17 - First Law for a Control Mass System
- Lecture 18 - First Law for a Control Mass System
- Lecture 19 - Control Volume Conservation Reynolds Transport Theorem
- Lecture 20 - Control Volume Mass and Energy Balance
- Lecture 21 - Supplementary Lecture
- Lecture 22 - First Law for Steady State Steady Flow (SSSF) Process
- Lecture 23 - First Law for SSSF Process
- Lecture 24 - First Law for SSSF Process
- Lecture 25 - First Law for SSSF Process
- Lecture 26 - First Law for SSSF Process
- Lecture 27 - Supplementary Lecture
- Lecture 28 - First Law of Thermodynamics for Unsteady Processes in a Control Volume
- Lecture 29 - First Law for Unsteady Problems - Examples

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - First Law for Unsteady Problems - Examples (Continued...)
- Lecture 31 - First Law for Unsteady Problems - Examples (Continued...)
- Lecture 32 - Supplementary Lecture
- Lecture 33 - Introduction to Second Law of Thermodynamics
- Lecture 34 - Statements of the Second Law of Thermodynamics
- Lecture 35 - Perpetual Motion Machines; Reversible and Irreversible Processes
- Lecture 36 - Factors for Irreversibility and Introduction to Reversible Cycles
- Lecture 37 - Carnot Theorem and Absolute Temperature Scale
- Lecture 38 - Second Law
- Lecture 39 - Clausius Inequality and Introduction to Entropy
- Lecture 40 - Thermodynamic Property Relationships; Entropy change for Solids, Liquids and Ideal gases
- Lecture 41 - Entropy balance for Reversible and Irreversible Processes
- Lecture 42 - What is Entropy ?
- Lecture 43 - Entropy Change in closed system
- Lecture 44 - Entropy Change in closed system
- Lecture 45 - Supplementary Lecture
- Lecture 46 - Supplementary Lecture
- Lecture 47 - Entropy Transport for a flow process
- Lecture 48 - Entropy Transport for flow process
- Lecture 49 - Entropy Transport for flow process
- Lecture 50 - Entropy Transport for flow process
- Lecture 51 - Entropy Transport for flow process
- Lecture 52 - Supplementary Lecture
- Lecture 53 - Exergy (Availability)
- Lecture 54 - Exergy (Availability) (Continued...)
- Lecture 55 - Exergy Analysis
- Lecture 56 - Exergy Analysis
- Lecture 57 - Thermodynamic Relationships
- Lecture 58 - Thermodynamic Relationships (Continued...)
- Lecture 59 - Otto Cycle
- Lecture 60 - Diesel Cycle
- Lecture 61 - Example Problems
- Lecture 62 - Brayton Cycle
- Lecture 63 - Carnot Cycle and Rankine Cycle
- Lecture 64 - Carnot Cycle and Rankine Cycle (Continued...)
- Lecture 65 - Vapour Compression Refrigeration Cycle
- Lecture 66 - Review of Learning Concepts
- Lecture 67 - Supplementary Lecture
- Lecture 68 - Supplementary Lecture

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Electronic Packaging and Manufacturing

Subject Co-ordinator - Prof. A Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - 1  
Lecture 2 - Introduction - 2  
Lecture 3 - Introduction - 3  
Lecture 4 - Semiconductors and Components - 1  
Lecture 5 - Semiconductors and Components - 2  
Lecture 6 - 1st Level Packaging - I  
Lecture 7 - 1st Level Packaging - II  
Lecture 8 - Area Array Packages - I  
Lecture 9 - Area Array Packages - II  
Lecture 10 - Area Array Packages - III  
Lecture 11 - Flip Chip Technology  
Lecture 12 - 1st Level Interconnections - I  
Lecture 13 - 1st Level Interconnections - II  
Lecture 14 - 1st Level Interconnections - III  
Lecture 15 - Advanced Packaging  
Lecture 16 - 2nd Level Packaging  
Lecture 17 - 2nd Level Packaging  
Lecture 18 - 2nd Level Packaging  
Lecture 19 - 2nd Level Packaging  
Lecture 20 - 2nd Level Packaging  
Lecture 21 - System Integration  
Lecture 22 - Thermal Management 1  
Lecture 23 - Thermal Management 2  
Lecture 24 - Thermal Management 3  
Lecture 25 - Thermal Management 4  
Lecture 26 - Thermal Management 5  
Lecture 27 - Thermal Management 6  
Lecture 28 - Thermal Management 7  
Lecture 29 - Thermal Management 8

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Thermal Management 9
- Lecture 31 - Shock and Vibration - 1
- Lecture 32 - Shock and Vibration - 2
- Lecture 33 - Shock and Vibration - 3
- Lecture 34 - Shock and Vibration - 4
- Lecture 35 - Electronic Packaging Reliability - 1
- Lecture 36 - Electronic Packaging Reliability - 2
- Lecture 37 - Electronic Packaging Reliability - 3
- Lecture 38 - Electronic Packaging Reliability - 4
- Lecture 39 - Power Electronics Packaging
- Lecture 40 - Special Topics

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Kinematics of Mechanisms and Machines

Subject Co-ordinator - Prof. A. Dasgupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Motivation
- Lecture 2 - Nomenclature and Classification
- Lecture 3 - Kinematic Diagram
- Lecture 4 - Degree of Freedom
- Lecture 5 - Constrained and Robotic Mechanisms
- Lecture 6 - Failure of DOF Calculation
- Lecture 7 - Grashof Criterion - I
- Lecture 8 - Grashof Criterion - II
- Lecture 9 - Grashof Criterion - Problems
- Lecture 10 - Displacement Analysis - I
- Lecture 11 - Displacement Analysis - II
- Lecture 12 - Displacement Analysis Example - I
- Lecture 13 - Displacement Analysis Example - II
- Lecture 14 - Steering Mechanisms
- Lecture 15 - Displacement Analysis of Robots - I
- Lecture 16 - Displacement Analysis of Robots - II
- Lecture 17 - Displacement Analysis of Robots - III
- Lecture 18 - Geometric Velocity Analysis - I
- Lecture 19 - Geometric Velocity Analysis - II
- Lecture 20 - Geometric Velocity Analysis - III
- Lecture 21 - Velocity Analysis
- Lecture 22 - Velocity Analysis
- Lecture 23 - Velocity Analysis
- Lecture 24 - Analytical Velocity Analysis - I
- Lecture 25 - Analytical Velocity Analysis - II
- Lecture 26 - Analytical Velocity Analysis - III
- Lecture 27 - Velocity Analysis Examples
- Lecture 28 - Robot Velocity Analysis - I
- Lecture 29 - Robot Velocity Analysis - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Robot Velocity Analysis - III
- Lecture 31 - Robot Path Generation
- Lecture 32 - Acceleration Analysis - I
- Lecture 33 - Acceleration Analysis - II
- Lecture 34 - Force Analysis - I
- Lecture 35 - Force Analysis - II
- Lecture 36 - Force Analysis Examples
- Lecture 37 - Gear Kinematics
- Lecture 38 - Gear trains - I
- Lecture 39 - Gear trains - II
- Lecture 40 - Gear trains - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Fluid Mechanics (2019)

Subject Co-ordinator - Prof. Suman Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Motivations of studying fluid mechanics
- Lecture 2 - Macroscopic and microscopic point of views
- Lecture 3 - Concept of traction vector
- Lecture 4 - Cauchy's theorem
- Lecture 5 - Concept of pressure in a fluid
- Lecture 6 - Density, Bulk Modulus, Viscosity
- Lecture 7 - Viscosity, Newtonian fluid
- Lecture 8 - Kinematic viscosity, Reynolds number
- Lecture 9 - Non-Newtonian fluids
- Lecture 10 - Some illustrative examples solved
- Lecture 11 - Problems and Solutions
- Lecture 12 - Surface Tension - Part I
- Lecture 13 - Surface Tension - Part II
- Lecture 14 - Governing equation of fluid statics
- Lecture 15 - Manometers
- Lecture 16 - Force on a surface immersed in fluid - Part I
- Lecture 17 - Force on a surface immersed in fluid - Part II
- Lecture 18 - Force on a surface immersed in fluid - Part III, Stability of solid bodies in fluid - Part I
- Lecture 19 - Stability of solid bodies in fluid - Part II
- Lecture 20 - Fluid under rigid body motion
- Lecture 21 - Lagrangian and Eulerian approaches
- Lecture 22 - Concept of different flow lines
- Lecture 23 - Acceleration of fluid flow
- Lecture 24 - Deformation of fluid elements - Part I
- Lecture 25 - Derivation of continuity equation
- Lecture 26 - Problems and Solutions
- Lecture 27 - Deformation of fluid elements - Part II
- Lecture 28 - Deformation of fluid elements - Part III
- Lecture 29 - Stream Function

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Circulation, Velocity Potential
- Lecture 31 - Euler's equation
- Lecture 32 - Bernoulli's equation - Part I
- Lecture 33 - Bernoulli's equation - Part II
- Lecture 34 - Bernoulli's equation - Part III
- Lecture 35 - Euler's equation in streamline coordinates
- Lecture 36 - Problems and Solutions
- Lecture 37 - Problems and Solutions
- Lecture 38 - Application of Bernoulli's equation - Part I
- Lecture 39 - Application of Bernoulli's equation - Part II
- Lecture 40 - Application of Bernoulli's equation - Part III
- Lecture 41 - Reynolds Transport Theorem (RTT)
- Lecture 42 - Application of RTT
- Lecture 43 - Problems and Solutions
- Lecture 44 - Problems and Solutions
- Lecture 45 - Application of RTT
- Lecture 46 - Problems and Solutions
- Lecture 47 - Problems and Solutions
- Lecture 48 - Problems and Solutions
- Lecture 49 - Application of RTT
- Lecture 50 - Problems and Solutions
- Lecture 51 - Navier-Stokes equation - Part I
- Lecture 52 - Navier-Stokes equation - Part II
- Lecture 53 - Navier-Stokes equation - Part III
- Lecture 54 - Navier-Stokes equation - Part IV
- Lecture 55 - Pipe Flow - Part I
- Lecture 56 - Pipe Flow - Part II
- Lecture 57 - Pipe Flow - Part III
- Lecture 58 - Pipe Flow - Part IV
- Lecture 59 - Principle of Similarity and Dynamical Analysis - Part I
- Lecture 60 - Principle of Similarity and Dynamical Analysis - Part II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Conduction and Convection Heat Transfer (Prof. S. Chakraborty)

Subject Co-ordinator - Prof. S. Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction To Conduction  
Lecture 2 - 1-D Steady State Conduction  
Lecture 3 - Introduction To Convection  
Lecture 4 - Conduction Equation:Internal Energy Form  
Lecture 5 - Conduction Equation:C-P Form  
Lecture 6 - Conduction Equation:Boundary Conditions And Problems  
Lecture 7 - 1-D Steady State Conduction  
Lecture 8 - Concept Of Thermal Resistance  
Lecture 9 - 1-D Steady State Conduction - II  
Lecture 10 - 1-D Steady State Conduction - II (Continued...)  
Lecture 11 - Problems On 1-D Steady State Conduction - I  
Lecture 12 - Problems On 1-D Steady State Conduction - I (Continued...)  
Lecture 13 - Problems On 1-D Steady State Conduction - II  
Lecture 14 - Conduction In Cylindrical Geometry  
Lecture 15 - Critical Insulation Thickness  
Lecture 16 - Critical Insulation Thickness (Continued...)  
Lecture 17 - Problems On Conduction In Cylindrical Geometry - I  
Lecture 18 - Problems On Conduction In Cylindrical Geometry - I (Continued...)  
Lecture 19 - Problems On Conduction In Cylindrical Geometry - II and Conduction in Spherical Geometry  
Lecture 20 - Heat Transfer From Extended surfaces  
Lecture 21 - Boundary Conditions at the FIN tip  
Lecture 22 - Boundary Conditions at the FIN tip  
Lecture 23 - Problems on Heat Transfer from Extended Surfaces  
Lecture 24 - 2D Steady State Conduction  
Lecture 25 - Separation of Variables Method for 2-D Steady State Conduction  
Lecture 26 - Superposition Method for 2-D Steady State Conduction  
Lecture 27 - Transient Conduction: Lumped Parameter Approach  
Lecture 28 - Problems on Lumped Parameter Approach  
Lecture 29 - Transient Conduction: Infinite Slab

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transient Conduction: Semi - Infinite Slab - I
- Lecture 31 - Transient Conduction: Semi - Infinite Slab - II
- Lecture 32 - Introduction to Convection
- Lecture 33 - Review of Fluid Mechanics - I
- Lecture 34 - Review of Fluid Mechanics - II
- Lecture 35 - Review of Fluid Mechanics - III
- Lecture 36 - Review of Fluid Mechanics - IV
- Lecture 37 - Review of Fluid Mechanics - V
- Lecture 38 - Energy Conservation Equation - I
- Lecture 39 - Energy Conservation Equation - II
- Lecture 40 - Energy Conservation Equation - III
- Lecture 41 - Thermal Boundary Layer - I
- Lecture 42 - Thermal Boundary Layer - II
- Lecture 43 - Energy Integral Equation - I
- Lecture 44 - Energy Integral Equation - II
- Lecture 45 - Internal Forced Convection - 1
- Lecture 46 - Internal Forced Convection - 2
- Lecture 47 - Internal Forced Convection - 3
- Lecture 48 - Internal Forced Convection - 4
- Lecture 49 - Internal Forced Convection - 5
- Lecture 50 - Internal Forced Convection - 6
- Lecture 51 - Viscous Dissipation - 1
- Lecture 52 - Viscous Dissipation - 2
- Lecture 53 - Natural Convection - 1
- Lecture 54 - Natural Convection - 2
- Lecture 55 - Natural Convection - 3
- Lecture 56 - Natural Convection - 4
- Lecture 57 - Condensation - I
- Lecture 58 - Condensation - II
- Lecture 59 - Boiling
- Lecture 60 - Heat Exchangers - I
- Lecture 61 - Heat Exchangers - II
- Lecture 62 - Heat Exchangers - III
- Lecture 63 - Heat Exchangers - IV
- Lecture 64 - Heat Exchangers - V
- Lecture 65 - Problems on Heat Exchangers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Advanced Concepts in Fluid Mechanics

Subject Co-ordinator - Prof. Aditya Bandopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Eulerian and Lagrangian Description of Fluid Motion
- Lecture 2 - Lines of Flow Visualization and Acceleration of Flow
- Lecture 3 - Angular Deformation of Fluid Elements
- Lecture 4 - Linear and Volumetric Deformation; Perspectives from Mass Conservation
- Lecture 5 - Continuity Equation in Integral Form
- Lecture 6 - Euler Equation for Inviscid Flow
- Lecture 7 - Bernoulli's Equation
- Lecture 8 - Examples of Bernoulli's Equation
- Lecture 9 - Reynolds Transport Equation
- Lecture 10 - Reynolds Transport Theorem
- Lecture 11 - Reynolds transport theorem
- Lecture 12 - Reynolds transport theorem
- Lecture 13 - Introduction to traction vector and stress tensor
- Lecture 14 - Cauchy/Navier equation
- Lecture 15 - Navier Stokes equation
- Lecture 16 - Navier Stokes equation (Continued...)
- Lecture 17 - Some exact solutions of the Navier Stokes equation
- Lecture 18 - Interfacial boundary conditions and example of thin film flows
- Lecture 19 - Exact solutions of the Navier Stokes equations in cylindrical polar coordinates
- Lecture 20 - Exact solutions of the Navier Stokes equation for some unsteady flows
- Lecture 21 - Confined oscillatory flows
- Lecture 22 - Introduction to Turbulence
- Lecture 23 - Statistical Treatment of Turbulence and Near - Wall Velocity Profiles
- Lecture 24 - Introduction to Boundary Layer Theory
- Lecture 25 - Similarity Solution of Boundary Layer Equation
- Lecture 26 - Momentum Integral Method
- Lecture 27 - Application of Momentum Integral Method and Boundary Layer Separation
- Lecture 28 - Potential Flow
- Lecture 29 - Potential Flow (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Potential Flow (Continued...)
- Lecture 31 - Potential Flow (Continued...)
- Lecture 32 - Potential Flow (Continued...)
- Lecture 33 - Potential Flow (Continued...)
- Lecture 34 - Stokes Flow past a Sphere
- Lecture 35 - Stokes Flow past a Sphere (Continued...)
- Lecture 36 - Stokes Flow past a Sphere (Continued...)
- Lecture 37 - Lubrication Theory
- Lecture 38 - Lubrication Theory (Continued...)
- Lecture 39 - Lubrication Theory (Continued...)
- Lecture 40 - Thin Film Dynamics
- Lecture 41 - Thin Film Dynamics (Continued...)
- Lecture 42 - Thin Film Dynamics (Continued...)
- Lecture 43 - Thin Film Dynamics (Continued...)
- Lecture 44 - Thin Film Dynamics (Continued...)
- Lecture 45 - Thin Film Dynamics (Continued...)
- Lecture 46 - Thin Film Dynamics (Continued...)
- Lecture 47 - Thin Film Dynamics (Continued...)
- Lecture 48 - Compressible Flows
- Lecture 49 - Compressible Flows (Continued...)
- Lecture 50 - Compressible Flows (Stagnation Properties)
- Lecture 51 - Compressible Flows (Stagnation Properties, Variable Area)
- Lecture 52 - Compressible Flows (Variable Area)
- Lecture 53 - Compressible Flows (Variable Area)
- Lecture 54 - Compressible Flows (Normal Shock)
- Lecture 55 - Compressible Flows (Normal Shock) (Continued...)
- Lecture 56 - Compressible Flows (Converging Nozzle)
- Lecture 57 - Compressible Flows (Converging Diverging Nozzle)
- Lecture 58 - Compressible Flows (Converging Diverging Nozzle) (Continued...)
- Lecture 59 - Compressible Flows with Friction

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:High Performance Computing for Scientists and Engineers

Subject Co-ordinator - Prof. Somnath Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to High Performance Computing
- Lecture 2 - Architecture for Parallel Computing
- Lecture 3 - Architecture for Parallel Computing (Continued...)
- Lecture 4 - Architecture for Parallel Computing (Continued...)
- Lecture 5 - Shared Memory and Distributed Memory in Parallel Computing
- Lecture 6 - Shared Memory and Distributed Memory in Parallel Computing (Continued...)
- Lecture 7 - Parallel Algorithms
- Lecture 8 - Parallel Algorithms (Continued...)
- Lecture 9 - Parallel Algorithms (Continued...)
- Lecture 10 - Performance Metrics of Parallel Systems
- Lecture 11 - Performance Metrics of Parallel Systems (Continued...)
- Lecture 12 - Introduction to OpenMP
- Lecture 13 - Introduction to OpenMP (Continued...)
- Lecture 14 - Introduction to OpenMP (Continued...)
- Lecture 15 - Essentials of OpenMP Programming
- Lecture 16 - Essentials of OpenMP Programming (Continued...)
- Lecture 17 - Data sharing and synchronization
- Lecture 18 - Efficient OpenMP programming for matrix computing
- Lecture 19 - Introduction to MPI and Distributed Memory Parallel Programming
- Lecture 20 - Introduction to MPI and Distributed Memory Parallel Programming (Continued...)
- Lecture 21 - Communication using MPI
- Lecture 22 - Communication using MPI (Continued...)
- Lecture 23 - Communication using MPI (Continued...)
- Lecture 24 - Matrix Representation of Physical Systems - Matrix Solvers
- Lecture 25 - Domain Decomposition Technique
- Lecture 26 - Domain decomposition based parallelization of matrix solvers
- Lecture 27 - Domain decomposition based parallelization of matrix solvers (Continued...)
- Lecture 28 - Domain decomposition based parallelization of matrix solvers (Continued...)
- Lecture 29 - MPI routines for parallel matrix solvers

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- Lecture 30 - Introduction to GPGPU and CUDA
- Lecture 31 - Introduction to GPGPU and CUDA (Continued...)
- Lecture 32 - Introduction to GPGPU and CUDA (Continued...)
- Lecture 33 - Introduction to GPGPU and CUDA (Continued...)
- Lecture 34 - Introduction to CUDA programming
- Lecture 35 - Introduction to CUDA programming (Continued...)
- Lecture 36 - Thread execution in CUDA program - scheduling and memory access
- Lecture 37 - Thread execution in CUDA program (Continued...)
- Lecture 38 - Matrix multiplications in CUDA
- Lecture 39 - OpenACC programming for GPU-s
- Lecture 40 - Hybrid parallelization and exascale computing

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Engineering Drawing and Computer Graphics

Subject Co-ordinator - Prof. Rajaram Lakkaraju

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - I  
Lecture 2 - Introduction - II  
Lecture 3 - Introduction - III  
Lecture 4 - Introduction - IV  
Lecture 5 - Introduction - V  
Lecture 6 - Introduction - VI  
Lecture 7 - Conic Sections - I  
Lecture 8 - Conic Sections - II  
Lecture 9 - Practice - I  
Lecture 10 - Practice - II  
Lecture 11 - Conic Sections - III  
Lecture 12 - Conic Sections - IV  
Lecture 13 - Conic Sections - V  
Lecture 14 - Conic Sections - VI  
Lecture 15 - Conic Sections - VII  
Lecture 16 - Conic Sections - VIII  
Lecture 17 - Conic Sections - IX  
Lecture 18 - Conic Sections - X  
Lecture 19 - Conic Sections - XI  
Lecture 20 - Conic Sections - XII  
Lecture 21 - Orthographic Projections I - Part 1  
Lecture 22 - Orthographic Projections I - Part 2  
Lecture 23 - Orthographic Projections I - Part 3  
Lecture 24 - Orthographic Projections I - Part 4  
Lecture 25 - Orthographic Projections I - Part 5  
Lecture 26 - Orthographic Projections I - Part 6  
Lecture 27 - Orthographic Projections I - Part 7  
Lecture 28 - Orthographic Projections I - Part 8  
Lecture 29 - Orthographic Projections I - Part 9

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Orthographic Projections I - Part 10
- Lecture 31 - Orthographic Projections II - Part 1
- Lecture 32 - Orthographic Projections II - Part 2
- Lecture 33 - Orthographic Projections II - Part 3
- Lecture 34 - Orthographic Projections II - Part 4
- Lecture 35 - Orthographic Projections II - Part 5
- Lecture 36 - Orthographic Projections II - Part 6
- Lecture 37 - Orthographic Projections II - Part 7
- Lecture 38 - Orthographic Projections II - Part 8
- Lecture 39 - Orthographic Projections II - Part 9
- Lecture 40 - Orthographic Projections II - Part 10
- Lecture 41 - Orthographic Projections II - Part 11
- Lecture 42 - Projection of Solids - I
- Lecture 43 - Projection of Solids - II
- Lecture 44 - Projection of Solids - III
- Lecture 45 - Sections and Sectional Views
- Lecture 46 - Sections and Sectional Views (Continued...)
- Lecture 47 - Sections and Sectional Views (Continued...)
- Lecture 48 - Isometric Projections
- Lecture 49 - Isometric Projections (Continued...)
- Lecture 50 - Isometric Projections (Continued...)
- Lecture 51 - Overview of Computer Graphics - I
- Lecture 52 - Overview of Computer Graphics - II
- Lecture 53 - Overview of Computer Graphics - III
- Lecture 54 - Overview of Computer Graphics - IV
- Lecture 55 - Solidworks
- Lecture 56 - Solidworks (Continued...)
- Lecture 57 - Solidworks (Continued...)
- Lecture 58 - Solidworks (Continued...)
- Lecture 59 - Solidworks (Continued...)
- Lecture 60 - Solidworks (Continued...)
- Lecture 61 - Assembly Drawing
- Lecture 62 - Assembly Drawing (Continued...)
- Lecture 63 - Assembly Drawing (Continued...)
- Lecture 64 - Assembly Drawing (Continued...)
- Lecture 65 - Assembly Drawing (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Tools in Scientific Computing

Subject Co-ordinator - Prof. Aditya Bandopadhyay

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Preliminaries and Data types
- Lecture 2 - Loops and Conditionals Implementation of bubble sort
- Lecture 3 - Commonly used Functions
- Lecture 4 - Matrix Manipulations Mohr's circle
- Lecture 5 - Nonlinear algebraic equations - Visualizing convergence
- Lecture 6 - Nonlinear algebraic equations - system of equation and Newton's basin of attraction
- Lecture 7 - Overview of Jupyterlab, Octave GUI, Spyder GUI
- Lecture 8 - Interactivity with Python - Ipywidgets
- Lecture 9 - Geometric Interpretations of ODEs
- Lecture 10 - Bifurcation: Saddle node bifurcation
- Lecture 11 - Bifurcation: Transcritical bifurcation
- Lecture 12 - Bifurcation: Pitchfork bifurcation
- Lecture 13 - Imperfect bifurcations and catastrophies
- Lecture 14 - 2D flows - linear systems
- Lecture 15 - 2D flows - Trajectories: spirals, star and degeneracy
- Lecture 16 - Phase portraits - nonlinear systems
- Lecture 17 - 2D phase portraits - limit cycles
- Lecture 18 - Bifurcations and 3D flows
- Lecture 19 - 1D Maps
- Lecture 20 - Probability density functions and sampling
- Lecture 21 - Monte-carlo simulations: Darts and Buffon's needle
- Lecture 22 - 1D Random walks
- Lecture 23 - 2D Random walks
- Lecture 24 - Boundary Value Problems - Part 1
- Lecture 25 - Boundary Value Problems - Part 2
- Lecture 26 - Regular Perturbation for ODE
- Lecture 27 - Singular Perturbation for ODE
- Lecture 28 - 2D Boundary Values Problems
- Lecture 29 - PETSc and MPI basics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - PETSc - Creating Vectors and Matrices
- Lecture 31 - KSP object and solving a system
- Lecture 32 - Poisson equation in PETSc
- Lecture 33 - Nonlinear Solver of PETSc
- Lecture 34 - Nonlinear solver with Jacobian in PETSc
- Lecture 35 - Reaction-diffusion system in PETSc
- Lecture 36 - Time stepping in PETSc
- Lecture 37 - Heat transport using PETSc
- Lecture 38 - Solving nonlinear PDE on a periodic domain yielding different patterns
- Lecture 39 - Audio analysis - Determine motor RPM
- Lecture 40 - Spectrogram and Doppler shift
- Lecture 41 - Image processing - Preliminaries
- Lecture 42 - Balloon problem and viscous fingers
- Lecture 43 - Analyzing data files and 2D interpolation

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Advanced Dynamics

Subject Co-ordinator - Prof. Anirvan DasGupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Coordinate Systems - I  
Lecture 2 - Coordinate Systems - II  
Lecture 3 - Relative Motion - I  
Lecture 4 - Relative Motion - II  
Lecture 5 - Relative Motion - III  
Lecture 6 - Particle kinetics - I  
Lecture 7 - Particle kinetics - II  
Lecture 8 - Particle kinetics - III  
Lecture 9 - Particle kinetics - IV  
Lecture 10 - Particle kinetics - V  
Lecture 11 - Work-energy relation - I  
Lecture 12 - Work-energy relation - II  
Lecture 13 - Impulse-momentum relation - I  
Lecture 14 - Impulse-momentum relation - II  
Lecture 15 - Particle impact - I  
Lecture 16 - Particle impact - II  
Lecture 17 - Central force motion - I  
Lecture 18 - Central force motion - II  
Lecture 19 - Central force motion - III  
Lecture 20 - Central force motion - IV  
Lecture 21 - Systems with Mass Flow - I  
Lecture 22 - Systems with Mass Flow - II  
Lecture 23 - Kinetics of a System of Particles - I  
Lecture 24 - Kinetics of a System of Particles - II  
Lecture 25 - Kinetics of a System of Particles - III  
Lecture 26 - Kinetics of a System of Particles: Extension to Rigid Bodies  
Lecture 27 - Planar Kinetics of Rigid Bodies - I  
Lecture 28 - Planar Kinetics of Rigid Bodies - II  
Lecture 29 - Planar Kinetics: Work-Energy Relations - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Planar Kinetics: Work-Energy Relations - II
- Lecture 31 - Planar kinetics: impulse-momentum relations - I
- Lecture 32 - Planar kinetics: impulse-momentum relations - II
- Lecture 33 - Spatial kinematics of rigid bodies - I
- Lecture 34 - Spatial kinematics of rigid bodies - II
- Lecture 35 - Spatial kinetics of rigid bodies - I
- Lecture 36 - Spatial kinetics of rigid bodies - II
- Lecture 37 - Spatial kinetics of rigid bodies - III
- Lecture 38 - Gyroscopic motion - I
- Lecture 39 - Gyroscopic motion - II
- Lecture 40 - Gyroscopic motion - III
- Lecture 41 - Kinematics of rotation - I
- Lecture 42 - Kinematics of rotation - II
- Lecture 43 - Kinematics of rotation - III
- Lecture 44 - Kinematics of rotation - IV
- Lecture 45 - Kinematics of rotation - V
- Lecture 46 - Introduction to Analytical Dynamics: generalized coordinates - I
- Lecture 47 - Introduction to Analytical Dynamics: generalized coordinates - II
- Lecture 48 - Hamilton's principle and Lagrange's equation of motion - I
- Lecture 49 - Hamilton's principle and Lagrange's equation of motion - II
- Lecture 50 - Hamilton's principle and Lagrange's equation of motion - III
- Lecture 51 - Hamilton's principle and Lagrange's equation of motion - IV
- Lecture 52 - Systems with constraints - I
- Lecture 53 - Systems with constraints - II
- Lecture 54 - Systems with constraints - III
- Lecture 55 - Systems with constraints - IV
- Lecture 56 - Symmetries and conservation laws - I
- Lecture 57 - Symmetries and conservation laws - II
- Lecture 58 - Symmetries and conservation laws - III
- Lecture 59 - Symmetries and conservation laws - IV
- Lecture 60 - Intermediate axis theorem

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Biomechanics of Joints and Orthopaedic Implants

Subject Co-ordinator - Prof. Sanjay Gupta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General Introduction to the Course
- Lecture 2 - Musculoskeletal System
- Lecture 3 - Synovial Joints
- Lecture 4 - The Hip Joint
- Lecture 5 - The Knee Joint
- Lecture 6 - The Shoulder and Elbow Joints
- Lecture 7 - The Spine
- Lecture 8 - Biomechanics of the Hip Joint
- Lecture 9 - Biomechanics of the Knee Joint
- Lecture 10 - Biomechanics of the Shoulder Joint
- Lecture 11 - Biomechanics of the Elbow Joint - Part I
- Lecture 12 - Biomechanics of the Elbow Joint - Part II
- Lecture 13 - Biomechanics of the Spine
- Lecture 14 - Gait Cycle
- Lecture 15 - Gait Analysis and Abnormalities
- Lecture 16 - Measurement Techniques of Gait Analysis - Part I
- Lecture 17 - Measurement Techniques of Gait Analysis - Part II
- Lecture 18 - Motion Capture System
- Lecture 19 - Fundamentals of Joint Kinematics
- Lecture 20 - Joint Kinematics and Kinetics
- Lecture 21 - Introduction to Musculoskeletal Modelling
- Lecture 22 - Inverse Dynamics in Musculoskeletal Modelling
- Lecture 23 - Muscle Force Estimation Using Static Optimization
- Lecture 24 - Concepts of Stress and Strain
- Lecture 25 - Stress Transformation
- Lecture 26 - Bone Structure and Mechanical Behaviour
- Lecture 27 - Bone Adaptation and Viscoelastic Behaviour
- Lecture 28 - Anisotropic Nature of Bone
- Lecture 29 - Implant Classification and Failure Mechanisms

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Finite Element Modelling of Bone and Implant
- Lecture 31 - Finite Element Modelling and Analysis of Hip and Shoulder
- Lecture 32 - Modelling and Analysis of Intact and Implanted Lumbar Spine
- Lecture 33 - Experimental Validation of Pre-Clinical Analysis
- Lecture 34 - Adaptive Bone Remodelling
- Lecture 35 - Bone Remodelling Around Resurfaced Femur and Pelvic Bone
- Lecture 36 - Design Optimization of HIP Implant
- Lecture 37 - Orthotropic Bone Remodelling
- Lecture 38 - Biomaterials and Design of Orthopaedic Implants
- Lecture 39 - Bone Fracture Healing
- Lecture 40 - Bone Ingrowth and Mechanoregulatory Principles
- Lecture 41 - Mathematical Modelling of Tissue Differentiation
- Lecture 42 - Bone Ingrowth around Porous Coated Femoral Implant
- Lecture 43 - Tissue Differentiation around Porous Coated Acetabular Implant
- Lecture 44 - Concluding Remarks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Elements of Metal Cutting, Machine tools, Gear Cutting and

Subject Co-ordinator - Unknown

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Geometry of single point turning tools - 1
- Lecture 3 - Geometry of turning tools - 2
- Lecture 4 - Geometry of single point turning tools -3
- Lecture 5 - Geometry of cutting tools and numerical problems
- Lecture 6 - Different types of tools and mcq
- Lecture 7 - Mechanism of chip formation
- Lecture 8 - Mechanics of material removal
- Lecture 9 - Measurement Of Cutting Forces
- Lecture 10 - Numerical problems and MCQ
- Lecture 11 - Tool wear and Tool life
- Lecture 12 - Wear and life of cutting tools - 2
- Lecture 13 - The lathe
- Lecture 14 - Calculations on mechanisms in machine tools
- Lecture 15 - Numerical problems on lathe
- Lecture 16 - milling machines
- Lecture 17 - Milling machine - indexing
- Lecture 18 - Gear cutting CNC and non traditional machining
- Lecture 19 - CNC and non-traditional machining methods
- Lecture 20 - Numerical problems for week 4
- Lecture 21 - Introduction
- Lecture 22 - Simple Gear Calculations
- Lecture 23 - Gear Geometry
- Lecture 24 - Helical Gear Problems
- Lecture 25 - Numerical Problem MCQ
- Lecture 26 - Numerical Problem Milling of Helical Gears
- Lecture 27 - Simple and Compound Indexing
- Lecture 28 - Differential Indexing
- Lecture 29 - Helical Gear Cutting on Milling Machine

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Numerical Problems on Gear Milling
- Lecture 31 - Gear Shaping - I
- Lecture 32 - Gear Shaping - II
- Lecture 33 - Gear Shaping - III
- Lecture 34 - Gear Shaping - IV
- Lecture 35 - Gear Hobbing - I
- Lecture 36 - Gear Hobbing - II
- Lecture 37 - Gear Hobbing - III
- Lecture 38 - Gear Hobbing - IV
- Lecture 39 - Gear Hobbing - V
- Lecture 40 - Gear Hobbing - VI
- Lecture 41 - Introduction to computer control role of computers in automation
- Lecture 42 - Introduction (Continued...) binary logic and logic gates
- Lecture 43 - Classification of Computer numerical control (CNC) Point to point and continuous control
- Lecture 44 - Classification (Continued...) : Closed loop and open loop control
- Lecture 45 - Tutorial involving simple calculations on different aspects of CNC controls
- Lecture 46 - Questions, MCQ Discussions on Motors, Encoders, Decoders and Programming Practice
- Lecture 47 - Stepper motors, Permanent magnet DC motors
- Lecture 48 - Binary circuits and decoders
- Lecture 49 - Tachogenerator, printed circuit motors, Encoders
- Lecture 50 - Programming Practice - I
- Lecture 51 - Programming Practice - 1I
- Lecture 52 - Computer Aided Offline Programming
- Lecture 53 - Interpolators - Linear
- Lecture 54 - Interpolators - Curvilinear
- Lecture 55 - Questions on Programming and Interpolation
- Lecture 56 - 3-D Machining - Basic Concepts
- Lecture 57 - Curved Surface Geometry
- Lecture 58 - Cutter Path Generation for Curved Surfaces
- Lecture 59 - Cutter Path Generation (Concluding Part) and Current Status - CNC Machining and Related Processes
- Lecture 60 - Questions and Discussions on Curved Surface Machining

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Finite Element Method

Subject Co-ordinator - Prof. Biswanath Banerjee, Prof. Amit Shaw

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Introduction (Continued...)
- Lecture 4 - Introduction (Continued...)
- Lecture 5 - Introduction (Continued...)
- Lecture 6 - Elements of Calculation of Variations - I
- Lecture 7 - Elements of Calculation of Variations - II
- Lecture 8 - Elements of Calculation of Variations - III
- Lecture 9 - Strong Form and Weak Form
- Lecture 10 - Rayleigh - Ritz Method - I
- Lecture 11 - Rayleigh - Ritz Method - II
- Lecture 12 - Weighted Residual Method
- Lecture 13 - Weighted Residual Method - Example
- Lecture 14 - Concepts of Element and Axial Bar Problem
- Lecture 15 - Axial Bar Problem
- Lecture 16 - Axial Bar - II
- Lecture 17 - Beam Formulation
- Lecture 18 - Beam Stiffness Matrix
- Lecture 19 - Problems
- Lecture 20 - Beam Column
- Lecture 21 - Problem
- Lecture 22 - Share Deformable Beam Theory
- Lecture 23 - Weak Form and Discretization
- Lecture 24 - Reduced Integration Based Stiffness Matrix
- Lecture 25 - Problem
- Lecture 26 - Problem (Continued...)
- Lecture 27 - Element of Formulation
- Lecture 28 - Analysis of Plane Truss
- Lecture 29 - Analysis of Plane Truss (Computer Implementation)

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- Lecture 30 - Analysis of Euler-Bernoulli Beam (Computer Implementation)
- Lecture 31 - Analysis of Plane Frame (Computer Implementation)
- Lecture 32 - Introduction to FEM in 2D
- Lecture 33 - Continuity and Completeness
- Lecture 34 - Shape Functions
- Lecture 35 - Numerical Integration (Gaussian Quadrature)
- Lecture 36 - Gaussian Quadrature in two dimension
- Lecture 37 - Weak Form
- Lecture 38 - Example
- Lecture 39 - Iso-Parametric Formulation
- Lecture 40 - Example with Quadrilateral Element
- Lecture 41 - Computer Implementation
- Lecture 42 - 2D Elasticity and Weak Form
- Lecture 43 - Weak Form and Matrix Formulation
- Lecture 44 - Weak Form to Matrix Form
- Lecture 45 - Problems
- Lecture 46 - Thermoelastic Problem
- Lecture 47 - Torsion
- Lecture 48 - Triangular Elements
- Lecture 49 - Triangular Elements (Continued...)
- Lecture 50 - Examples and Computer Implementation
- Lecture 51 - Examples and Computer Implementation (Continued...)
- Lecture 52 - Shear Locking
- Lecture 53 - Selective reduced Integration and Modes of Q4 Element
- Lecture 54 - Incompatible Elements
- Lecture 55 - Nearly Incompressible Material
- Lecture 56
- Lecture 57 - B-Bar Method
- Lecture 58 - Different Elements
- Lecture 59 - Iso-parametric Formulation and Gauss Quadrature
- Lecture 60 - Closure

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Product Engineering and Design Thinking

Subject Co-ordinator - Prof. Pranab K Dan, Prof. Prabir Sarkar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to product engineering
- Lecture 2 - Introduction to Product design
- Lecture 3 - Introduction to Design Thinking
- Lecture 4 - Conceptual Design
- Lecture 5 - Design Planning and Innovation Engineering
- Lecture 6 - FFE Interface with HLD and DT
- Lecture 7 - High Level Design in the Context of Front End Innovation
- Lecture 8 - Functional and Physical Decomposition and QFD
- Lecture 9 - Product Design Specification
- Lecture 10 - FAST in Functional Design
- Lecture 11 - Design Thinking and Product Conceptualization and Development
- Lecture 12 - Product specification and related methods
- Lecture 13 - Conceptual design stemmed from Idea generation
- Lecture 14 - Conceptual design: tools and techniques
- Lecture 15 - Quality Function Deployment (QFD): Example
- Lecture 16 - Kano Model and Analysis
- Lecture 17 - Concept Generation methods
- Lecture 18 - Concept evaluation methods
- Lecture 19 - Concept testing methods
- Lecture 20 - Morphological Design Concept
- Lecture 21 - Embodiment, Architectural, Configuration, and Parametric Design
- Lecture 22 - Pugh Method (Concept Selection leading to Embodiment Design)
- Lecture 23 - Introduction to Sustainability
- Lecture 24 - Sustainability and Eco-design
- Lecture 25 - LCA and design thinking on LCA
- Lecture 26 - Introduction to Additive Manufacturing
- Lecture 27 - Design for Rapid prototyping, DFAM
- Lecture 28 - Introduction to Design for Manufacturing (DFM) and Assembly (DFA)
- Lecture 29 - Rapid: Digital Prototyping

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- Lecture 30 - A Primer on Design for Quality: Robust and Reliability Engineering
- Lecture 31 - Tolerance Design: Taguchi Robust Engineering
- Lecture 32 - Complexity Mitigation in Multidisciplinary, System: Concurrent Engineering Precepts
- Lecture 33 - Design Thinking steps
- Lecture 34 - Design Thinking Methodologies and Tools
- Lecture 35 - Frugal Engineering-A Disruptive Innovation Paradigm in Product Design and Development
- Lecture 36 - Design-Driven Innovation
- Lecture 37 - User interface and Experience (UI/UX) Design in Product Engineering
- Lecture 38 - Industrial Design: Aesthetics and Ergonomics
- Lecture 39 - Design Thinking in Industrial Design - Case Studies
- Lecture 40 - Product Engineering'- Led Technology Entrepreneurship

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Microfluidics and Nanofluidics

Subject Co-ordinator - Prof. Suman Chakraborty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Microfluidics  
Lecture 2 - Introduction to Microfluidics (Continued...)  
Lecture 3 - Introduction to Microfluidics (Continued...)  
Lecture 4 - Introduction to Microfluidics (Continued...)  
Lecture 5 - Introduction to Microfluidics (Continued...)  
Lecture 6 - Introduction to Microfluidics (Continued...)  
Lecture 7 - Introduction to Microfluidics (Continued...)  
Lecture 8 - Introduction to Microfluidics (Continued...)  
Lecture 9 - Introduction to Microfluidics (Continued...)  
Lecture 10 - Introduction to Microfluidics (Continued...)  
Lecture 11 - Introduction to Microfluidics (Continued...)  
Lecture 12 - Foundations of Fluid Dynamics  
Lecture 13 - Foundations of Fluid Dynamics (Continued...)  
Lecture 14 - Foundations of Fluid Dynamics (Continued...)  
Lecture 15 - Foundations of Fluid Dynamics (Continued...)  
Lecture 16 - Foundations of Fluid Dynamics (Continued...)  
Lecture 17 - Foundations of Fluid Dynamics (Continued...)  
Lecture 18 - Foundations of Fluid Dynamics (Continued...)  
Lecture 19 - Foundations of Fluid Dynamics (Continued...)  
Lecture 20 - Foundations of Fluid Dynamics (Continued...)  
Lecture 21 - Foundations of Fluid Dynamics (Continued...)  
Lecture 22 - Pressure-driven Microchannel Flows  
Lecture 23 - Pressure-driven Microchannel Flows (Continued...)  
Lecture 24 - Pressure-driven Microchannel Flows (Continued...)  
Lecture 25 - Pressure-driven Microchannel Flows (Continued...)  
Lecture 26 - Pressure-driven Microchannel Flows (Continued...)  
Lecture 27 - Insights on Inertia-free Flows  
Lecture 28 - Inertia-free Flow in Circular Capillaries and Generalizing the Force balance  
Lecture 29 - Inertia-free flows for general fluids - Concepts for Microelectric Materials

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Microelectric Fluid Flow through Microchannel
- Lecture 31 - Fluid Flow through Deformable Microchannels
- Lecture 32 - Fluid Flow through Deformable Microchannels (Continued...)
- Lecture 33 - Lubrication Theory
- Lecture 34 - Lubrication Theory (Continued...)
- Lecture 35 - Lubrication Theory (Continued...)
- Lecture 36 - Lubrication Theory (Continued...)
- Lecture 37 - Lubrication Theory (Continued...)
- Lecture 38 - Lubrication Theory - 2 Dimensional Problems
- Lecture 39 - Unsteady Flows
- Lecture 40 - Unsteady Flows (Continued...)
- Lecture 41 - Unsteady Flows: Stoke's 1st problem (Continued...)
- Lecture 42 - Unsteady Flows: Stoke's 1st problem (Continued...)
- Lecture 43 - Unsteady Flows: Stoke's 2nd Problem
- Lecture 44 - Unsteady Flows: Stoke's 2nd Problem (Continued...)
- Lecture 45 - Unsteady Flows: Stoke's 2nd Problem (Continued...)
- Lecture 46 - Stokes Flow Past a Sphere
- Lecture 47 - Stokes Flow Past a Sphere
- Lecture 48 - Stokes Flow Past a Sphere - The Drag Force
- Lecture 49 - Surface Tension and Its Implications in Microfluidics
- Lecture 50 - Equilibrium of a Droplet
- Lecture 51 - Equilibrium of a Droplet (Continued...)
- Lecture 52 - Capillary Rise
- Lecture 53 - Capillary Filling Dynamics
- Lecture 54 - Capillary Filling Dynamics (Continued...)
- Lecture 55 - Capillary Filling Dynamics (Continued...)
- Lecture 56 - Capillary Filling Dynamics (Continued...)
- Lecture 57 - Factors affecting Capillary and Wetting
- Lecture 58 - Electrowetting
- Lecture 59 - Slip Boundary Condition
- Lecture 60 - Apparent Slip
- Lecture 61 - Thin Film Flows
- Lecture 62 - Thin Film Flows (Continued...)
- Lecture 63 - Electrokinetics and Electric Double Layer
- Lecture 64 - Equilibrium within Electrical Double Layer Poisson Boltzmann model
- Lecture 65 - Poisson - Nernst - Plank Model
- Lecture 66 - Maxwell Stress and Electroosmosis
- Lecture 67 - Electroosmosis
- Lecture 68 - Electrophoresis and Streaming Potential

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Industrial Robotics: Theories for Implementation

Subject Co-ordinator - Dr. Arun Dayal Udai

Co-ordinating Institute - IIT-ISM Dhanbad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to and Industrial Robots
- Lecture 2 - Anatomy of an Industrial Robot
- Lecture 3 - Technical Specifications of an Industrial Robot
- Lecture 4 - Classification of Robots
- Lecture 5 - Fixed Installation Robots - Serial and Parallel Robots
- Lecture 6 - Introduction to Industrial Controllers, Drives and Systems
- Lecture 7 - DC Motors/Actuators and Drives
- Lecture 8 - Stepper Motors
- Lecture 9 - Brushless DC Motors/Actuators
- Lecture 10 - AC Servo Motors
- Lecture 11 - Introduction to Sensor and Transducers, Position Sensors
- Lecture 12 - Position Sensors: Potentiometers, and Hall-effect. Velocity Sensors
- Lecture 13 - Acceleration Sensors, AC Sensors (Resolvers and Synchros)
- Lecture 14 - Non-contact (Inductive and Capacitive), Force/Torque Sensors
- Lecture 15 - Limit Switches, Classification and Characteristics of Sensors
- Lecture 16 - Degrees of Freedom and Kinematic Transformations : Translation
- Lecture 17 - Pure Rotation, Arbitrary Axis Rotations, Euler Angles
- Lecture 18 - Link and Joint Parameters (DH Notations), 2 and 3 DoF Robots
- Lecture 19 - 3 DoF Cylindrical Robot (Spatial), SphericalWrist, Cylindrical Robot with Wrist
- Lecture 20 - Forward Kinematics of 6-DoF Industrial Robot
- Lecture 21 - Inverse Kinematics: 2 and 3 DoF Planar Manipulator
- Lecture 22 - Spatial Robots - 3R, Cylindrical (RPP), 4-DoF SCARA Robot
- Lecture 23 - Inverse Kinematics of a 6-DoF Industrial Robot
- Lecture 24 - Differential Motion Analysis, Velocity, and Robot Jacobian
- Lecture 25 - Jacobian (2R), Jacobian Inverse, Singularity, and Acceleration Analysis
- Lecture 26 - Installing the Mechanical Arm and Test Run
- Lecture 27 - Mastering an Industrial Robot
- Lecture 28 - TCP Calibration using 4-Point method and External reference method
- Lecture 29 - TCP Orientation Calibration using World Frame and Two-Point method

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- Lecture 30 - Worksurface Calibration
- Lecture 31 - Fixed Tool Calibration: External TCP and Workpiece Calibration
- Lecture 32 - Base Linear Track and External Turn-Table Calibration
- Lecture 33 - Link Forces and Moments
- Lecture 34 - Gravity Compensation and External Forces/Torques
- Lecture 35 - Kinetostatic Measures for Robot Design
- Lecture 36 - Introduction to Dynamics, LE Approach, Dynamics of 1DoF System
- Lecture 37 - Equation of Motion (EoM) for a Two-Link Manipulator using LE
- Lecture 38 - Newton-Euler (NE) Approach
- Lecture 39 - Equation of motion of a Two-Link manipulator using NE Approach
- Lecture 40 - Payload and Supplementary Load Calibration
- Lecture 41 - Identification Experiments
- Lecture 42 - Repeatability Tests and ISO 9283:1998
- Lecture 43 - Introduction to Control, Linear Control, Second Order System
- Lecture 44 - Response of a Second Order Linear System
- Lecture 45 - Transfer Function and State-space representation, ODE
- Lecture 46 - A Robot Joint : DC Motor Model
- Lecture 47 - Feedback control of a robot arm, PID Control, Gain Tuning
- Lecture 48 - Workspace and Operator Safety
- Lecture 49 - Industrial Robot Programming
- Lecture 50 - Course Conclusion and Suggestions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Cryogenic Hydrogen Technology

Subject Co-ordinator - Prof. Indranil Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Hydrogen Properties
- Lecture 3 - Slush Hydrogen, Ortho-Para H<sub>2</sub>
- Lecture 4 - Ortho-Para H<sub>2</sub> Conversion
- Lecture 5 - Deuterium Production
- Lecture 6 - Hydrogen Production - 1
- Lecture 7 - Hydrogen Production - 2
- Lecture 8 - Hydrogen Production - 3
- Lecture 9 - Hydrogen Production
- Lecture 10 - Hydrogen Production
- Lecture 11 - Hydrogen Production (Electrolysis)
- Lecture 12 - Electrolytic Hydrogen
- Lecture 13 - Electrolytic Hydrogen
- Lecture 14 - SPE Water Electrolyser
- Lecture 15 - Thermochemical Process
- Lecture 16 - Hydrogen Storage: Overview
- Lecture 17 - Compressed Hydrogen Storage
- Lecture 18 - Compressed Hydrogen Storage
- Lecture 19 - Overview on Hydrogen Storage
- Lecture 20 - Adsorption Storage of Hydrogen
- Lecture 21 - Basics of Cryogenic Liquefaction
- Lecture 22 - Coefficient of Expansion
- Lecture 23 - Cryogenic Liquefaction Cycles
- Lecture 24 - Cryogenic Liquefaction (Continued...)
- Lecture 25 - Hydrogen Liquefaction
- Lecture 26 - Cryogenic Liquefaction (Continued...)
- Lecture 27 - Cryogenic Liquefaction - Numerical
- Lecture 28 - Cryogenic Liquefaction - Numerical
- Lecture 29 - Cryogenic Liquefaction (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cryogenic Liquefaction (Continued...)
- Lecture 31 - Cryo Hydrogen Storage
- Lecture 32 - Cryo Hydrogen Storage
- Lecture 33 - Cryo Hydrogen Storage
- Lecture 34 - Cryogenic Liquid Level Measurement
- Lecture 35 - Flow Rate/Fluid Quality Measurement
- Lecture 36 - Temperature Measurement
- Lecture 37 - Application: Fuel Cell
- Lecture 38 - Fuel Cell (Continued...)
- Lecture 39 - Cryogenic Rocket Propulsion
- Lecture 40 - Hydrogen Safety

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Industrial Hydraulics and Automation

Subject Co-ordinator - Prof. Niranjan Kumar, Prof. Ajit Kumar

Co-ordinating Institute - IIT-ISM Dhanbad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to power hydraulics
- Lecture 2 - Fundamental theory of power hydraulics
- Lecture 3 - Fundamental theory of power hydraulics (Continued...)
- Lecture 4 - Hydraulic fluids
- Lecture 5 - Hydraulic fluids (Continued...)
- Lecture 6 - Introduction to hydraulic pumps
- Lecture 7 - Introduction to hydraulic pumps (Continued...)
- Lecture 8 - Construction, operation and application of hydraulic pumps
- Lecture 9 - Construction, operation and application of hydraulic pumps (Continued...)
- Lecture 10 - Construction, operation and application of hydraulic pumps (Continued...)
- Lecture 11 - Performance characteristics of hydraulic pumps
- Lecture 12 - Performance characteristics of hydraulic pumps (Continued...)
- Lecture 13 - Performance characteristics of hydraulic pumps (Continued...)
- Lecture 14 - Performance characteristics of hydraulic pumps (Continued...)
- Lecture 15 - Performance characteristics of hydraulic pumps (Continued...)
- Lecture 16 - Introduction to hydraulic actuators
- Lecture 17 - Introduction to hydraulic actuators (Continued...)
- Lecture 18 - Rotary actuators
- Lecture 19 - Rotary actuators (Continued...)
- Lecture 20 - Rotary actuators (Continued...)
- Lecture 21 - Linear actuators
- Lecture 22 - Linear actuators (Continued...)
- Lecture 23 - Performance characteristics of hydraulic actuators
- Lecture 24 - Performance characteristics of hydraulic actuators (Continued...)
- Lecture 25 - Performance characteristics of hydraulic actuators (Continued...)
- Lecture 26 - Introduction to hydraulic valves
- Lecture 27 - Theory of control valves - I
- Lecture 28 - Theory of control valves - I (Continued...)
- Lecture 29 - Theory of control valves - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Theory of control valves - III
- Lecture 31 - Theory of control valves - IV
- Lecture 32 - Theory of control valves - IV (Continued...)
- Lecture 33 - Theory of proportional valves
- Lecture 34 - Theory of servo valves
- Lecture 35 - Numerical on operation of control valves
- Lecture 36 - Introduction to hydraulic accessories
- Lecture 37 - Hydraulic accumulator
- Lecture 38 - Hydraulic reservoirs
- Lecture 39 - Hoses, Filters and Coolers
- Lecture 40 - Performance analysis of hydraulic accumulators and hydraulic reservoirs
- Lecture 41 - Hydrostatic Transmission System (HST)
- Lecture 42 - Hydraulic system for industrial equipment - I
- Lecture 43 - Hydraulic system for industrial equipment - I (Continued...)
- Lecture 44 - Hydraulic system for industrial equipment - I (Continued...)
- Lecture 45 - Hydraulic system for industrial equipment - I (Continued...)
- Lecture 46 - Hydraulic system for industrial equipment - II
- Lecture 47 - Hydraulic system for industrial equipment - II (Continued...)
- Lecture 48 - Hydraulic system for industrial equipment - II (Continued...)
- Lecture 49 - Performance evaluation of hydraulic systems
- Lecture 50 - Performance evaluation of hydraulic systems (Continued...)
- Lecture 51 - Introduction to control system
- Lecture 52 - Introduction to control system (Continued...)
- Lecture 53 - Control system analysis - I
- Lecture 54 - Control system analysis - I (Continued...)
- Lecture 55 - Control system analysis - I (Continued...)
- Lecture 56 - Control system analysis - II
- Lecture 57 - Control system analysis - II (Continued...)
- Lecture 58 - Control system analysis - II (Continued...)
- Lecture 59 - Digital hydraulics
- Lecture 60 - Digital hydraulics (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Advanced Gas Dynamics

Subject Co-ordinator - Dr. Rinku Mukherjee

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Gas Dynamics & Review of Basic Thermodynamics
- Lecture 2 - Review of Basic Thermodynamics Continued
- Lecture 3 - An introduction to Normal Shocks
- Lecture 4 - The Mach Number and Compressible Flow
- Lecture 5 - The relation of physical properties across a normal shock
- Lecture 6 - Normal Shock in a duct
- Lecture 7 - Example Problems in Normal Shocks
- Lecture 8 - An introduction to Oblique Shocks
- Lecture 9 - The relation of physical properties across an oblique shock
- Lecture 10 - Example Problems in Oblique Shocks
- Lecture 11 - Pressure - Deflection relationship of Shocks
- Lecture 12 - An introduction to Expansion waves
- Lecture 13 - Area - Mach Relationship
- Lecture 14 - Unsteady Shock Waves
- Lecture 15 - The Shock Tube
- Lecture 16 - A review of wave propagation
- Lecture 17 - Wave propagation
- Lecture 18 - Finite Wave Theory
- Lecture 19 - The Shock Tube
- Lecture 20 - The Method of Characteristics
- Lecture 21 - Application of The Method of Characteristics
- Lecture 22 - Application of The Method of Characteristics
- Lecture 23 - Flow over a Wavy wall
- Lecture 24 - Subsonic Flow over a Wavy wall
- Lecture 25 - Supersonic Flow over a Wavy wall
- Lecture 26 - Supersonic Flow past a 3D Cone
- Lecture 27 - Quasi 2D Flow - I
- Lecture 28 - Quasi 2D Flow - II
- Lecture 29 - Similarity Rules and Transformed Coordinate System

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- Lecture 30 - Critical Mach Number and Thin Airfoil Theory
- Lecture 31 - Example Problem using Thin Airfoil Theory
- Lecture 32 - Example Problems - 1
- Lecture 33 - Example Problems - 2
- Lecture 34 - Example Problems - 3
- Lecture 35 - Supersonic Flow past a 3D Cone at an angle of attack
- Lecture 36 - Supersonic Flow past a 3D Cone at an angle of attack
- Lecture 37 - Supersonic Flow past a 3D Cone at an angle of attack
- Lecture 38 - Supersonic Flow past a 3D Cone at an angle of attack
- Lecture 39 - Supersonic Flow past a 3D Cone at an angle of attack
- Lecture 40 - Supersonic Flow past a 3D Bluff Body at an angle of attack

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Design and Optimization of Energy systems

Subject Co-ordinator - Prof. C. Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Optimization
- Lecture 2 - System Design and Analysis
- Lecture 3 - Workable system
- Lecture 4 - System simulation
- Lecture 5 - Information flow diagrams
- Lecture 6 - Successive substitution method
- Lecture 7 - Successive substitution method (Continued.)
- Lecture 8 - Successive substitution method and Newton-Raphson method
- Lecture 9 - Newton-Raphson method (Continued.)
- Lecture 10 - Convergence characteristics of Newton-Raphson method
- Lecture 11 - Newton-Raphson method for multiple variables
- Lecture 12 - Solution of system of linear equations
- Lecture 13 - Introduction to Curve fitting
- Lecture 14 - Example for Lagrange interpolation
- Lecture 15 - Lagrange interpolation (Continued.)
- Lecture 16 - Best fit
- Lecture 17 - Least Square Regression
- Lecture 18 - Least Square Regression (Continued.)
- Lecture 19 - Least Square Regression (Continued.)
- Lecture 20 - Non-linear Regression (Gauss - Newton Algorithm)
- Lecture 21 - Optimization- Basic ideas
- Lecture 22 - Properties of objective function and cardinal ideas in optimization
- Lecture 23 - Unconstrained optimization
- Lecture 24 - Constrained optimization problems
- Lecture 25 - Mathematical proof of the Lagrange multiplier method
- Lecture 26 - Test for Maxima / Minima
- Lecture 27 - Handling in-equality constraints
- Lecture 28 - Kuhn-Tucker conditions (Continued.)
- Lecture 29 - Uni-modal function and search methods

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- Lecture 30 - Dichotomous search
- Lecture 31 - Fibonacci search method
- Lecture 32 - Reduction ratio of Fibonacci search method
- Lecture 33 - Introduction to multi-variable optimization
- Lecture 34 - The Conjugate gradient method
- Lecture 35 - The Conjugate gradient method (Continued.)
- Lecture 36 - Linear programming
- Lecture 37 - Dynamic programming
- Lecture 38 - Genetic Algorithms
- Lecture 39 - Genetic Algorithms (Continued.)
- Lecture 40 - Simulated Annealing and Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Engineering Fracture Mechanics

Subject Co-ordinator - Prof. K. Ramesh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - EFM Course Outline
- Lecture 2 - Spectacular Failures
- Lecture 3 - Lessons from Spectacular Failures
- Lecture 4 - LEFM and EPFM
- Lecture 5 - Fracture Mechanics is Holistic
- Lecture 6 - Fatigue Crack Growth Model
- Lecture 7 - Crack Growth and Fracture Mechanisms
- Lecture 8 - Elastic Strain Energy
- Lecture 9 - Fracture Strength by Griffith
- Lecture 10 - Energy Release Rate
- Lecture 11 - Utility of Energy Release Rate
- Lecture 12 - Pop-in Phenomenon
- Lecture 13 - Displacement and Stress Formulations
- Lecture 14 - Forms of Stress Functions
- Lecture 15 - Airy's Stress Function for Mode-I
- Lecture 16 - Westergaard Solution of Stress Field for Mode-I
- Lecture 17 - Displacement Field for Mode-I
- Lecture 18 - Relation between KI and GI
- Lecture 19 - Stress Field in Mode-II
- Lecture 20 - Generalised Westergaard Approach
- Lecture 21 - William's Eigen Function Approach
- Lecture 22 - Multi-parameter Stress Field Equations
- Lecture 23 - Validation of Multi-parameter Field Equations
- Lecture 24 - Discussion Session - I
- Lecture 25 - Evaluation of SIF for Various Geometries
- Lecture 26 - SIF for Embedded Cracks
- Lecture 27 - SIF for Surface Cracks
- Lecture 28 - Modeling of Plastic Deformation
- Lecture 29 - Irwin's Model

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dugdale Model
- Lecture 31 - Fracture Toughness Testing
- Lecture 32 - Plane Strain Fracture Toughness Testing
- Lecture 33 - Plane Stress Fracture Toughness Testing
- Lecture 34 - Paris Law and Sigmoidal Curve
- Lecture 35 - Crack Closure
- Lecture 36 - Crack Growth Models
- Lecture 37 - J-Integral
- Lecture 38 - HRR Field and CTOD
- Lecture 39 - FAD and Mixed Mode Fracture
- Lecture 40 - Crack Arrest and Repair Methodologies
- Lecture 41 - Discussion Session - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Experimental Stress Analysis

Subject Co-ordinator - Prof. K. Ramesh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview of Experimental Stress Analysis

Lecture 2 - Optical Methods Work as Optical Computers

Lecture 3 - Stress, Strain and Displacement Fields

Lecture 4 - Physical Principle of Strain Gauges, Photoelasticity and Moiré

Lecture 5 - Introduction to Moiré, Brittle Coatings and Holography

Lecture 6 - Hologram Interferometry, Speckle Methods

Lecture 7 - Introduction to Shearography, TSA, DIC and Caustics

Lecture 8 - Fringe Patterns - Richness of Qualitative Information

Lecture 9 - Multi-Scale Analysis in Experimental Mechanics

Lecture 10 - Selection of an Experimental Technique

Lecture 11 - Introduction to Transmission Photoelasticity

Lecture 12 - Ordinary and Extraordinary Rays

Lecture 13 - Light Ellipse, Passage of Light Through a Crystal Plate

Lecture 14 - Retardation Plates, Stress-optic Law

Lecture 15 - Plane Polariscopes

Lecture 16 - Jones Calculus

Lecture 17 - Circular Polariscopes

Lecture 18 - Determination of Photoelastic Parameters at an Arbitrary Point

Lecture 19 - Tardy's Method of Compensation

Lecture 20 - Calibration of Photoelastic Materials

Lecture 21 - Fringe Thinning Methodologies

Lecture 22 - Fringe Ordering in Photoelasticity

Lecture 23 - Miscellaneous Topics in Transmission Photoelasticity

Lecture 24 - Three Dimensional Photoelasticity

Lecture 25 - Overview of Digital Photoelasticity

Lecture 26 - Introduction to Photoelastic Coatings

Lecture 27 - Correction Factors for Photoelastic Coatings

Lecture 28 - Coating Materials, Selection of Coating Thickness, Industrial Application of Photoelastic Coatings

Lecture 29 - Calibration of Photoelastic Coatings, Introduction to Brittle Coatings

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of Brittle Coatings
- Lecture 31 - Introduction to Strain Gauges
- Lecture 32 - Strain Sensitivity of a Strain Gauge, Bridge Sensitivity, Rosettes
- Lecture 33 - Strain Gauge Alloys, Carriers and Adhesives
- Lecture 34 - Performance of Strain Gauge System
- Lecture 35 - Temperature Compensation, Two-wire and Three-wire Circuits
- Lecture 36 - Strain Gauge Selection
- Lecture 37 - Bonding of a Strain Gauge
- Lecture 38 - Soldering, Accounting for Transverse Sensitivity Effects
- Lecture 39 - Correction Factors for Special Applications
- Lecture 40 - Special Gauges
- Lecture 41 - Questions and Answers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Rocket Propulsion

Subject Co-ordinator - Prof. K. Ramamurthi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Motion in Space
- Lecture 3 - Rotational Frame of Reference and Orbital Velocities
- Lecture 4 - Velocity Requirements
- Lecture 5 - Theory of Rocket Propulsion
- Lecture 6 - Rocket Equation and Staging of Rockets
- Lecture 7 - Review of Rocket Principles; Propulsion Efficiency
- Lecture 8 - Examples Illustrating Theory of Rocket Propulsion and Introduction to Nozzles
- Lecture 9 - Theory of Nozzles
- Lecture 10 - Nozzle Shape
- Lecture 11 - Area Ratio of Nozzles; Under-expansion and Over-expansion
- Lecture 12 - Characteristic Velocity and Thrust Coefficient
- Lecture 13 - Divergence Loss in Conical Nozzles and the Bell Nozzle
- Lecture 14 - Unconventional Nozzles and Problems in Nozzles
- Lecture 15 - Criterion for Choice of Chemical Propellants
- Lecture 16 - Choice of Fuel-Rich Propellants
- Lecture 17 - Performance Prediction Analysis
- Lecture 18 - Dissociation of Products of Combustion
- Lecture 19 - Shifting Equilibrium and Frozen Flow in Nozzles
- Lecture 20 - Factors Influencing Choice of Chemical Propellants
- Lecture 21 - Low Energy Liquid Propellants and Hybrid Propellants
- Lecture 22 - Introduction to Solid Propellant Rockets
- Lecture 23 - Burn Rate of Solid Propellants and Equilibrium Pressure in Solid Propellant Rockets
- Lecture 24 - Design Aspects of Solid Propellant Rockets
- Lecture 25 - Burning Surface Area of Solid Propellant Grains
- Lecture 26 - Ignition of Solid Propellant Rockets
- Lecture 27 - Review of Solid Propellant Rockets
- Lecture 28 - Feed Systems for Liquid Propellant Rockets
- Lecture 29 - Feed System Cycles for Pump Fed Liquid Propellant Rockets

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of Gas Generator and Staged Combustion Cycles and Introduction to Injectors
- Lecture 31 - Injectors, Cooling of Chamber and Mixture Ratio Distribution
- Lecture 32 - Efficiencies due to Mixture Ratio Distribution and Incomplete Vaporization
- Lecture 33 - Pumps and Turbines; Propellant Feed System at Zero  $g_0$  Conditions
- Lecture 34 - Review of Liquid Bi-propellant Rockets and Introduction to Mono-propellant Rockets
- Lecture 35 - Introduction to Hybrid Rockets and a Simple Illustration of Combustion Instability in Liquid Prop
- Lecture 36 - Combustion Instability in Solid Propellant and Liquid Propellant Rockets  $\hat{=}$  Bulk and Wave Modes
- Lecture 37 - Wave modes of Oscillation
- Lecture 38 - Mechanisms Causing Instabilities and Strategies for Avoiding Combustion Instability
- Lecture 39 - Electric and Magnetic Fields and the Electrostatic Thruster
- Lecture 40 - Electrical Thrusters
- Lecture 41 - Advances in Rocket Propulsion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Advanced Finite Elements Analysis

Subject Co-ordinator - Dr. R. Krishnakumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Advanced Finite Elements Analysis  
Lecture 2 - Advanced Finite Elements Analysis  
Lecture 3 - Advanced Finite Elements Analysis  
Lecture 4 - Advanced Finite Elements Analysis  
Lecture 5 - Advanced Finite Elements Analysis  
Lecture 6 - Advanced Finite Elements Analysis  
Lecture 7 - Advanced Finite Elements Analysis  
Lecture 8 - Advanced Finite Elements Analysis  
Lecture 9 - Advanced Finite Elements Analysis  
Lecture 10 - Advanced Finite Elements Analysis  
Lecture 11 - Advanced Finite Elements Analysis  
Lecture 12 - Advanced Finite Elements Analysis  
Lecture 13 - Advanced Finite Elements Analysis  
Lecture 14 - Advanced Finite Elements Analysis  
Lecture 15 - Advanced Finite Elements Analysis  
Lecture 16 - Advanced Finite Elements Analysis  
Lecture 17 - Advanced Finite Elements Analysis  
Lecture 18 - Advanced Finite Elements Analysis  
Lecture 19 - Advanced Finite Elements Analysis  
Lecture 20 - Advanced Finite Elements Analysis  
Lecture 21 - Advanced Finite Elements Analysis  
Lecture 22 - Advanced Finite Elements Analysis  
Lecture 23 - Advanced Finite Elements Analysis  
Lecture 24 - Advanced Finite Elements Analysis  
Lecture 25 - Advanced Finite Elements Analysis  
Lecture 26 - Advanced Finite Elements Analysis  
Lecture 27 - Advanced Finite Elements Analysis  
Lecture 28 - Advanced Finite Elements Analysis  
Lecture 29 - Advanced Finite Elements Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Advanced Finite Elements Analysis

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Advanced Operations Research

Subject Co-ordinator - Prof. G. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Linear Programming
- Lecture 2 - Revised Simplex Algorithm
- Lecture 3 - Simplex Method for Bounded Variables
- Lecture 4 - One Dimensional Cutting Stock Problem
- Lecture 5 - One Dimensional Cutting Stock Problem (Continued.)
- Lecture 6 - Dantzig-Wolfe Decomposition Algorithm
- Lecture 7 - Dantzig-Wolfe Decomposition Algorithm Primal-Dual Algorithm
- Lecture 8 - Primal-Dual Algorithm
- Lecture 9 - Goal Programming-Formulations
- Lecture 10 - Goal Programming Solutions Complexity of Simplex Algorithm
- Lecture 11 - Complexity of Simplex Algorithm (Continued.) Integer Programming
- Lecture 12 - Integer Programming-Formulations
- Lecture 13 - Solving Zero-One Problems
- Lecture 14 - Solving Zero-One Problems (Continued.)
- Lecture 15 - Branch And Bond Algorithm For Integer Programming
- Lecture 16 - Cutting Plane Algorithm
- Lecture 17 - All Integer Primal Algorithm
- Lecture 18 - All Integer Dual Algorithm
- Lecture 19 - Network Models
- Lecture 20 - Shortest Path Problem
- Lecture 21 - Successive Shortest Path Problem
- Lecture 22 - Maximum Flow Problem
- Lecture 23 - Minimum Cost Flow Problem
- Lecture 24 - Traveling Salesman Problem (TSP)
- Lecture 25 - Branch and Bound Algorithms for TSP
- Lecture 26 - Heuristics for TSP
- Lecture 27 - Heuristics for TSP (Continued.)
- Lecture 28 - Chinese Postman Problem
- Lecture 29 - Vehicle Routeing Problem

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Queueing Models
- Lecture 31 - Single Server Queueing Models
- Lecture 32 - Multiple Server Queueing Models
- Lecture 33 - Game Theory
- Lecture 34 - Critical Path Method
- Lecture 35 - Quadratic Programming
- Lecture 36 - Integer Programming (Continued.)
- Lecture 37 - All Integer Dual Algorithm
- Lecture 38 - Mixed Integer Linear Programming
- Lecture 39 - Benders Partitioning Algorithm

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Fundamentals of Operations Research

Subject Co-ordinator - Prof. G. Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Linear Programming Formulations

Lecture 2 - Linear Programming Formulations (Continued...)

Lecture 3 - Linear Programming Solutions- Graphical Methods

Lecture 4 - Linear Programming Solutions - Simplex Algorithm

Lecture 5 - Simplex Algorithm-Minimization Problems

Lecture 6 - Simplex Algorithm - Initialization and Iteration

Lecture 7 - Simplex Algorithm - Termination

Lecture 8 - Introduction to Duality

Lecture 9 - Primal Dual Relationships, Duality Theorems

Lecture 10 - Dual Variables and the Simplex Tables

Lecture 11 - Simplex Algorithm in Matrix Form Introduction to Sensitivity Analysis

Lecture 12 - Sensitivity Analysis Transportation Problem (Introduction)

Lecture 13 - Transportation Problem, Methods for Initial Basic Feasible Solutions

Lecture 14 - Transportation Problem-Optimal Solutions

Lecture 15 - Transportation Problem - Other Issues

Lecture 16 - Assignment Problem - Hungarian Algorithm

Lecture 17 - Assignment Problem - Other Issues Introduction to Dynamic Programming

Lecture 18 - Dynamic Programming - Examples Involving Discrete Variables

Lecture 19 - Dynamic Programming - Continuous Variables

Lecture 20 - Dynamic Programming - Examples to Solve Linear & Integer Programming Problems

Lecture 21 - Inventory Models - Deterministic Models

Lecture 22 - Inventory Models - Discount Models, Constrained Inventory Problems, Lagrangean Multipliers, Conc

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Introduction to Finite Element Method

Subject Co-ordinator - Dr. R. Krishnakumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Finite Element Method  
Lecture 2 - Introduction to Finite Element Method  
Lecture 3 - Introduction to Finite Element Method  
Lecture 4 - Introduction to Finite Element Method  
Lecture 5 - Introduction to Finite Element Method  
Lecture 6 - Introduction to Finite Element Method  
Lecture 7 - Introduction to Finite Element Method  
Lecture 8 - Introduction to Finite Element Method  
Lecture 9 - Introduction to Finite Element Method  
Lecture 10 - Introduction to Finite Element Method  
Lecture 11 - Introduction to Finite Element Method  
Lecture 12 - Introduction to Finite Element Method  
Lecture 13 - Introduction to Finite Element Method  
Lecture 14 - Introduction to Finite Element Method  
Lecture 15 - Introduction to Finite Element Method  
Lecture 16 - Introduction to Finite Element Method  
Lecture 17 - Introduction to Finite Element Method  
Lecture 18 - Introduction to Finite Element Method  
Lecture 19 - Introduction to Finite Element Method  
Lecture 20 - Introduction to Finite Element Method  
Lecture 21 - Introduction to Finite Element Method  
Lecture 22 - Introduction to Finite Element Method  
Lecture 23 - Introduction to Finite Element Method  
Lecture 24 - Introduction to Finite Element Method  
Lecture 25 - Introduction to Finite Element Method  
Lecture 26 - Introduction to Finite Element Method  
Lecture 27 - Introduction to Finite Element Method  
Lecture 28 - Introduction to Finite Element Method  
Lecture 29 - Introduction to Finite Element Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Finite Element Method
- Lecture 31 - Introduction to Finite Element Method
- Lecture 32 - Introduction to Finite Element Method
- Lecture 33 - Introduction to Finite Element Method



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Mechanical Measurements and Metrology

Subject Co-ordinator - Prof. Shunmugam M. S, Prof. S.P. Venkateshan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Study of Mechanical Measurement
- Lecture 2 - Errors in Measurement
- Lecture 3 - Errors in Measurement (Continued...)
- Lecture 4 - Propagation of Errors
- Lecture 5 - Regression Analysis
- Lecture 6 - Regression Analysis (Continued...)
- Lecture 7 - Design of Experiments
- Lecture 8 - Design of Experiments (Continued...)
- Lecture 9 - Temperature Measurement
- Lecture 10 - Overview of Thermometry
- Lecture 11 - Thermoelectric Thermometry
- Lecture 12 - Thermoelectric Thermometry (Continued...)
- Lecture 13 - Measurement of Temperature Under Various Conditions
- Lecture 14 - Errors in Temperature Measurement
- Lecture 15 - Measurement of Transient Temperature and Resistance Thermometry
- Lecture 16 - Resistance Thermometry (Continued...)
- Lecture 17 - Resistance Thermometry (Continued...) and pyrometry
- Lecture 18 - pyrometry (Continued...)
- Lecture 19 - pyrometry (Continued...)
- Lecture 20 - Pressure Measurement (Continued...)
- Lecture 21 - Pressure Measurement (Continued...)
- Lecture 22 - Pressure Measurement (Continued...)
- Lecture 23 - Pressure Measurement (Continued...)
- Lecture 24 - Transient Response of Pressure Transducers
- Lecture 25 - Transient Response of Pressure Transducers
- Lecture 26 - Measurement of High Vacuum
- Lecture 27 - Measurement of Fluid Velocity
- Lecture 28 - Hot Wire Anemometry and Laser Doppler Velocimetry
- Lecture 29 - Laser Doppler Velocimetry and Ultrasonic Methods

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Measurement of Heat Flux
- Lecture 31 - Measurement of Heat Flux (Continued...)
- Lecture 32 - Transient Method of Heat Flux Measurement
- Lecture 33 - Measurement of Volume and Mass Flow Rate of Fluid
- Lecture 34 - Flow Measuring Devices
- Lecture 35 - Measurement of Stagnation and Bulk Mean Temperature
- Lecture 36 - Measurement of Thermo-Physical Properties
- Lecture 37 - Measurement of Thermal Conductivity
- Lecture 38 - Measurement of Heat Capacity and Heating Value
- Lecture 39 - Measurement of Viscosity
- Lecture 40 - Measurement of Viscosity (Continued...)
- Lecture 41 - Integrating Sphere and Measurement of Emissivity
- Lecture 42 - Measurements of Gas Composition
- Lecture 43 - Measurements of Gas Composition (Continued...)
- Lecture 44 - Measurements of Gas Composition and Smoke
- Lecture 45 - Measurement of Force
- Lecture 46 - Force Measurement
- Lecture 47 - Vibration and Acceleration Measurement
- Lecture 48 - Laser Doppler Accelerometer, Speed, Torque
- Lecture 49 - General Issues in Mechanical Measurement
- Lecture 50 - Case Studies

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Principles of Mechanical Measurements

Subject Co-ordinator - Prof. R. Raman

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Principles Of Mechanical Measurements  
Lecture 2 - Principles Of Mechanical Measurements  
Lecture 3 - Principles Of Mechanical Measurements  
Lecture 4 - Principles Of Mechanical Measurements  
Lecture 5 - Principles Of Mechanical Measurements  
Lecture 6 - Principles Of Mechanical Measurements  
Lecture 7 - Principles Of Mechanical Measurements  
Lecture 8 - Principles Of Mechanical Measurements  
Lecture 9 - Principles Of Mechanical Measurements  
Lecture 10 - Principles of Mechanical Measurements  
Lecture 11 - Principles Of Mechanical Measurements  
Lecture 12 - Principles Of Mechanical Measurements  
Lecture 13 - Principles Of Mechanical Measurements  
Lecture 14 - Principles Of Mechanical Measurements  
Lecture 15 - Principles Of Mechanical Measurements  
Lecture 16 - Principles Of Mechanical Measurements  
Lecture 17 - Principles Of Mechanical Measurements  
Lecture 18 - Principles Of Mechanical Measurements  
Lecture 19 - Principles Of Mechanical Measurements  
Lecture 20 - Principles Of Mechanical Measurements  
Lecture 21 - Principles Of Mechanical Measurements  
Lecture 22 - Principles Of Mechanical Measurements  
Lecture 23 - Principles Of Mechanical Measurements  
Lecture 24 - Principles Of Mechanical Measurements  
Lecture 25 - Principles Of Mechanical Measurements  
Lecture 26 - Principles Of Mechanical Measurements

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Spray Theory and Applications

Subject Co-ordinator - Prof. Mahesh Panchagnula, Dr. Paul E. Sojka

Co-ordinating Institute - IIT - Madras | Purdue University

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to sprays and their applications
- Lecture 2 - Spatial versus Temporal Sampling
- Lecture 3 - Spatial Vs Temporal Sampling example problem
- Lecture 4 - Steady vs unsteady spray
- Lecture 5 - Statistical measures on spray
- Lecture 6 - Discussion on pdf and moments
- Lecture 7 - Size velocity correlation
- Lecture 8 - Discussion on Interfacial tension
- Lecture 9 - Introduction to Atomizers and their design - 1
- Lecture 10 - Introduction to Atomizers and their design - 2
- Lecture 11 - Simple measurement techniques
- Lecture 12 - Selection of atomizers
- Lecture 13 - Spray measurement characteristics
- Lecture 14 - Spray measurements techniques
- Lecture 15 - Non-intrusive spray measurements techniques
- Lecture 16 - Non-intrusive spray measurements techniques
- Lecture 17 - Linear stability analysis â Introduction
- Lecture 18 - Linear stability analysis- Kelvin-Helmholtz instability - 1
- Lecture 19 - Linear stability analysis- Kelvin-Helmholtz instability - 2
- Lecture 20 - Linear stability analysis- Kelvin-Helmholtz instability - 3
- Lecture 21 - Linear stability analysis procedure
- Lecture 22 - Linear stability analysis - Cylindrical jet instability - 1
- Lecture 23 - Linear stability analysis - Cylindrical jet instability - 2
- Lecture 24 - Linear stability analysis - Planar Liquid Sheet instability - 1
- Lecture 25 - Linear stability analysis - Planar Liquid Sheet instability - 2
- Lecture 26 - Design of pressure swirl atomizer - 1
- Lecture 27 - Design of pressure swirl atomizer - 2
- Lecture 28 - Design of pressure swirl atomizer - 3
- Lecture 29 - Design of pressure swirl atomizer - 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Secondary atomization-Dimensionless parameters
- Lecture 31 - Secondary atomization-Modes of breakup - 1
- Lecture 32 - Secondary atomization-Modes of breakup - 2
- Lecture 33 - Multiphase modelling
- Lecture 34 - Multiphase modelling
- Lecture 35 - Multiphase flow modelling basics
- Lecture 36 - Multiphase modelling â Selection of model - 1
- Lecture 37 - Multiphase modelling â Selection of model - 2
- Lecture 38 - Multiphase modelling - Governing equations
- Lecture 39 - Droplet evaporation
- Lecture 40 - Droplet combustion
- Lecture 41 - Spray combustion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Conduction And Radiation

Subject Co-ordinator - Prof. C. Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Importance of Thermal Radiation

Lecture 2 - Blackbody definition

Lecture 3 - Solid angle, spectral radiation intensity

Lecture 4 - Radiation pressure and radiation energy density

Lecture 5 - Relationship between  $\lambda \cdot I_\lambda$  and  $\lambda \cdot T_\lambda$  and Candidate blackbody distribution functions

Lecture 6 - Candidate blackbody distribution functions (Continued...)

Lecture 7 - Planck's blackbody radiation distribution function

Lecture 8 - Planck's distribution and Wien's displacement law

Lecture 9 - Universal blackbody function

Lecture 10 - Emissivity

Lecture 11 - Emissivity (Continued...)

Lecture 12 - Emissivity (Continued...)

Lecture 13 - Kirchoff law, Absorptivity

Lecture 14 - Kirchoff law, Absorptivity (Continued...)

Lecture 15 - Problems on emissivity, absorptivity

Lecture 16 - Reflectivity

Lecture 17 - Transmissivity

Lecture 18 - Problems on reflectivity and transmissivity

Lecture 19 - Radiation heat transfer between surfaces

Lecture 20 - View factor

Lecture 21 - View factor (Continued...)

Lecture 22 - View factor (Continued...)

Lecture 23 - Enclosure analysis

Lecture 24 - Enclosure analysis (Continued...)

Lecture 25 - Enclosure analysis - Gray surface

Lecture 26 - Enclosure analysis - Non gray surfaces

Lecture 27 - Radiation in participating media

Lecture 28 - Solution to the RTE

Lecture 29 - Concept of mean beam length

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Enclosure analysis in the presence of absorbing / emitting gas
- Lecture 31 - Emissivities and absorptivities of Gas mixtures
- Lecture 32 - Conduction - Introduction
- Lecture 33 - Conduction - Energy equation
- Lecture 34 - Conduction - 1D, steady state
- Lecture 35 - Conduction - 1D, heat generation
- Lecture 36 - Fin heat transfer - I
- Lecture 37 - Fin heat transfer - II
- Lecture 38 - Conduction - Cylindrical and Spherical geometries
- Lecture 39 - Transient conduction
- Lecture 40 - Transient conduction (Continued...)
- Lecture 41 - Two dimensional steady state conduction
- Lecture 42 - Analytical solution for Laplace equation
- Lecture 43 - Numerical methods in conduction
- Lecture 44 - Numerical methods in conduction (Continued...)
- Lecture 45 - Conduction with change of phase
- Lecture 46 - Conduction with change of phase (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Gas Dynamics and Propulsion

Subject Co-ordinator - Prof. V. Babu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction / Fundamental Ideas
- Lecture 3 - Fundamental Ideas
- Lecture 4 - Fundamental Ideas
- Lecture 5 - Fundamental Ideas / Normal Shock Waves
- Lecture 6 - Normal Shock Waves
- Lecture 7 - Normal Shock Waves / Rayleigh Flow
- Lecture 8 - Rayleigh Flow
- Lecture 9 - Rayleigh Flow
- Lecture 10 - Rayleigh Flow / Fanno Flow
- Lecture 11 - Fanno Flow
- Lecture 12 - Fanno Flow
- Lecture 13 - Fanno Flow / Quasi One Dimensional Flows
- Lecture 14 - Quasi One Dimensional Flows
- Lecture 15 - Quasi One Dimensional Flows
- Lecture 16 - Quasi One Dimensional Flows
- Lecture 17 - Quasi One Dimensional Flows
- Lecture 18 - Quasi One Dimensional Flows
- Lecture 19 - Quasi One Dimensional Flows
- Lecture 20 - Oblique Shock Waves
- Lecture 21 - Oblique Shock Waves
- Lecture 22 - Oblique Shock Waves
- Lecture 23 - Oblique Shock Waves / Prandtl Meyer Waves
- Lecture 24 - Prandtl Meyer Waves
- Lecture 25 - Prandtl Meyer Waves
- Lecture 26 - Propulsion - an Introduction
- Lecture 27 - Components of the Gas Turbine Engine
- Lecture 28 - Components of the Gas Turbine Engine
- Lecture 29 - Components of the Gas Turbine Engine

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Components of the Gas Turbine Engine
- Lecture 31 - Components of the Gas Turbine Engine / Thermodynamic Analysis of the Engine
- Lecture 32 - Thermodynamic Analysis of the Engine
- Lecture 33 - Thermodynamic Analysis of the Engine
- Lecture 34 - Calculations for Thrust and Fuel Consumption
- Lecture 35 - Calculations for Thrust and Fuel Consumption
- Lecture 36 - Calculations for Thrust and Fuel Consumption / Emerging Trends
- Lecture 37 - Emerging Trends / Ramjets
- Lecture 38 - Ramjets
- Lecture 39 - Ramjets / Scramjets
- Lecture 40 - Scramjets

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Microfluidics

Subject Co-ordinator - Dr. Ashis Kumar Sen

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Scaling  
Lecture 2 - Scaling  
Lecture 3 - Micro-scale fluid mechanics  
Lecture 4 - Micro-scale fluid mechanics (Continued...)  
Lecture 5 - Micro-scale fluid mechanics (Continued...)  
Lecture 6 - Micro-scale fluid mechanics (Continued...)  
Lecture 7 - Micro-scale fluid mechanics (Continued...)  
Lecture 8 - Micro-scale fluid mechanics (Continued...)  
Lecture 9 - Micro-scale fluid mechanics (Continued...)  
Lecture 10 - Micro-scale fluid mechanics (Continued...)  
Lecture 11 - Capillary Flows  
Lecture 12 - Capillary Flows (Continued...)  
Lecture 13 - Capillary Flows and Electrokinetics  
Lecture 14 - Electrokinetics  
Lecture 15 - Electrokinetics (Continued...)  
Lecture 16 - Electrokinetics (Continued...)  
Lecture 17 - Electrokinetics (Continued...)  
Lecture 18 - Electrokinetics (Continued...)  
Lecture 19 - Electrokinetics (Continued...)  
Lecture 20 - Electrokinetics and Magnetophoresis  
Lecture 21 - Microfabrication Techniques  
Lecture 22 - Microfabrication Techniques (Continued...)  
Lecture 23 - Microfabrication Techniques (Continued...)  
Lecture 24 - Microfabrication Techniques (Continued...)  
Lecture 25 - Microfabrication Techniques (Continued...)  
Lecture 26 - Microfabrication Techniques (Continued...)  
Lecture 27 - Microfabrication Techniques (Continued...)  
Lecture 28 - Microfabrication Techniques (Continued...)  
Lecture 29 - Micropump

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Micropump (Continued...)
- Lecture 31 - Microvalve
- Lecture 32 - Microvalve (Continued...)
- Lecture 33 - Microvalve (Continued...)
- Lecture 34 - Micro Flow Sensor and Micro mixers
- Lecture 35 - Micro mixers
- Lecture 36 - Micro mixers (Continued...)
- Lecture 37 - Micro droplets
- Lecture 38 - Micro reactors (Continued...)
- Lecture 39 - Micro needles and Microparticle separation
- Lecture 40 - Few applications of microfluidics
- Lecture 41 - Lab Demo

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Convective Heat Transfer

Subject Co-ordinator - Dr. Arvind Pattamatta, Prof. Ajit K. Kolar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to convective heat transfer - Part 1
- Lecture 2 - Introduction to convective heat transfer - Part 2
- Lecture 3 - Continuity Equation
- Lecture 4 - Momentum and Energy Equations
- Lecture 5 - Energy Equation
- Lecture 6 - Reynolds Transport Theorem
- Lecture 7 - Entrophy Generation and streamfunction-vorticity formulation
- Lecture 8 - Couette flow - Part 1
- Lecture 9 - Couette flow - Part 2
- Lecture 10 - Couette flow - Part 3
- Lecture 11 - Boundary layer approximation
- Lecture 12 - Laminar External flow past flat plate (Blasius Similarity Solution)
- Lecture 13 - Numerical solution to the Blasius equation and similarity solution to heat transfer
- Lecture 14 - Pohlhausen similarity solution and flows including pressure gradient (Falkner-Skan)
- Lecture 15 - Falkner skan solutions for heat transfer
- Lecture 16 - Similarity solution for flow and heat transfer with transpiration at walls
- Lecture 17 - Thermal boundary layer in high speed flows
- Lecture 18 - Approximate(Integral) methods for laminar external flow and heat transfer
- Lecture 19 - Integral method for laminar external thermal boundary layer over isothermal surface
- Lecture 20 - Integral method for flows with pressure gradient (von Karman-Pohlhausen method)
- Lecture 21 - Integral method with pressure gradient
- Lecture 22 - Heat transfer across a circular cylinder
- Lecture 23 - Duhamel's method for varying surface temperature
- Lecture 24 - Laminar External heat transfer with non uniform surface temperature
- Lecture 25 - Laminar internal forced convection - fundamentals
- Lecture 26 - Hydrodynamically and thermally fully developed internal laminar flows
- Lecture 27 - Fully developed laminar internal flow and heat transfer
- Lecture 28 - Shooting method for fully developed heat transfer and thermal entry length problem
- Lecture 29 - Thermal entry length problem with plug velocity profile

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Extended Graetz problem for parabolic velocity profile
- Lecture 31 - Extended Graetz problem
- Lecture 32 - Extended Graetz problem with wall flux boundary condition
- Lecture 33 - Approximate method for laminar internal flows
- Lecture 34 - Integral method for thermal entry length problem
- Lecture 35 - Introduction to Natural Convection Heat Transfer
- Lecture 36 - Similarity Solution in Natural Convection for Vertical isothermal Plate - Part 1
- Lecture 37 - Similarity Solution in Natural Convection for Vertical isothermal Plate - Part 2
- Lecture 38 - Similarity Solution in Natural Convection for Vertical isoflux Plate
- Lecture 39 - Approximate Method in Natural Convection Heat Transfer
- Lecture 40 - Natural Convection in Other Configurations
- Lecture 41 - Turbulent Convective Heat Transfer
- Lecture 42 - Turbulent Convective Heat Transfer
- Lecture 43 - Analogies in Turbulent Convective Heat Transfer - Part 1
- Lecture 44 - Analogies in Turbulent Convective Heat Transfer - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Introduction to Explosions and Explosion Safety

Subject Co-ordinator - Prof. K. Ramamurthi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Loud Bang and Disruption
- Lecture 2 - Blast Wave in an Explosion
- Lecture 3 - Typical Examples of Explosions and Classification
- Lecture 4 - Shock Hugoniot and Rayleigh Line
- Lecture 5 - Properties behind a Constant Velocity Shock
- Lecture 6 - Blast waves
- Lecture 7 - Blast waves
- Lecture 8 - Blast Waves
- Lecture 9 - Blast Waves
- Lecture 10 - Blast Waves
- Lecture 11 - Blast Waves
- Lecture 12 - Blast Waves
- Lecture 13 - Energy Release in a Chemical Reaction
- Lecture 14 - Energy Release
- Lecture 15 - Energy Release
- Lecture 16 - Rate of Energy Release
- Lecture 17 - Thermal Theory of Explosion
- Lecture 18 - Thermal Theory
- Lecture 19 - Role of Chain Carriers in an Explosion
- Lecture 20 - Combustion - I
- Lecture 21 - Combustion - II
- Lecture 22 - Case Histories of Explosions involving Volatile Liquids
- Lecture 23 - Detonation
- Lecture 24 - Structure of Detonations
- Lecture 25 - Realizable States in a Detonation
- Lecture 26 - One Dimensional Model of Detonation
- Lecture 27 - Case Histories of Explosions involving Detonation or Quasi-Detonation
- Lecture 28 - Explosions in Confined and Unconfined Geometries
- Lecture 29 - Dust Explosions - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Dust Explosions - II
- Lecture 31 - Physical Explosions
- Lecture 32 - Rupture of Cryogenic Storage Vessels and Pressure Vessels
- Lecture 33 - Condensed Phased Explosives Based on Hydrocarbons
- Lecture 34 - Condensed Phase Explosives and their Properties
- Lecture 35 - TNT Equivalence and Yield of an Explosion
- Lecture 36 - Atmospheric Dispersion
- Lecture 37 - Modeling Atmospheric Dispersion
- Lecture 38 - Explosions Involving Atmospheric Dispersion
- Lecture 39 - Quantification of Damages in an Explosion
- Lecture 40 - Risk Analysis for an Explosion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Metrology

Subject Co-ordinator - Dr. K. Sadashivappa

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Metrology

Lecture 2 - Metrology terminologies

Lecture 3 - Measurement errors

Lecture 4 - Linear measuring instruments Â 1 (Angle plate, steel rule, spring calipers)

Lecture 5 - Linear measuring instruments Â 2 (Combination set, Vernier calipers)

Lecture 6 - Linear measuring instruments Â 3 (Height gauge, Micrometers Â 1)

Lecture 7 - Linear measuring instruments Â 4 (Micrometers Â 2, Bore gauge)

Lecture 8 - Linear measuring instruments Â 5 (Dial indicators, thickness gauges, depth gauges)

Lecture 9 - Manufacturing tolerances and fits

Lecture 10 - Terminologies of limits fits and tolerances

Lecture 11 - Numerical problems on fit and tolerances

Lecture 12 - Selection of fits, Geometrical tolerances

Lecture 13 - Positional tolerances

Lecture 14 - Limit gauging - 1

Lecture 15 - Limit gauging - 2

Lecture 16 - Design of limit gauges

Lecture 17 - Measurement of straightness, flatness and squareness

Lecture 18 - Perpendicularity measurement

Lecture 19 - Basics of surface roughness

Lecture 20 - Surface finish parameters

Lecture 21 - Stylus type surface finish measuring instruments

Lecture 22 - Non-contact type surface finish measuring instruments

Lecture 23 - Screw thread production and terminology

Lecture 24 - Measurement of screw thread elements

Lecture 25 - Introduction to gears

Lecture 26 - Measurement of gear elements

Lecture 27 - Angle measurement - 1

Lecture 28 - Angle measurement - 2

Lecture 29 - Radius measurement, Contact angle measurement

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Basics of interferometry
- Lecture 31 - Interferometers
- Lecture 32 - Introduction to comparators, Mechanical comparators
- Lecture 33 - Electrical and electronic comparators, Optical comparators
- Lecture 34 - Pneumatic comparators
- Lecture 35 - Geometrical tests on lathe
- Lecture 36 - Geometrical tests on pillar type drilling machine
- Lecture 37 - Universal measuring machine (UMM) and Coordinate measuring machine (CMM)
- Lecture 38 - CMM probes and CMM software
- Lecture 39 - Feature measurement using CMM, Laser vision
- Lecture 40 - In-process gauging and control
- Lecture 41 - Stage position metrology
- Lecture 42 - Micro and Nano stages, Nano technology instrumentation
- Lecture 43 - Optical system design
- Lecture 44 - Complex opto- mechanical assemblies, Metrology testing and certification services

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Engineering Mechanics Statics and Dynamics

Subject Co-ordinator - Prof. Mahesh Panchagnula

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the course  
Lecture 2 - Newton's laws  
Lecture 3 - Equilibrium  
Lecture 4 - Example 1 - Statics  
Lecture 5 - Example 2 - Rigid Body Systems  
Lecture 6 - Example 3 - Rigid Body Systems  
Lecture 7 - Structural Systems with rigid bodies  
Lecture 8 - Types of 1-D Structural Elements  
Lecture 9 - Axial members  
Lecture 10 - Analysis of the truss system  
Lecture 11 - Stability of Structural systems  
Lecture 12 - Beams - Example 1  
Lecture 13 - Beams - BMD and SFD  
Lecture 14 - Beams - Loading, Shear and Bending Moment Relations  
Lecture 15 - Static Friction  
Lecture 16 - Friction - Solving Problems  
Lecture 17 - Particle Kinematics - 1  
Lecture 18 - Particle Kinematics - 2 (Example)  
Lecture 19 - Particle Kinematics - Curvilinear Coordinates  
Lecture 20 - Rigid Body Kinematics  
Lecture 21 - Rotational Motion (Example 1)  
Lecture 22 - Rotational Motion (Example 2)  
Lecture 23 - Dynamics (Introduction)  
Lecture 24 - Dynamics - Example 1  
Lecture 25 - Dynamics - Example 2  
Lecture 26 - Dynamics - Example 3  
Lecture 27 - Dynamics - Example 4  
Lecture 28 - Center of Percussion - Example  
Lecture 29 - Impulse / Momentum - Example 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Impulse / Momentum - Example 2
- Lecture 31 - Impulse / Momentum - Example 3
- Lecture 32 - Impulse / Momentum - Example 4
- Lecture 33 - Work Energy Methods - Example 1
- Lecture 34 - Work Energy Methods - Example 2
- Lecture 35 - Work Energy Methods - Example 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Foundation of Computational Fluid Dynamics

Subject Co-ordinator - Dr.S.Vengadesan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Week 1 - Module-1

Week 1 - Module-2

Week 1 - Module-3

Week 1 - Module-4

Week 1 - Module-5

Week 2 - Module-1

Week 2 - Module-2

Week 2 - Module-3

Week 2 - Module-4

Week 2 - Module-5

Week 3 - Module-1

Week 3 - Module-2

Week 3 - Module-3

Week 3 - Module-4

Week 3 - Module-5

Week 4 - Module-1

Week 4 - Module-2

Week 4 - Module-3

Week 4 - Module-4

Week 4 - Module-5

Week 5 - Module-1

Week 5 - Module-2

Week 5 - Module-3

Week 5 - Module-4

Week 5 - Module-5

Week 5 - Module-6

Week 6 - Module-1

Week 6 - Module-2 - Part 1

Week 6 - Module-2 - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Week 6 - Module-3  
Week 6 - Module-4  
Week 6 - Module-5  
Week 7 - Module-1  
Week 7 - Module-2  
Week 7 - Module-3  
Week 7 - Module-4  
Week 7 - Module-5  
Week 8 - Module-1  
Week 8 - Module-2  
Week 8 - Module-3  
Week 8 - Module-4  
Week 8 - Module-5  
Week 8 - Module-6  
Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Boundary Layers

Subject Co-ordinator - Dr. Rinku Mukherjee

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of fundamentals of fluid mechanics - I
- Lecture 2 - Review of fundamentals of fluid mechanics - II
- Lecture 3 - Concept of a Boundary Layer (BL) - I
- Lecture 4 - Concept of a Boundary Layer (BL) - II
- Lecture 5 - Concepts of BL thickness (?)
- Lecture 6 - Concepts of BL displacement thickness (?\*) and BL momentum thickness (?)
- Lecture 7 - Control Volume approach to derive expressions for ?\* over a flat plate
- Lecture 8 - Control Volume approach to derive expressions for ? over a flat plate
- Lecture 9 - Concept of wall friction
- Lecture 10 - Concept of friction drag
- Lecture 11 - Skin Friction Coefficient - I
- Lecture 12 - Skin Friction Coefficient - II
- Lecture 13 - Derivation of Prandtl's Laminar BL Equations - I
- Lecture 14 - Derivation of Prandtl's Laminar BL Equations - II
- Lecture 15 - Derivation of Prandtl's Laminar BL Equations - III
- Lecture 16 - Derivation of Prandtl's Laminar BL Equations - IV
- Lecture 17 - Similarity Solutions to the BL Equations Applied to a Flat Plate - I
- Lecture 18 - Similarity Solutions to the BL Equations Applied to a Flat Plate - II
- Lecture 19 - Similarity Solutions to the BL Equations Applied to a Flat Plate - III
- Lecture 20 - Runge-Kutta Method to Numerically Solve the BL Equations Applied to a Flat Plate
- Lecture 21 - Description of the Numerical Code to Solve the BL Equations Applied to a Flat Plate
- Lecture 22 - Similarity Solutions to the BL Equations (other than flat plate) - I
- Lecture 23 - Similarity Solutions to the BL Equations (other than flat plate) - II
- Lecture 24 - Similarity Solutions to the BL Equations (other than flat plate) - III
- Lecture 25 - Similarity Solutions to the BL Equations (other than flat plate) - IV
- Lecture 26 - Description of the Numerical Code to Solve the BL Equations (other than flat plate)
- Lecture 27 - The Energy Equation - I
- Lecture 28 - The Energy Equation - II
- Lecture 29 - Similarity Solutions to Thermal BL - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Similarity Solutions to Thermal BL - II
- Lecture 31 - Similarity Solutions to Thermal BL - III
- Lecture 32 - BL Separation with Pressure-Gradient - I
- Lecture 33 - BL Separation with Pressure Gradient - II
- Lecture 34 - Effect of Prandtl Number in Thermal BL - I
- Lecture 35 - Effect of Prandtl Number in Thermal BL - II
- Lecture 36 - Effect of Prandtl Number in Thermal BL - III
- Lecture 37 - Effect of Dissipation in Thermal BL - I
- Lecture 38 - Effect of Dissipation in Thermal BL - II
- Lecture 39 - Effect of Dissipation in Thermal BL - III
- Lecture 40 - Similarity Solutions to Thermal BL - An Overview

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Gas Dynamics

Subject Co-ordinator - Prof.A. Sameen

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Basics of Thermodynamics
- Lecture 3 - Tutorial 1
- Lecture 4 - Control Volume Approach
- Lecture 5 - Conservation Equations
- Lecture 6 - Tutorial 2
- Lecture 7 - Energy Equation
- Lecture 8 - Concept of stagnation
- Lecture 9 - Discussion on stagnation
- Lecture 10 - Velocity of sound
- Lecture 11 - Discussion on velocity of sound and mach number
- Lecture 12 - Wave propagation
- Lecture 13 - Mach wave
- Lecture 14 - Mach number relations
- Lecture 15 - Variable Area Adiabatic flow
- Lecture 16 - Variable Area Adiabatic flow (Continued...)
- Lecture 17 - \* reference quantities and their relations
- Lecture 18 - Importance of stagnation temperature in relation to v
- Lecture 19 - Discussion on variable area adiabatic flow and \* reference quantities
- Lecture 20 - Gas tables
- Lecture 21 - Converging nozzle
- Lecture 22 - Condition of choked flow and associated properties
- Lecture 23 - Area ratio and pressure ratio in converging nozzles
- Lecture 24 - Discussion on converging nozzles
- Lecture 25 - Converging - Diverging (C-D) nozzles
- Lecture 26 - More on C-D nozzles
- Lecture 27 - Discussion on C-D nozzles - 1
- Lecture 28 - Discussion on C-D nozzles - 2
- Lecture 29 - Examples and applications of flow through C-D nozzles

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- Lecture 30 - Introduction to normal shocks
- Lecture 31 - Normal shock relations - 1
- Lecture 32 - Normal shock relations - 2
- Lecture 33 - Rankine-Hugoniot equation
- Lecture 34 - Discussion on Normal Shocks - 1
- Lecture 35 - Discussion on Normal Shocks - 2
- Lecture 36 - Normal shocks in C-D nozzles
- Lecture 37 - Normal shocks in C-D nozzles (Continued...)
- Lecture 38 - Moving Normal Shocks
- Lecture 39 - Discussion on moving normal shocks
- Lecture 40 - Oblique shocks
- Lecture 41 - Oblique shock relations
- Lecture 42 - Discussion on oblique shocks
- Lecture 43 - Reflection of oblique shocks
- Lecture 44 - Discussion on reflection of oblique shocks
- Lecture 45 - Prandtl-Meyer flow
- Lecture 46 - Prandtl-Meyer flow (Continued...)
- Lecture 47 - Discussion on Prandtl-Meyer expansion
- Lecture 48 - Shock Polar diagram and Prandtl-Meyer relation for Oblique shocks

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Experimental Stress Analysis:An Overview

Subject Co-ordinator - Prof. K. Ramesh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Stress Analysis - Analytical and Numerical Approaches

Lecture 2 - Introduction to Stress Analysis - Experimental Approaches

Lecture 3 - Optical Methods Work as Optical Computers

Lecture 4 - Basic information provided by various experimental methods

Lecture 5 - Visual Appreciation of Field Information - Part 1

Lecture 6 - Visual Appreciation of Field Information - Part 2

Lecture 7 - Visual Appreciation of Field Information - Part 3

Lecture 8 - Visual Appreciation of Field Information - Part 4

Lecture 9 - Visual Appreciation of Field Information - Part 5

Lecture 10 - Completeness of a Numerical Solution

Lecture 11 - Principle of Strain Gauges

Lecture 12 - Overview of Strain Gauge Measurements

Lecture 13 - Elegance of Photoelasticity

Lecture 14 - Introduction to Photoelasticity

Lecture 15 - Different Polariscopes

Lecture 16 - Principles of Moiré

Lecture 17 - Introduction to Moiré

Lecture 18 - Introduction to Brittle Coatings

Lecture 19 - Introduction to Holography

Lecture 20 - Introduction to Hologram Interferometry

Lecture 21 - Introduction to Double exposure hologram interferometry

Lecture 22 - Introduction to Speckle Methods

Lecture 23 - Introduction to Speckle Interferometry Techniques

Lecture 24 - Introduction to TSA and DIC

Lecture 25 - Introduction to Caustics

Lecture 26 - Introduction to Coherent Gradient Sensor

Lecture 27 - Naming of Experimental Methods

Lecture 28 - Fringe Patterns - Richness of Qualitative Information

Lecture 29 - Key technologies that have influenced Experimental Mechanics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Multiscale analysis and trends in experimental mechanics
- Lecture 31 - Selection of an experimental technique - Part 1
- Lecture 32 - Selection of an experimental technique - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fluid Dynamics and Turbomachines

Subject Co-ordinator - Prof. Dhiman Chatterjee, Prof. Shamit Bakshi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Fluid Flow  
Lecture 2 - Flow field, Stresses on fluid element, Newtonian fluid  
Lecture 3 - Non Newtonian fluid, Classification of flow, Analysis of flow  
Lecture 4 - Tutorial  
Lecture 5 - Lecture 1 - Integral analysis, Control volume, Generalised conservation equation  
Lecture 6 - Lecture 2 - Mass and linear momentum conservation in CV  
Lecture 7 - Lecture 3 - Angular momentum conservation, Non-inertial frame of reference  
Lecture 8 - Lecture 4 - Tutorial  
Lecture 9 - Lecture 1 - Differential Analysis  
Lecture 10 - Lecture 2 - Navier-Stokes equation for 2D incompressible flow  
Lecture 11 - Lecture 3 - Vorticity, Stream function, Bernoulli's equation  
Lecture 12 - Lecture 4 - Tutorial  
Lecture 13 - Lecture 1 - External flows, Laminar and Turbulent Boundary Layer  
Lecture 14 - Lecture 2 - Differential analysis of boundary layer, Blassius equation  
Lecture 15 - Lecture 3 - Boundary Layer flow with pressure gradient, Flow separation  
Lecture 16 - Lecture 4 - Internal flow, Pipe friction  
Lecture 17 - Lecture 1 - Basic Thermodynamics  
Lecture 18 - Lecture 2 - Turbomachines  
Lecture 19 - Lecture 3 - Dimensional Analysis  
Lecture 20 - Lecture 4 - Tutorial  
Lecture 21 - Lecture 1 - Representation of Turbomachines and Definition of velocity  
Lecture 22 - Lecture 2 - Euler's energy equation  
Lecture 23 - Lecture 3 - Real fluid flow and efficiency of turbomachine  
Lecture 24 - Lecture 4 - Tutorial  
Lecture 25 - Lecture 1 - Pumps  
Lecture 26 - Lecture 2 - Pumping Systems  
Lecture 27 - Lecture 3 - Hydraulic Turbines  
Lecture 28 - Lecture 4 - Hydraulic Turbines  
Lecture 29 - Lecture 5 - Cavitation in Hydroturbomachines

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Lecture 6 - Tutorial  
Lecture 31 - Lecture 1 - Introduction to compressible flow  
Lecture 32 - Lecture 2 - Steam and Gas Turbine  
Lecture 33 - Lecture 3 - Steam and Gas Turbine  
Lecture 34 - Lecture 4 - Tutorial

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Micro and Nano Scale Energy Transport

Subject Co-ordinator - Dr. Arvind Pattamatta

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview to Micro/Nanoscale energy transport - Part 1
- Lecture 2 - Overview to Micro/Nanoscale energy transport - Part 2
- Lecture 3 - Some applications of Micro/Nanoscale energy transport
- Lecture 4 - Continuum heat transfer and its limitation
- Lecture 5 - Energy carriers at Micro/Nanoscale and their attributes
- Lecture 6 - Microscopic contributes to Internal energy of a systems
- Lecture 7 - Fundamentals of Quantum mechanics - Part 1
- Lecture 8 - Fundamentals of Quantum mechanics - Part 2
- Lecture 9 - Fundamentals of Quantum mechanics - Part 3
- Lecture 10 - Fundamentals of Quantum mechanics - Part 4
- Lecture 11 - Fundamentals of Quantum mechanics - Part 5
- Lecture 12 - Fundamentals of solid state physics - Part 1
- Lecture 13 - Fundamentals of solid state physics - Part 2
- Lecture 14 - Fundamentals of solid state physics - Part 3
- Lecture 15 - Fundamentals of solid state physics - Part 4
- Lecture 16 - Fundamentals of statistical thermodynamics - Part 1
- Lecture 17 - Fundamentals of statistical thermodynamics - Part 2
- Lecture 18 - Fundamentals of statistical thermodynamics - Part 3
- Lecture 19 - Fundamentals of statistical thermodynamics - Part 4
- Lecture 20 - Kinetic theory of energy carriers - Part 1
- Lecture 21 - Kinetic theory of energy carriers - Part 2
- Lecture 22 - Non-equilibrium energy transport at Nanoscales
- Lecture 23 - Boltzmann Transport Equation under the relaxation time approximation
- Lecture 24 - Derivation of Continuum laws from Boltzmann Transport Equation - Part 1
- Lecture 25 - Derivation of Continuum laws from Boltzmann Transport Equation - Part 2
- Lecture 26 - Derivation of Continuum laws from Boltzmann Transport Equation - Part 3
- Lecture 27 - Nanoscale Energy transport in a Thin Film - Part 1
- Lecture 28 - Nanoscale Energy transport in a Thin Film - Part 2
- Lecture 29 - Nanoscale Energy transport in a Thin Film - Part 3

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- Lecture 30 - Gas flow and Heat transport in Microchannels - Part 1
- Lecture 31 - Gas flow and Heat transport in Microchannels - Part 2
- Lecture 32 - Single phase liquid flow and Heat transport in Microchannels - Part 1
- Lecture 33 - Single phase liquid flow and Heat transport in Microchannels - Part 2
- Lecture 34 - Fundamentals of Electro kinetics in Microchannels Part1
- Lecture 35 - Fundamentals of Electro kinetics in Microchannels Part2
- Lecture 36 - Fundamentals of Electro kinetics in Microchannels Part3
- Lecture 37 - Two phase Heat transfer in Microchannels - Part 1
- Lecture 38 - Two phase Heat transfer in Microchannels - Part 2
- Lecture 39 - Nano fluid Heat transfer - Part 1
- Lecture 40 - Nano fluid Heat transfer - Part 2
- Lecture 41 - Measurement techniques in Micro and Nanoscale Heat transfer - Part 1
- Lecture 42 - Measurement techniques in Micro and Nanoscale Heat transfer - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Electron Diffraction and Imaging

Subject Co-ordinator - Prof. Sundararaman M

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - 1D-2D-3D lattice
- Lecture 2 - Stereographic projection - 1
- Lecture 3 - Stereographic Projection - 2
- Lecture 4 - Symmetry in 1-D crystals
- Lecture 5 - Symmetry in 2-D crystals
- Lecture 6 - Symmetry in 3-D crystals
- Lecture 7 - Understanding IUCr tables
- Lecture 8 - Symmetry in 3-D Crystals
- Lecture 9 - Reciprocal lattice
- Lecture 10 - Directions Planes and zone axes
- Lecture 11 - Interplanar distances and angles
- Lecture 12 - Diffraction - 1
- Lecture 13 - Diffraction - 2
- Lecture 14 - Diffraction - Structure and Shape Factor
- Lecture 15 - Transformation of Indices
- Lecture 16 - Microscope - 1
- Lecture 17 - Microscope - 2
- Lecture 18 - Kikuchi Diffraction
- Lecture 19 - Double Diffraction and CBED
- Lecture 20 - CBED and Precession Electron Diffraction
- Lecture 21 - Indexing Diffraction Pattern
- Lecture 22 - Correlation of Diffraction Spots to Microstructure
- Lecture 23 - 3-Index to 4-Index System
- Lecture 24 - Kinematical and Dynamical Theory of Diffraction and Imaging
- Lecture 25 - Contrast from Planar Defects
- Lecture 26 - Contrast from Strain Fields
- Lecture 27 - Atomic Scattering Factor
- Lecture 28 - Coherence
- Lecture 29 - Lens Aberrations

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- Lecture 30 - Phase Contrast Microscopy - 1
- Lecture 31 - Phase Contrast Microscopy - 2
- Lecture 32 - Phase Contrast Microscopy - 3
- Lecture 33 - STEM
- Lecture 34 - ELES and EDS
- Lecture 35 - Recent trends
- Lecture 36 - Energy dispersive Spectroscopy
- Lecture 37 - Revision - 1
- Lecture 38 - Revision - 2
- Lecture 39 - Revision of Recent trends in Microscopy
- Lecture 40 - Crystallography Revision

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Acoustic and Noise Control

Subject Co-ordinator - Prof. Abijith Sarkar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1 - Introduction - 1  
Lecture 2 - Module 1 - Introduction - 2  
Lecture 3 - Module 2 - Governing Equation - 1  
Lecture 4 - Module 2 - Governing Equation - 2  
Lecture 5 - Module 3 - Plane Wave - 1  
Lecture 6 - Module 3 - Plane Wave - 2  
Lecture 7 - Module 4 - Reflection Of Plane Waves - 1  
Lecture 8 - Module 4 - Reflection Of Plane Waves - 2  
Lecture 9 - Module 5 - Frequency Analysis - 1  
Lecture 10 - Module 5 - Frequency Analysis - 2  
Lecture 11 - Module 6 - Harmonic Plane Waves  
Lecture 12 - Module 7 - Travelling And Standing Waves  
Lecture 13 - Module 8 - Acoustic Mode Shapes, Reflection  
Lecture 14 - Module 9 - Plane Waves  
Lecture 15 - Module 10 - Flexural Waves, evanescent Waves  
Lecture 16 - Module 11 - Near Field Acoustic Waves  
Lecture 17 - Module 12 - cuton Waves in duct  
Lecture 18 - Module 13 - Power Calculation  
Lecture 19 - Module 14 - Decibel Scale  
Lecture 20 - Module 15 - Db Arithmetic  
Lecture 21 - Module 16 - Sound Power Level  
Lecture 22 - Module 17 - Human factors in Acoustic Engineering  
Lecture 23 - Module 18 - Microphone  
Lecture 24 - Module 19 - Acoustic Measurements  
Lecture 25 - Module 20 - Muffler Analysis  
Lecture 26 - Module 21 - Transfer Matrix Method  
Lecture 27 - Module 22 - Electro Mechanical Analogies - Part 1  
Lecture 28 - Module 23 - Electro Mechanical Analogies Simple Example  
Lecture 29 - Module 24 - Electro Mechanical Analogies Example

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Module 25 - Helmholtz Resonator  
Lecture 31 - Module 26 - Source Impedance  
Lecture 32 - Module 27 - Insertion Loss  
Lecture 33 - Module 28 - Analysis Of Industrial Mufflers  
Lecture 34 - Module 29 - Spherical Waves  
Lecture 35 - Module 30 - Monopole and Dipole  
Lecture 36 - Module 31 - Inhomogeneous Wave Equation  
Lecture 37 - Module 32 - Green's Function  
Lecture 38 - Module 33 - Kirchoff Helmholtz Integral Equation  
Lecture 39 - Tutorial 1  
Lecture 40 - Tutorial 2  
Lecture 41 - Tutorial 3  
Lecture 42 - Tutorial 4

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Steel Quality - Role of Secondary Refining and Continuous C

Subject Co-ordinator - Prof. Santanu Kr. Ray

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Concept of Steel Quality

Lecture 2 - Control of Residuals and Impact on Quality

Lecture 3 - Non-Metallic Inclusions

Lecture 4 - Evaluation of Residuals and Inclusions

Lecture 5 - Cleanliness Requirements for Different applications

Lecture 6 - Limitation of Primary Steelmaking and Importance of secondary Refining

Lecture 7 - Deoxidation

Lecture 8 - Prevention of Slag carryover

Lecture 9 - Desulphurisation

Lecture 10 - Degassing

Lecture 11 - Secondary Refining Processes

Lecture 12 - Injection of Calcium

Lecture 13 - Different Routes and Temperature Control

Lecture 14 - Decarburisation

Lecture 15 - Cleanliness Measures in Ladle and Tundish

Lecture 16 - Cleanliness Measures in Mould

Lecture 17 - Nature and Distribution of Entrapments in Casting

Lecture 18 - Genesis of Entrapment

Lecture 19 - Effect of Vertical vis-a-vis Curved Mould

Lecture 20 - Quality of Cast Product

Lecture 21 - Role of Concast Process, Caster Design and Steel Grade

Lecture 22 - Primary Cooling in Caster Mould

Lecture 23 - Heat Transfer in Mould

Lecture 24 - Role of Mould Oscillation

Lecture 25 - Cast Structure and Dendrite Size

Lecture 26 - Role of Chemistry - Part I

Lecture 27 - Role of Chemistry - Part II

Lecture 28 - Role of Segregation - Part I

Lecture 29 - Role of Segregation - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Deleterious Effect of Phosphorus
- Lecture 31 - Strength of Solidifying Strand
- Lecture 32 - Brittle Zone Near Solidus
- Lecture 33 - Strength and Toughness of Solid Shell
- Lecture 34 - Role of Chemistry on Solidification Behaviour
- Lecture 35 - Sticking vis-a-vis Depression Behaviour
- Lecture 36 - Role of Chemistry on Bulging or Depression Tendency - Part I
- Lecture 37 - Role of Chemistry on Bulging or Depression Tendency - Part II
- Lecture 38 - Effect of Cast Grain Size
- Lecture 39 - Brittle Temperature Regions
- Lecture 40 - Typical Cracks and Defects - Part I
- Lecture 41 - Typical Cracks and Defects - Part II
- Lecture 42 - Remedial Measures to Control Defects - Part I
- Lecture 43 - Remedial Measures to Control Defects - Part II
- Lecture 44 - Remedial Measures to Control Defects - Part III
- Lecture 45 - Grade - Specific Casting Parameters - Part I
- Lecture 46 - Grade - Specific Casting Parameters - Part II
- Lecture 47 - Identification of Genesis of Quality Problems Through Metallographic Investigation - Part I
- Lecture 48 - Identification of Genesis of Quality Problems Through Metallographic Investigation - Part II
- Lecture 49 - Identification of Genesis of Quality Problems Through Metallographic Investigation - Part III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:X-ray Crystallography and Diffraction

Subject Co-ordinator - Prof. Ranjit Kumar Ray

Co-ordinating Institute - IEST - Shibpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Geometry of Crystals

Lecture 2 - Geometry of Crystals (Continued...)

Lecture 3 - Tutorial-1

Lecture 4 - Reciprocal Lattice

Lecture 5 - Stereographic Projection

Lecture 6 - Tutorial-2

Lecture 7 - Point Groups and Space Groups

Lecture 8 - Point Groups and Space Groups (Continued...)

Lecture 9 - Tutorial-3

Lecture 10 - Point Groups and Space Groups (Continued...)

Lecture 11 - Basics of X-Rays

Lecture 12 - Production and Detection of X-Rays

Lecture 13 - Production and Detection of X-Rays (Continued...)

Lecture 14 - Principles of X-Ray Diffraction

Lecture 15 - X-Ray Diffraction Methods

Lecture 16 - Debye Sherrer Camera

Lecture 17 - Diffractometer Measurements

Lecture 18 - Tutorial-4

Lecture 19 - Intensity of Diffracted Beams

Lecture 20 - Intensity of Diffracted Beams (Continued...)

Lecture 21 - Determination of Crystal Structures

Lecture 22 - Precise Lattice Parameter Determination

Lecture 23 - XRD - Lab Demonstration

Lecture 24 - Discussion - Based on Forum Queries - 1

Lecture 25 - Phase Diagram Determination

Lecture 26 - Ordered Disordered Transformation

Lecture 27 - Ordered Disordered Transformation (Continued...)

Lecture 28 - Qualitative Phase Analysis

Lecture 29 - Quantitative Phase Analysis - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Precise Lattice Parameter Determination - 1
- Lecture 31 - Chemical Analysis by X-Ray Fluorescence
- Lecture 32 - Chemical Analysis by X-Ray Absorption
- Lecture 33 - Effect of Crystallite Size on Diffracted X-Ray Intensity
- Lecture 34 - Texture Determination by XRD
- Lecture 35 - Particle Size Determination by XRD
- Lecture 36 - Effect of Crystallite Size on Diffracted X-Ray Intensity
- Lecture 37 - Determination of Single Crystal Orientation by X-Rays
- Lecture 38 - Stress Analysis by X-Rays
- Lecture 39 - Factors Contributing to Peak Broadening
- Lecture 40 - Residual Stress Measurement by X-Rays

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Transport Phenomena in Materials

Subject Co-ordinator - Dr. G. Phanikumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Subscript Notation - Part 1  
Lecture 2 - Subscript Notation - Part 2  
Lecture 3 - Coordinate Rotation  
Lecture 4 - Introduction to Tensors  
Lecture 5 - Symmetry of Properties  
Lecture 6 - Material Derivative  
Lecture 7 - Planar Flows  
Lecture 8 - Reynolds Transport Theorem  
Lecture 9 - Derivation of Navier-Stokes equation  
Lecture 10 - Navier Stokes equations - Part 2  
Lecture 11 - Flow problem statements  
Lecture 12 - Simple cases in fluid flow : rectangular coordinate system  
Lecture 13 - Simple cases in fluid flow : cylindrical coordinate system  
Lecture 14 - Pipe flow and porous medium  
Lecture 15 - Simple cases in fluid flow : spherical coordinate system  
Lecture 16 - Friction factors and correlations  
Lecture 17 - Energy Transport  
Lecture 18 - Conduction cases - Steady state  
Lecture 19 - Conduction cases - Transient state  
Lecture 20 - Convective heat transfer  
Lecture 21 - Mass Transfer Overview  
Lecture 22 - Chemical Equilibrium  
Lecture 23 - Reaction Equilibrium  
Lecture 24 - Species Balance Equation  
Lecture 25 - Solute Transfer Modelling - Part 1  
Lecture 26 - Solute Transfer Modelling - Part 2  
Lecture 27 - Solute Segregation Profile - Part 1  
Lecture 28 - Solute Segregation Profile - Part 2  
Lecture 29 - Problem Statements

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diffusion in Solid State
- Lecture 31 - Transient Solute Diffusion in Solid State
- Lecture 32 - Mass Transfer in Fluids
- Lecture 33 - Similarity Across Transport Phenomena

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Experimental Stress Analysis - An Overview

Subject Co-ordinator - Prof. K. Ramesh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview of Experimental Stress Analysis

Lecture 2 - Optical Methods Work as Optical Computers

Lecture 3 - Stress, Strain and Displacement Fields

Lecture 4 - Completeness of a numerical solution

Lecture 5 - Fringe Patterns - Richness of Qualitative Information

Lecture 6 - Multi-Scale Analysis in Experimental Mechanics

Lecture 7 - Selection of an Experimental Technique

Lecture 8 - Introduction to Transmission Photoelasticity

Lecture 9 - Ordinary and Extraordinary Rays

Lecture 10 - Light Ellipse, Passage of Light Through a Crystal Plate

Lecture 11 - Retardation Plates, Stress-optic Law

Lecture 12 - Plane Polariscope

Lecture 13 - Jones Calculus

Lecture 14 - Circular Polariscope

Lecture 15 - Determination of Photoelastic Parameters at an Arbitrary Point

Lecture 16 - Tardy's Method of Compensation

Lecture 17 - Calibration of Photoelastic Materials

Lecture 18 - Fringe Thinning Methodologies

Lecture 19 - Fringe Ordering in Photoelasticity

Lecture 20 - Miscellaneous Topics in Transmission Photoelasticity

Lecture 21 - Three Dimensional Photoelasticity

Lecture 22 - Overview of Digital Photoelasticity

Lecture 23 - Introduction to Photoelastic Coatings

Lecture 24 - Correction Factors for Photoelastic Coatings

Lecture 25 - Coating Materials, Selection of Coating Thickness, Industrial Application of Photoelastic Coatings

Lecture 26 - Calibration of Photoelastic Coatings, Introduction to Brittle Coatings

Lecture 27 - Analysis of Brittle Coatings

Lecture 28 - Introduction to Strain Gauges

Lecture 29 - Strain Sensitivity of a Strain Gauge, Bridge Sensitivity, Rosettes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strain Gauge Alloys, Carriers and Adhesives
- Lecture 31 - Performance of Strain Gauge System
- Lecture 32 - Temperature Compensation, Two-wire and Three-wire Circuits
- Lecture 33 - Strain Gauge Selection
- Lecture 34 - Bonding of a Strain Gauge
- Lecture 35 - Soldering, Accounting for Transverse Sensitivity Effects
- Lecture 36 - Correction Factors for Special Applications
- Lecture 37 - Special Gauges

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Mechanics of Human Movement

Subject Co-ordinator - Prof. Sujatha Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Terminologies
- Lecture 2 - Skeletal System
- Lecture 3 - Axial and Appendicular Skeleton
- Lecture 4 - Bones in the Human Body
- Lecture 5 - Types of Joints
- Lecture 6 - Movements about Joints
- Lecture 7 - Levers in the Human Body
- Lecture 8 - Skeletal Muscles: Functions
- Lecture 9 - Skeletal Muscles: Structure - Part I
- Lecture 10 - Skeletal Muscles: Structure - Part II
- Lecture 11 - Mechanics and Modeling of Muscles
- Lecture 12 - Muscle Action - Part I
- Lecture 13 - Muscle Action - Part II
- Lecture 14 - Principles of Statics
- Lecture 15 - Static Analysis of Elbow - Part I
- Lecture 16 - Static Analysis of Elbow - Part II
- Lecture 17 - Static Analysis of Shoulder - Part I
- Lecture 18 - Static Analysis of Shoulder - Part II
- Lecture 19 - Static Analysis of Spine - Part I
- Lecture 20 - Static Analysis of Spine - Part II
- Lecture 21 - Static Analysis of Spine - Part III
- Lecture 22 - Static Analysis of Hip - Part I
- Lecture 23 - Static Analysis of Hip - Part II
- Lecture 24 - Static Analysis of the Knee
- Lecture 25 - Static Analysis of the Knee and Ankle
- Lecture 26 - Kinetics: Linear Motion - Part I
- Lecture 27 - Kinetics: Linear Motion - Part II
- Lecture 28 - Kinetics: Linear Motion - Part III
- Lecture 29 - Kinetics: Angular Motion - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Kinetics: Angular Motion - Part II
- Lecture 31 - Kinetics: Angular Motion - Part III
- Lecture 32 - Kinetics: Angular Motion - Part IV
- Lecture 33 - Kinetics of Arm Swinging during Walking
- Lecture 34 - Inverse Dynamics Analysis
- Lecture 35 - Biomechanics of Balance - Part I
- Lecture 36 - Biomechanics of Balance - Part II
- Lecture 37 - Biomechanics of Balance - Part III
- Lecture 38 - Human Gait
- Lecture 39 - Human Gait Terminologies
- Lecture 40 - Characteristics of Normal Gait - Part I
- Lecture 41 - Characteristics of Normal Gait - Part II
- Lecture 42 - Characteristics of Normal Gait - Part III
- Lecture 43 - Pathological Gait - Part I
- Lecture 44 - Pathological Gait - Part II
- Lecture 45 - Pathological Gait - Part III
- Lecture 46 - Introduction to Assistive Devices for Mobility
- Lecture 47 - Design Considerations: Prosthetic Foot
- Lecture 48 - Design Considerations: Prosthesis and Orthosis
- Lecture 49 - Design Considerations: Prosthetic Knee
- Lecture 50 - Journey of Standing Wheelchair Development

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Design for Quality, Manufacturing and Assembly

Subject Co-ordinator - Prof. Palaniappaan Ramu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to DfX

Lecture 2 - Introduction to Quality

Lecture 3 - Introduction to Robustness

Lecture 4 - Introduction to Six Sigma Concept

Lecture 5 - Recap and clarifications of basic concepts

Lecture 6 - Review of Six Sigma and Quality Loss Function (QLF)

Lecture 7 - Types of QLF and SN Ratio

Lecture 8 - Linking Quality and Robustness

Lecture 9 - Design for Six Sigma - Stages, Design of Experiments

Lecture 10 - Introduction To Design Of Experiments

Lecture 11 - Need for DoE and basic DoE methods

Lecture 12 - Factorial Design

Lecture 13 - Orthogonal Array- L4 and L8 example

Lecture 14 - Setting up an Orthogonal Array

Lecture 15 - Confounding OA and Resolution Table

Lecture 16 - Confounding Logic and Randomization of Experiments

Lecture 17 - Paper Helicopter Case Study - Part I

Lecture 18 - Paper Helicopter Case Study - Part II

Lecture 19 - Introduction To Injection Molding Process, Materials, Terminologies Related To Plastic Parts and

Lecture 20 - Estimation of Mold Cost for Injection Molding (Dixon and Poli's Method)

Lecture 21 - Estimation of Mold Cost for Injection Molding (Dixon and Poli's Method) (Continued...)

Lecture 22 - Mold Cost Estimation - Tutorial

Lecture 23 - Design for Additive Manufacturing

Lecture 24 - Demo

Lecture 25 - Introduction to Sustainable Development and Sustainability Indicators - Part 1

Lecture 26 - Introduction to Sustainable Development and Sustainability Indicators - Part 2

Lecture 27 - Introduction to design process

Lecture 28 - Accounting for manufacturability and assembly in design - An overview

Lecture 29 - DfMA in product design

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - General design guidelines for manual assembly
- Lecture 31 - Systematic DFA methodology
- Lecture 32 - Alpha symmetry, Beta symmetry
- Lecture 33 - Quantification of part size and thickness
- Lecture 34 - Systematic DFA Case study - controller assembly
- Lecture 35 - DFA examples and discussion
- Lecture 36 - Xerox Producibility Index (XPI)
- Lecture 37 - High Speed and Robotic Assembly
- Lecture 38 - Sheet Metal Working
- Lecture 39 - Overview of DoE Workflow
- Lecture 40 - DFA Software
- Lecture 41 - DFM Software and Case Studies

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Surrogates and Approximations in Engineering Design

Subject Co-ordinator - Prof. Palaniappaan Ramu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview and Motivation of Course
- Lecture 2 - Basic Optimization Problem Formulation
- Lecture 3 - Problem Formulation Example
- Lecture 4 - Calculus related to Optimization
- Lecture 5 - The big picture - Overview
- Lecture 6 - Introduction to DOE - 1
- Lecture 7 - Introduction to DOE - 2
- Lecture 8 - Types of DOE - 1
- Lecture 9 - Types of DOE - 2 and some examples
- Lecture 10 - Introduction to surrogate modeling
- Lecture 11 - Types of surrogate - Polynomial models
- Lecture 12 - Radial basis function - 1
- Lecture 13 - Radial basis function - 2
- Lecture 14 - Kriging - 1
- Lecture 15 - Kriging - 2
- Lecture 16 - Metamodels for Safe and Efficient Automotive Structures
- Lecture 17 - Exploration and Exploitation in Surrogates
- Lecture 18 - Errors Based Exploration
- Lecture 19 - Ensemble of Surrogates

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Steel Quality: Role of Secondary Refining and Continuous Casting

Subject Co-ordinator - Prof. Santanu Kr. Ray

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Concept of Steel Quality
- Lecture 2 - Typical Examples of Surface Defects
- Lecture 3 - Origin of Common Quality Problems
- Lecture 4 - Present Scenario on Quality Demands
- Lecture 5 - Control of Residuals and Impact on Quality
- Lecture 6 - Non-Metallic Inclusions
- Lecture 7 - Evaluation of Residuals and Inclusions
- Lecture 8 - Cleanliness Requirements for Different applications
- Lecture 9 - Limitation of Primary Steelmaking and Importance of secondary Refining
- Lecture 10 - Deoxidation
- Lecture 11 - Prevention of Slag carryover
- Lecture 12 - Desulphurisation
- Lecture 13 - Degassing
- Lecture 14 - Secondary Refining Processes
- Lecture 15 - Injection of Calcium
- Lecture 16 - Decarburisation
- Lecture 17 - Cleanliness Measures in Ladle and Tundish
- Lecture 18 - Cleanliness Measures in Mould
- Lecture 19 - Different Routes and Temperature Control
- Lecture 20 - Nature and Distribution of Entrapments in Casting
- Lecture 21 - Sources of Exogenous Entrapments
- Lecture 22 - Effect of Vertical vis-a-vis Curved Mould
- Lecture 23 - Quality of Cast Product
- Lecture 24 - Role of Concast Process, Caster Design and Steel Grade
- Lecture 25 - Primary Cooling in Caster Mould
- Lecture 26 - Heat Transfer in Mould
- Lecture 27 - Cast Structure and Dendrite Size
- Lecture 28 - Role of Mould Oscillation
- Lecture 29 - Role of Chemistry - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Role of Chemistry - Part II
- Lecture 31 - Role of Segregation - Part I
- Lecture 32 - Role of Segregation - Part II
- Lecture 33 - Deleterious Effect of Phosphorus
- Lecture 34 - Strength of Solidifying Strand
- Lecture 35 - Brittle Zone Near Solidus
- Lecture 36 - Strength and Toughness of Solid Shell
- Lecture 37 - Role of Chemistry on Solidification Behaviour
- Lecture 38 - Sticking vis-a-vis Depression Behaviour
- Lecture 39 - Role of Chemistry on Bulging or Depression Tendency - Part I
- Lecture 40 - Role of Chemistry on Bulging or Depression Tendency - Part II
- Lecture 41 - Effect of Cast Grain Size
- Lecture 42 - Brittle Temperature Regions
- Lecture 43 - Role of Secondary Cooling - Part 1
- Lecture 44 - Role of Secondary Cooling - Part 2
- Lecture 45 - Typical Cracks and Defects - Part I
- Lecture 46 - Typical Cracks and Defects - Part II
- Lecture 47 - Remedial Measures to Control Defects - Part I
- Lecture 48 - Remedial Measures to Control Defects - Part II
- Lecture 49 - Remedial Measures to Control Defects - Part III
- Lecture 50 - Grade - Specific Casting Parameters - Part I
- Lecture 51 - Grade - Specific Casting Parameters - Part II
- Lecture 52 - Identification of Genesis of Quality Problems Through Metallographic Investigation - Part I
- Lecture 53 - Identification of Genesis of Quality Problems Through Metallographic Investigation - Part II
- Lecture 54 - Identification of Genesis of Quality Problems Through Metallographic Investigation - Part III
- Lecture 55 - Some Examples of Quality Problems

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Theory of Mechanism

Subject Co-ordinator - Prof. Sujatha Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of Kinematics Fundamentals-I
- Lecture 2 - Links, Pairs, Kinematic Chains; Planar Mobility Criterion
- Lecture 3 - Mobility of Mechanisms, Grubler's Criterion and Applications
- Lecture 4 - Inversions, Grashof Criterion, Kinematic equivalence
- Lecture 5 - Linkage Synthesis Classification, 2-position Motion Generation
- Lecture 6 - Driver dyad, Quick-return synthesis - I
- Lecture 7 - Quick-return synthesis - II, 3-position Motion Generation
- Lecture 8 - Specified fixed pivots, Path generation
- Lecture 9 - Function generation
- Lecture 10 - Function generation using relative poles
- Lecture 11 - Structural Error, and Chebyshev Spacing
- Lecture 12 - Chebyshev Spacing
- Lecture 13 - Analytical Linkage Synthesis-I
- Lecture 14 - Analytical Linkage Synthesis-II
- Lecture 15 - Four-bar Position Analysis, Dyad or Standard Form Synthesis
- Lecture 16 - Dyad Form Synthesis
- Lecture 17 - Dyad Form Synthesis
- Lecture 18 - Dyad Form Synthesis
- Lecture 19 - Dyad Form Synthesis
- Lecture 20 - Coupler Curves - I
- Lecture 21 - Coupler Curves - II, Fixed and Moving Centroides
- Lecture 22 - Coupler Curves - III, Symmetrical Coupler Curves
- Lecture 23 - Roberts-Chebyshev Theorem
- Lecture 24 - Cognates
- Lecture 25 - Velocity Analysis
- Lecture 26 - Velocity Analysis
- Lecture 27 - Velocity Analysis
- Lecture 28 - Auxiliary Point Method
- Lecture 29 - Velocity and Acceleration Analysis

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- Lecture 30 - Acceleration Analysis
- Lecture 31 - Acceleration Analysis
- Lecture 32 - Force Analysis of Mechanisms, Mechanical Advantage
- Lecture 33 - Force Analysis of Mechanisms - II
- Lecture 34 - Balancing of Mechanisms using Counterweights
- Lecture 35 - Balancing of Mechanisms using Springs
- Lecture 36 - Spatial Mechanisms
- Lecture 37 - Introduction to the Kinematics of Spatial Mechanisms

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Engineering Mechanics

Subject Co-ordinator - Prof. K. Ramesh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Engineering Mechanics - I  
Lecture 2 - Introduction to Engineering Mechanics - II  
Lecture 3 - Force Systems - I  
Lecture 4 - Force Systems - II  
Lecture 5 - Equilibrium of Rigid bodies - I  
Lecture 6 - Equilibrium of Rigid bodies - II  
Lecture 7 - Trusses - I  
Lecture 8 - Trusses - II  
Lecture 9 - Trusses - III  
Lecture 10 - Beams - I  
Lecture 11 - Beams - II  
Lecture 12 - Beams - III  
Lecture 13 - Beams - IV  
Lecture 14 - Virtual Work - I  
Lecture 15 - Virtual Work - II  
Lecture 16 - Energy Relations  
Lecture 17 - Review Before Quiz - I  
Lecture 18 - Friction - I  
Lecture 19 - Friction - II  
Lecture 20 - Friction - III  
Lecture 21 - Particle Dynamics  
Lecture 22 - Circular Motion  
Lecture 23 - Absolute Motion  
Lecture 24 - Relative Motion - I  
Lecture 25 - Relative Motion - II  
Lecture 26 - Relative Motion - III and Instantaneous Center  
Lecture 27 - Rotating frame of reference I - Velocity  
Lecture 28 - Rotating frame of reference II - Acceleration  
Lecture 29 - Rotating frame of reference III - Choice of rotating frame of reference

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - RFR- IV Crank and slotted bar
- Lecture 31 - RFR-V Understanding Coriolis Acceleration
- Lecture 32 - Kinetics - I
- Lecture 33 - Kinetics - II
- Lecture 34 - Kinetics - III
- Lecture 35 - 3D Kinematics - I
- Lecture 36 - 3D Kinematics - II
- Lecture 37 - 3D Kinematics - III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Foundations of Computational Materials Modelling

Subject Co-ordinator - Dr.Narasimhan Swaminathan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Some applications of MD simulations
- Lecture 3 - Introduction to Bravais lattices and constructing simple crystals with MATLAB
- Lecture 4 - Introduction to symmetry - 1
- Lecture 5 - Symmetry Elements - 1
- Lecture 6 - Symmetry elements - 2
- Lecture 7 - Plane groups and their Hermann-Mauguin (HM) symbols
- Lecture 8 - Glide reflection; Examples of writing point group symbols; Wyckoff positions
- Lecture 9 - Generating 2D crystal with MATLAB using Bilbao crystallography website
- Lecture 10 - Symmetry of space groups
- Lecture 11 - Hermann maugin symbols of space groups
- Lecture 12 - Translational symmetry operators
- Lecture 13 - The Space groups
- Lecture 14 - Generation of crystals
- Lecture 15 - Generation of monoclinic lattice
- Lecture 16 - Introduction to Statistical Mechanica - 1
- Lecture 17 - Introduction to Statistical Mechanica - 2
- Lecture 18 - Introduction to Statistical Mechanics - 3
- Lecture 19 - Statistical mechanics - 1
- Lecture 20 - Statistical mechanics - 2
- Lecture 21 - Basic introduction to mechanics
- Lecture 22 - Introduction to phase space
- Lecture 23 - Introduction to phase average and time average
- Lecture 24 - Canonical ensemble; Partition function
- Lecture 25 - Basic introduction to MD
- Lecture 26 - Input script for LAMMPS - 1
- Lecture 27 - Input script for LAMMPS - 2
- Lecture 28 - Input script for LAMMPS - 3
- Lecture 29 - Input script for LAMMPS - 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - LAMMPS exercises - 1  
Lecture 31 - LAMMPS exercises - 2  
Lecture 32 - LAMMPS exercises - 3  
Lecture 33 - LAMMPS exercises - 4  
Lecture 34 - LAMMPS exercises - 5



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Combustion for Propulsion

Subject Co-ordinator - Prof. S Varunkumar, Prof. H S Mukunda

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Combustion processes in ICE and Gas turbine engines
- Lecture 3 - Combustion in solid and liquid rocket motors
- Lecture 4 - Equilibrium
- Lecture 5 - Chemical kinetics, Equilibrium vs rate controlled
- Lecture 6 - Demonstration of NASA-CEA
- Lecture 7 - Premixed and diffusion flames
- Lecture 8 - Premixed and diffusion flames
- Lecture 9 - Quenching, flammability and other limit phenomena
- Lecture 10 - Conservation equations
- Lecture 11 - Integral Analysis of flame
- Lecture 12 - Solid propellant combustion
- Lecture 13 - Erosive burning
- Lecture 14 - Instability in solid rockets
- Lecture 15 - Analysis of p-t traces - Part II
- Lecture 16 - Statistical representation of composite propellants in HeQuID - geometry and thermochemistry
- Lecture 17 - HeQuID model - Parameter estimation
- Lecture 18 - Effects of Al - extended HeQuID model
- Lecture 19 - Instability in solid rockets - II
- Lecture 20 - Tutorial
- Lecture 21 - Liquid propellant rockets - Part I
- Lecture 22 - Liquid propellant rockets - Part II
- Lecture 23 - Combustion in liquid rockets
- Lecture 24 - Instabilities in liquid rockets and gas turbine after burners
- Lecture 25 - CFD modeling aspects - Fundamentals
- Lecture 26 - CFD modeling aspects - Modeling approaches
- Lecture 27 - Effect of turbulence on flames
- Lecture 28 - Scramjets - Part I
- Lecture 29 - Scramjets - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Summary - Premixed flames
- Lecture 31 - Summary - Non-premixed flames
- Lecture 32 - Summary - Solid rocket propulsion
- Lecture 33 - Additional Insights

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Basics of Materials Engineering

Subject Co-ordinator - Prof. Ratna Kumar Annabattula

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Material Property Landscape

Lecture 3 - Crystal Structure-1 (Platonic Solids)

Lecture 4 - Crystal Structure-2 (Unit Cell, Lattice, Crystal)

Lecture 5 - Crystal Structure-3 (Bravais lattice, Symmetry in Crystals)

Lecture 6 - Crystal Structure-4 (Miller Indices for Crystallographic Points and Directions)

Lecture 7 - Crystal Structure-5 (Miller-Bravais Indices, Linear and Planar Density)

Lecture 8 - Crystal Structure-6 (Planar density, Close-Packed Structures, Stacking Faults)

Lecture 9 - Crystal Structure-7 (Single Crystal and Polycrystalline Materials)

Lecture 10 - Crystal Structure-8 (X-Ray Diffraction and Determination of Structure)

Lecture 11 - Defects in Crystalline Materials-1 (Types of Crystalline Defects)

Lecture 12 - Defects in Crystalline Materials-1 (Point Defects)

Lecture 13 - Defects in Crystalline Materials-1 (Equilibrium Concentration of Vacancies)

Lecture 14 - Defects in Crystalline Materials-1 (Theoretical Shear Strength)

Lecture 15 - Defects in Crystalline Materials-2 (Effect of Point Defects)

Lecture 16 - Defects in Crystalline Materials-2 (Point Defects and Solid Solutions)

Lecture 17 - Defects in Crystalline Materials-3 (Line Defects, Types of Dislocations and their Characteristics)

Lecture 18 - Defects in Crystalline Materials-4 (Slip Systems, Burger's Vector and Dislocation Motion)

Lecture 19 - Defects in Crystalline Materials-4 (Slip in Single Crystals and Resolved Shear Stress)

Lecture 20 - Defects in Crystalline Materials-5 (Different Stages of Slip in Single Crystla Materials)

Lecture 21 - Defects in Crystalline Materials-5 (Geometry and Slip, Stress Field Around a Dislocation and Def

Lecture 22 - Defects in Crystalline Materials-6 (Twinning, Interfacial Defects and Volume Defects)

Lecture 23 - Defects in Crystalline Materials-6 (Strengthening Mechanisms)

Lecture 24 - Defects in Crystalline Materials-7 (Plastic deformation in polycrystalline materials, Softening

Lecture 25 - Mechanical Properties of Materials (Concept of Stress Tensor)

Lecture 26 - Mechanical Properties (Tension Test-Elastic Deformation)

Lecture 27 - Mechanical Properties (Tension Test - Plastic Deformation)

Lecture 28 - Mechanical Properties (Tension Test - Plastic Deformation)

Lecture 29 - Mechanical Properties (Hardness Test)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Static Failure Theories (Introduction, Definition of Failure)
- Lecture 31 - Static Failure Theories (General form of failure theory, Stress tensor, Principal stress)
- Lecture 32 - Static Failure Theories (Distortion Energy Theory)
- Lecture 33 - Static Failure Theories (Maximum Shear Stress Theory)
- Lecture 34 - Static Failure Theories (Design Problems)
- Lecture 35 - Static Failure Theories (Failure of Brittle Materials)
- Lecture 36 - Static Failure Theories (Coulomb-Mohr and Modified Coulomb-Mohr)
- Lecture 37 - Static Failure Theories (Notches and Stress Concentration)
- Lecture 38 - Introduction to Fracture Mechanics, Griffith's Analysis of a Cracked Body
- Lecture 39 - Fracture Mechanics (Energy Release Rate)
- Lecture 40 - Fracture Mechanics (Crack Resistance, Stress Intensity Factor, Fracture Toughness)
- Lecture 41 - Fatigue Failure of Materials (Introduction, Historical Events, S-N Diagram)
- Lecture 42 - Fatigue Failure of Materials (S-N Diagram, Types of Time Varying Loads)
- Lecture 43 - Fatigue Failure of Materials (High Cycle Fatigue, Low Cycle Fatigue, Stress Ratio, Amplitude Ratio)
- Lecture 44 - Fatigue Failure of Materials (Rotating Beam Bending Test, Estimated S-N diagram)
- Lecture 45 - Fatigue Failure Theories (Fatigue strength correction factors)
- Lecture 46 - Problems on Fatigue Failure-1 (S-N diagram and Corrected endurance strength)
- Lecture 47 - Fatigue Failure of Materials (Features of Fatigue Failure; Factor of Safety in Life and Stress)
- Lecture 48 - Fatigue Failure of Materials (Effect of Mean Stress)
- Lecture 49 - Fatigue Failure of Materials (Multiaxial Fatigue and Variable Amplitude Loading)
- Lecture 50 - Fatigue Failure of Materials (Fatigue Stress Concentration Factor)
- Lecture 51 - Fatigue Failure of Materials (Fatigue Crack Growth, Paris' law)
- Lecture 52 - Problems on Fatigue Failure-2 (Effect of mean stress, Fatigue crack growth)
- Lecture 53 - Problems on Fatigue Failure-3 (Effect of Notch, Multiaxial Loading)
- Lecture 54 - Phase Diagrams (Introduction)
- Lecture 55 - Phase Diagrams (Language of Phase Diagrams, Types of Binary Phase Alloys)
- Lecture 56 - Phase Diagrams (Tie line, Lever Rule, Identification of compositions and weight fractions in two phase region)
- Lecture 57 - Phase Diagrams (Type I)
- Lecture 58 - Phase Diagrams (Congruent Melting Alloys, Type II Alloys, Eutectic Reaction)
- Lecture 59 - Phase Diagrams (Type III Alloys with Partial Solubility in Solid State)
- Lecture 60 - Phase Diagrams (Congruent melting alloys, Peritectic Reaction, Monotectic Reaction)
- Lecture 61 - Phase Diagrams (Allotropy, Eutectoid and Peritectoid Reactions)
- Lecture 62 - Phase Diagrams (Iron-Iron Carbide Phase Diagram)
- Lecture 63 - Kinetics of Phase Transformations (Homogeneous Nucleation)
- Lecture 64 - Kinetics of Phase Transformations (Heterogeneous Nucleation)
- Lecture 65 - Isothermal Transformation Diagram
- Lecture 66 - Martensite Transformation, C-C-T Diagram
- Lecture 67 - Heat Treatment of Steels (Annealing and Normalizing)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Computational Fluid Dynamics using Finite Volume Method

Subject Co-ordinator - Prof. Kameswararao Anupindi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Review of governing equations  
Lecture 2 - Review of governing equations  
Lecture 3 - Review of governing equations  
Lecture 4 - Review of governing equations  
Lecture 5 - Review of governing equations  
Lecture 6 - Review of governing equations  
Lecture 7 - Overview of Numerical Methods  
Lecture 8 - Overview of Numerical Methods  
Lecture 9 - Overview of Numerical Methods  
Lecture 10 - Finite Volume Method for Diffusion Equation  
Lecture 11 - Finite Volume Method for Diffusion Equation  
Lecture 12 - Finite Volume Method for Diffusion Equation  
Lecture 13 - Finite Volume Method for Diffusion Equation  
Lecture 14 - Finite Volume Method for Diffusion Equation  
Lecture 15 - Finite Volume Method for Diffusion Equation  
Lecture 16 - Finite Volume Method for Diffusion Equation  
Lecture 17 - Finite Volume Method for Diffusion Equation  
Lecture 18 - Finite Volume Method for Diffusion Equation  
Lecture 19 - Finite Volume Method for Diffusion Equation  
Lecture 20 - Finite Volume Method for Diffusion Equation  
Lecture 21 - Finite Volume Method for Diffusion Equation  
Lecture 22 - Finite Volume Method for Diffusion Equation  
Lecture 23 - Finite Volume Method for Diffusion Equation  
Lecture 24 - Finite Volume Method for Diffusion Equation  
Lecture 25 - Finite Volume Method for Diffusion Equation  
Lecture 26 - Finite Volume Method for Diffusion Equation  
Lecture 27 - Finite Volume Method for Diffusion Equation  
Lecture 28 - Finite Volume Method for Diffusion Equation  
Lecture 29 - Finite Volume Method for Convection and Diffusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Finite Volume Method for Convection and Diffusion
- Lecture 31 - Finite Volume Method for Convection and Diffusion
- Lecture 32 - Finite Volume Method for Convection and Diffusion
- Lecture 33 - Finite Volume Method for Convection and Diffusion
- Lecture 34 - Finite Volume Method for Convection-diffusion and fluid flow calculations
- Lecture 35 - Finite Volume Method for Fluid Flow Calculations
- Lecture 36 - Finite Volume Method for Fluid Flow Calculations
- Lecture 37 - Finite Volume Method for Fluid Flow Calculations
- Lecture 38 - Finite Volume Method for Fluid Flow Calculations
- Lecture 39 - Finite Volume Method for Fluid Flow Calculations
- Lecture 40 - Finite Volume Method for Fluid Flow Calculations
- Lecture 41 - Finite Volume Method for Fluid Flow Calculations
- Lecture 42 - Finite Volume Method for Fluid Flow Calculations

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Wheeled Mobile Robots

Subject Co-ordinator - Prof. Asokan Thondiyath, Prof. Santhakumar Mohan

Co-ordinating Institute - IIT - Madras, IIT - Palakkad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Mobile Robots and Manipulators
- Lecture 2 - Introduction to Locomotion and Types of Locomotion
- Lecture 3 - Introduction to Mobile Robot Kinematics
- Lecture 4 - Degree of Maneuverability and Types of Wheels
- Lecture 5 - Kinematic Simulation of a Mobile Robot (Land-based)
- Lecture 6 - Kinematic Simulation and Motion Animation of a Mobile Robot (Land-based)
- Lecture 7 - A Generalized Wheel (Kinematic) Model
- Lecture 8 - Examples related to the Generalized Wheel (Kinematic) Model
- Lecture 9 - Holonomic and Non-holonomic Mobile Robots
- Lecture 10 - Kinematic Simulation of Wheeled Mobile Robots - Part 1
- Lecture 11 - Kinematic Simulation of Wheeled Mobile Robots - Part 2
- Lecture 12 - Kinematic Simulation of Wheeled Mobile Robots - Part 3
- Lecture 13 - Mobile Robot Dynamics - Part 1
- Lecture 14 - Mobile Robot Dynamics - Part 2
- Lecture 15 - Equation of Motion and Dynamic Simulation of a Mobile Robot
- Lecture 16 - Dynamic Models of Wheeled Mobile Robots with Wheel Configurations
- Lecture 17 - Kinematic and Dynamic Models of a Mobile base with Four-Independent Steerable Power Wheels
- Lecture 18 - Sensing and Perception
- Lecture 19 - Sensors and Sensing
- Lecture 20 - Commonly used sensors - 1
- Lecture 21 - Commonly used sensors - 2
- Lecture 22 - Commonly used sensors - 3
- Lecture 23 - Sensor Errors and Error modelling
- Lecture 24 - Mobile Robot Localisation
- Lecture 25 - Map based Localisation
- Lecture 26 - Markov Localisation
- Lecture 27 - Kalman Filter Localisation
- Lecture 28 - SLAM
- Lecture 29 - Mobile Robot Navigation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Path Planning: Graph Construction
- Lecture 31 - Graph Search Methods
- Lecture 32 - Path Planning and Obstacle avoidance
- Lecture 33 - Introduction to Motion Control of Mobile Robots - Part 1
- Lecture 34 - Introduction to Motion Control of Mobile Robots - Part 2
- Lecture 35 - Kinematic control of Land-based Mobile Robots
- Lecture 36 - Simulation of Land-based Mobile Robots along with Kinematic Control - Part 1
- Lecture 37 - Simulation of Land-based Mobile Robots along with Kinematic Control - Part 2
- Lecture 38 - Simulation of Land-based Mobile Robots along with Kinematic Control - Part 3
- Lecture 39 - Dynamic Control of Mobile Robots
- Lecture 40 - Cascaded or Back-stepping Control of Mobile Robots
- Lecture 41 - Modern Robotics and Challenges
- Lecture 42 - Multiple Mobile Robotic Systems
- Lecture 43 - Autonomous Mobile Robots and Mobile Manipulators
- Lecture 44 - Legged and Hybrid Robots
- Lecture 45 - Underwater and Aerial Robots
- Lecture 46 - Healthcare Robots



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Combustion

Subject Co-ordinator - Prof. V. Raghavan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fuel and their properties - Part 1
- Lecture 2 - Fuel and their properties - Part 2 - Gaseous and Liquid fuels
- Lecture 3 - Fuel and their properties - Part 3 - Liquid and Solid fuels
- Lecture 4 - Review of basic thermodynamics of ideal gas mixtures - Part 1
- Lecture 5 - Review of basic thermodynamics of ideal gas mixtures - Part 2
- Lecture 6 - Stoichiometry - Part 1
- Lecture 7 - Stoichiometry - Part 2 - Worked Examples
- Lecture 8 - Stoichiometry - Part 3 - Worked Examples (Continued...)
- Lecture 9 - First law and Second law of thermodynamics applied to combustion - Part 1 - Heat Calculation
- Lecture 10 - First law and Second law of thermodynamics applied to combustion - Part 2 - Enthalpy Calculation
- Lecture 11 - First law and Second law of thermodynamics applied to combustion - Part 3 - Calculation of flame
- Lecture 12 - First law and Second law of thermodynamics applied to combustion - Part 4 - Chemical equilibrium
- Lecture 13 - First law and Second law of thermodynamics applied to combustion - Part 5 - Chemical equilibrium
- Lecture 14 - First law and Second law of thermodynamics applied to combustion - Part 6 - Worked examples
- Lecture 15 - First law and Second law of thermodynamics applied to combustion - Part 7 - Worked examples (Con
- Lecture 16 - Mass transfer basics - Part 1 - Fundamentals
- Lecture 17 - Mass transfer basics - Part 2 - Calculation of diffusion velocity
- Lecture 18 - Mass transfer basics - Part 3 - Steady evaporation (The Stefan Problem)
- Lecture 19 - Mass transfer basics - Part 4 - Steady evaporation of liquid droplet and Worked examples
- Lecture 20 - Fundamentals of combustion kinetics - Part 1 - Global and elementary reactions
- Lecture 21 - Fundamentals of combustion kinetics - Part 2 - Reaction rates and equilibrium constant
- Lecture 22 - Fundamentals of combustion kinetics - Part 3 - Steady state and partial equilibrium approximation
- Lecture 23 - Fundamentals of combustion kinetics - Part 4 - Worked examples
- Lecture 24 - Governing equations for reacting flow - Part 1 - Continuity, momentum and species conservation e
- Lecture 25 - Governing equations for reacting flow - Part 2 - The energy equation
- Lecture 26 - Governing equations for reacting flow - Part 3 - Estimation of thermo-physical properties and co
- Lecture 27 - Governing equations for reacting flow - Part 4 - Control of combustion phenomena and simplified
- Lecture 28 - Governing equations for reacting flow - Part 5 - Conserved scalars and mixture fraction approach
- Lecture 29 - Characteristics of combustion flame and detonation - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Characteristics of combustion flame and detonation - Part 2
- Lecture 31 - Characteristics of combustion flame and detonation - Part 3 - Rankine-Hugoniot relation
- Lecture 32 - Characteristics of combustion flame and detonation - Part 4 - Estimation of detonation velocity
- Lecture 33 - Laminar Premixed Flames - Part 1 - Laminar flame propagation
- Lecture 34 - Laminar Premixed Flames - Part 2 - Laminar flame speed variation and Structure of premixed flame
- Lecture 35 - Laminar Premixed Flames - Part 3 - Flammability limits and Premixed flame theory
- Lecture 36 - Laminar Premixed Flames - Part 4 - Estimation of laminar flame speed
- Lecture 37 - Laminar Premixed Flames - Part 5 - Ignition of premixed mixture (Semenov's Analysis)
- Lecture 38 - Laminar Premixed Flames - Part 6 - Piloted ignition and Flame quenching
- Lecture 39 - Laminar Premixed Flames - Part 7 - Premixed flame stability
- Lecture 40 - Laminar Premixed Flames - Part 8 - Stability Maps and Worked examples
- Lecture 41 - Laminar Diffusion Flames - Part 1 - Theory of gas jets
- Lecture 42 - Laminar Diffusion Flames - Part 2 - Analysis of gas jets and jet diffusion flames
- Lecture 43 - Laminar Diffusion Flames - Part 3 - Diffusion flame characteristics and flame structure
- Lecture 44 - Laminar Diffusion Flames - Part 4 - Diffusion flame structure and Flame regimes
- Lecture 45 - Laminar Diffusion Flames - Part 5 - Diffusion flame regimes and Flame height correlations
- Lecture 46 - Laminar Diffusion Flames - Part 6 - Diffusion flame control
- Lecture 47 - Laminar Diffusion Flames - Part 7 - Diffusion flame configurations (coflow, crossflow and oppose)
- Lecture 48 - Laminar Diffusion Flames - Part 8 - Diffusion flame stability and Worked examples
- Lecture 49 - Turbulent Flames - Part 1 - Characteristics of turbulence
- Lecture 50 - Turbulent Flames - Part 2 - Turbulent length scales and turbulent stresses
- Lecture 51 - Turbulent Flames - Part 3 - Axisymmetric turbulent jet
- Lecture 52 - Turbulent Flames - Part 4 - Turbulent premixed flames and flame regimes
- Lecture 53 - Turbulent Flames - Part 5 - Turbulent diffusion flames
- Lecture 54 - Droplet evaporation and combustion - Part 1 - Steady evaporation of liquid droplet
- Lecture 55 - Droplet evaporation and combustion - Part 2 - Equilibrium under steady evaporation of liquid droplet
- Lecture 56 - Droplet evaporation and combustion - Part 3 - Droplet combustion (simplified analysis)
- Lecture 57 - Droplet evaporation and combustion - Part 4 - Species and temperature profiles
- Lecture 58 - Droplet evaporation and combustion - Part 5 - Evaluation of mass burning rate and worked examples
- Lecture 59 - Combustion of carbon particle - Part 1 - Coal combustion
- Lecture 60 - Combustion of carbon particle - Part 2 - One film model
- Lecture 61 - Combustion of carbon particle - Part 3 - Two film model and worked examples

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Oil Hydraulics and Pneumatics

Subject Co-ordinator - Prof. Somashekhar S

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Learning Objectives, Course Content and References
- Lecture 2 - Merits and Demerits of Fluid Power, Power Transmission Method
- Lecture 3 - Brief History, Application Areas, Major Divisions of Fluid Power System
- Lecture 4 - Introduction to Oil Hydraulics and its Basic Components
- Lecture 5 - Introduction to Pneumatic and its Basic Components, Applications-Stationary and Mobile
- Lecture 6 - Typical Application of Fluid Power System, Status and Development
- Lecture 7 - Pascal's law and its application-Hydraulic jack, Hydraulic brake and Numerical
- Lecture 8 - Pressure Intensifier, Numericals, Air-to-Hydraulic Booster and Bernoulli equation
- Lecture 9 - Applications of Bernoulli equation-Venturi, Torricelli's theorem, Siphon, Continuity equation and
- Lecture 10 - Introduction to Fluid Power Symbols, Hydraulic lines and Color Coding
- Lecture 11 - Symbols for Functional Units, Hydraulic Pumps, Hydraulic Motors, Cylinders, Air Compressors, Pne
- Lecture 12 - Symbols for Filters, Check Valves, DCVs, Spool Actuation methods, PCV, Miscellaneous, Port Confi
- Lecture 13 - Introduction to Hydraulic Pumps, Facts and Figures, Classifications
- Lecture 14 - Positive Displacement pump and pumping theory
- Lecture 15 - Ideal pump, pump losses, efficiency curve, Constructional features and Operations of External Ge
- Lecture 16 - Construction features and operations of Internal Gear Pump, Gerotor Pump and Screw Pump
- Lecture 17 - Numericals on Gear Pump, Tree Structure of Vane Pump
- Lecture 18 - Vane Pump, Pumping theory, Construction and Operation of Unbalanced Vane Pump, Vane loading and
- Lecture 19 - Variable Displacement Pressure Compensated Vane Pump, Balance Vane Pump, Kinematic Inversion of
- Lecture 20 - Piston pump, Pumping theory, Constructional features and Operations of Hand Pump-Single acting,
- Lecture 21 - Axial Piston Pump- Construction and Operating principles of Bent axis and Swash plate type pump
- Lecture 22 - Radial Piston Pumps- Construction and Operation, Pump failure and Cavitations, Important paramet
- Lecture 23 - Pneumatic Control System-Introduction, Air preparation-Primary and Secondary Air Treatment
- Lecture 24 - Pneumatic Power Source- Compressor, Classification, Air Receiver and Control Methods
- Lecture 25 - Reciprocating Type Air Compressor-Single and Multi-stage Piston Pump, PV Diagram and Work Done
- Lecture 26 - Construction and Operation of Two-stage Reciprocating type Air Compressor, Diaphragm Type Air Co
- Lecture 27 - Energy Loss and Cost Break Down in Air Preparation Process, Pressure Drop and its Effect
- Lecture 28 - What causes Pressure Drop ?, Minimising Pressure Drop, Air Distribution System- Sizing of Pipes,
- Lecture 29 - Pressure drop Predictions using Various Empirical Formulae and Nomogram, Best Practices for Comp

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Need for Air Dryer, Analysis of Moisture Removal from Air, Typical Air Drying Methods, Basic Types
- Lecture 31 - Construction and Operation of Refrigerated Air dryers, Absorption Dryer, Adsorption Dryer, Membrane
- Lecture 32 - Directional Control Valves
- Lecture 33 - Directional Control Valves
- Lecture 34 - Directional Control Valves
- Lecture 35 - Directional Control Valves
- Lecture 36 - Directional Control Valves
- Lecture 37 - Pressure Control Valves
- Lecture 38 - Pressure Control Valves
- Lecture 39 - Pressure Control Valves
- Lecture 40 - Flow Control Valves
- Lecture 41 - Flow Control Valves
- Lecture 42 - Flow Control Valves
- Lecture 43 - Estimation of leakage through spool and housing bore and Numericals on DCV, PCV and FCV
- Lecture 44 - Estimation of leakage through spool and housing bore and Numericals on DCV, PCV and FCV
- Lecture 45 - Hydraulic Motors
- Lecture 46 - Hydraulic Motors
- Lecture 47 - Hydraulic Motors
- Lecture 48 - Hydraulic Motors
- Lecture 49 - Hydraulic Motors
- Lecture 50 - Hydraulic Motors
- Lecture 51 - Hydraulic Cylinders
- Lecture 52 - Hydraulic Cylinders
- Lecture 53 - Hydraulic Cylinders
- Lecture 54 - Hydraulic Cylinders
- Lecture 55 - Hydraulic Cylinders
- Lecture 56 - Numericals on Fluid Power Actuators
- Lecture 57 - Numericals on Fluid Power Actuators
- Lecture 58 - Subsystems: Hydraulic Reservoir, Coolers and Filters
- Lecture 59 - Subsystems: Hydraulic Reservoir, Coolers and Filters
- Lecture 60 - Subsystems: Hydraulic Reservoir, Coolers and Filters
- Lecture 61 - Subsystems: Hydraulic Fluids, Conduits and Simple Numericals
- Lecture 62 - Subsystems: Hydraulic Fluids, Conduits and Simple Numericals
- Lecture 63 - Subsystems: Hydraulic Fluids, Conduits and Simple Numericals
- Lecture 64 - Subsystems: Hydraulic accumulators, Classifications, Applications, Accumulator physics, Maintenance
- Lecture 65 - Subsystems: Hydraulic accumulators, Classifications, Applications, Accumulator physics, Maintenance
- Lecture 66 - Subsystems: Hydraulic accumulators, Classifications, Applications, Accumulator physics, Maintenance
- Lecture 67 - Oil Hydraulic Circuits: Design and Analysis
- Lecture 68 - Oil Hydraulic Circuits: Design and Analysis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Oil Hydraulic Circuits: Design and Analysis
- Lecture 70 - Task Based Selection and Analysis of Oil Hydraulic Circuits
- Lecture 71 - Task Based Selection and Analysis of Oil Hydraulic Circuits
- Lecture 72 - Task Based Selection and Analysis of Oil Hydraulic Circuits
- Lecture 73 - Task Based Selection and Analysis of Oil Hydraulic Circuits
- Lecture 74 - Pneumatic Circuits: Design and Analysis
- Lecture 75 - Pneumatic Circuits: Design and Analysis
- Lecture 76 - Pneumatic Circuits: Design and Analysis
- Lecture 77 - Pneumatic Circuits: Design and Analysis of Multiple Actuators
- Lecture 78 - Pneumatic Circuits: Design and Analysis of Multiple Actuators
- Lecture 79 - Pneumatic Circuits: Design and Analysis of Multiple Actuators
- Lecture 80 - Pump-controlled Hydraulic Systems
- Lecture 81 - Pump-controlled Hydraulic Systems
- Lecture 82 - Pump-controlled Hydraulic Systems
- Lecture 83 - Hydrostatic Transmissions
- Lecture 84 - Hydrostatic Transmissions
- Lecture 85 - Hydrostatic Transmissions
- Lecture 86 - Proportional Valve Technology
- Lecture 87 - Proportional Valve Technology
- Lecture 88 - Proportional Valve Technology
- Lecture 89 - Electro Hydraulic Servo Valve (EHSV)
- Lecture 90 - Electro Hydraulic Servo Valve (EHSV)
- Lecture 91 - Electro Hydraulic Servo Valve (EHSV)
- Lecture 92 - Electro-Hydraulic Actuator (EHA)
- Lecture 93 - Electro-Hydraulic Actuator (EHA)
- Lecture 94 - Modeling and Simulation in Hydraulic Components
- Lecture 95 - Modeling and Simulation in Hydraulic Components
- Lecture 96 - Modeling and Simulation in Hydraulic Components

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Introduction to Turbomachines

Subject Co-ordinator - Prof. Babu Viswanathan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Basic Theory of Turbomachines - Part 1
- Lecture 3 - Basic Theory of Turbomachines - Part 2
- Lecture 4 - Basic Theory of Turbomachines - Part 3
- Lecture 5 - Basic Theory of Turbomachines - Part 4
- Lecture 6 - Basic Theory of Turbomachines - Part 5
- Lecture 7 - Basic Theory of Turbomachines - Part 6
- Lecture 8 - Hydro Turbomachines - Centrifugal pumps - Part 1
- Lecture 9 - Hydro Turbomachines - Centrifugal pumps - Part 2
- Lecture 10 - Hydro Turbomachines - Centrifugal pumps - Part 3
- Lecture 11 - Hydro Turbomachines - Centrifugal pumps - Part 4
- Lecture 12 - Hydro Turbomachines - Francis turbine - Part 1
- Lecture 13 - Hydro Turbomachines - Francis turbine - Part 2
- Lecture 14 - Hydro Turbomachines - Kaplan turbine
- Lecture 15 - Hydro Turbomachines - Pelton turbine
- Lecture 16 - Positive Displacement Pumps - Gear pump
- Lecture 17 - Thermal Turbomachines - Introduction
- Lecture 18 - Thermal Turbomachines - Gas turbines
- Lecture 19 - Thermal Turbomachines - Steam Turbines
- Lecture 20 - Thermal Turbomachines - Part 1
- Lecture 21 - Thermal Turbomachines - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Mechanics and Control of Robotic Manipulators

Subject Co-ordinator - Prof. Santhakumar Mohan

Co-ordinating Institute - IIT - Palakkad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction to robot mechanics
- Lecture 3 - Introduction to forward and inverse kinematics
- Lecture 4 - Description of position and orientation
- Lecture 5 - Transformation matrix
- Lecture 6 - Compound rotations - Part 1
- Lecture 7 - Compound rotations - Part 2
- Lecture 8 - Kinematic parameters
- Lecture 9 - DH parameters
- Lecture 10 - DH representation
- Lecture 11 - Frame arrangement and examples - Part 1
- Lecture 12 - Examples related to frame arrangement
- Lecture 13 - Frame arrangement and examples - Part 2
- Lecture 14 - Forward and inverse kinematics of robotic manipulators
- Lecture 15 - Examples related to inverse kinematics
- Lecture 16 - Inverse kinematic solution based on numerical methods
- Lecture 17 - Forward kinematic solution using Matlab
- Lecture 18 - Inverse kinematic solution based on numerical methods using Matlab
- Lecture 19 - Introduction to differential kinematics
- Lecture 20 - Velocity propagation model for serial manipulators and Jacobian matrix
- Lecture 21 - Velocity propagation model using Matlab
- Lecture 22 - Manipulator Statics and Workspace singularities
- Lecture 23 - Introduction to robot dynamics and Lagrange-Euler method
- Lecture 24 - Newton-Euler method
- Lecture 25 - Equation of motion in state-space form
- Lecture 26 - Dynamic model derivation using Newton-Euler method in Matlab
- Lecture 27 - Dynamic model derivation using Lagrange-Euler method in Matlab
- Lecture 28 - Dynamic simulation of serial manipulators using Matlab
- Lecture 29 - Introduction to trajectory generation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Trajectory generation using smooth functions
- Lecture 31 - Trajectory generation schemes for serial manipulators
- Lecture 32 - Trajectory generation using Matlab - Part 1
- Lecture 33 - Trajectory generation using Matlab - Part 2
- Lecture 34 - Trajectory generation for serial manipulators using matlab
- Lecture 35 - Trajectory generation for serial manipulators with workspace using matlab
- Lecture 36 - Introduction to robot motion control
- Lecture 37 - Types of robot manipulator control and concerns
- Lecture 38 - Kinematic control
- Lecture 39 - Matlab simulation on kinematic control
- Lecture 40 - Dynamic control
- Lecture 41 - Simulations related to dynamic control schemes using Matlab - Part 1
- Lecture 42 - Cascaded control design
- Lecture 43 - Simulations related to dynamic control schemes using Matlab - Part 2
- Lecture 44 - Simulations related to dynamic control schemes using Matlab - Part 3
- Lecture 45 - Kinematic and dynamic models of a mobile robot using DH approach



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Inverse Methods in Heat Transfer

Subject Co-ordinator - Prof. C.Balaji, Prof.S. Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to inverse problems
- Lecture 2 - Fermi estimation
- Lecture 3 - Forward/Direct and Inverse problems
- Lecture 4 - Key drivers for studying inverse methods in engineering
- Lecture 5 - Formulation for inverse problems
- Lecture 6 - Statistical tools for estimation
- Lecture 7 - Statistical description of errors
- Lecture 8 - Well-posed and ill-posed problems
- Lecture 9 - Probability and Statistics Brief overview - I
- Lecture 10 - Probability and Statistics Brief overview - II
- Lecture 11 - Gaussian distribution
- Lecture 12 - Gaussian distribution (Continued...), and Maximum Likelihood Estimation (MLE)
- Lecture 13 - Linear least square regression
- Lecture 14 - Linear least square regression (Continued...)
- Lecture 15 - Alternatives to Linear least square
- Lecture 16 - Polynomial regression
- Lecture 17 - Inverse problems in transient conduction - I
- Lecture 18 - Inverse problems in transient conduction - II
- Lecture 19 - Non-linear regression
- Lecture 20 - Gauss-Newton algorithm (GNA)
- Lecture 21 - Gauss-Newton algorithm (GNA) Example
- Lecture 22 - Levenberg-Marquardt algorithm (LMA)
- Lecture 23 - Tikhonov regularization
- Lecture 24 - Jacobian and its calculation
- Lecture 25 - Bayesian methods
- Lecture 26 - Bayesian methods (Continued...)
- Lecture 27 - Metropolis-Hastings algorithm (MH) and Markov Chain Monte Carlo Methods (MCMC)
- Lecture 28 - Introduction to machine learning in heat transfer
- Lecture 29 - Overview of machine learning

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Calculation in a neural network model
- Lecture 31 - Gradient Descent method
- Lecture 32 - Gradient Descent method (Continued...)
- Lecture 33 - Back propagation
- Lecture 34 - Neural network as a surrogate forward model
- Lecture 35 - PINN for an inverse problem
- Lecture 36 - PINN for an inverse problem (Continued...)
- Lecture 37 - Inverse methods in heat transfer - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Engineering Thermodynamics

Subject Co-ordinator - Prof. Babu Viswanathan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course outline  
Lecture 2 - Introduction - Part 1  
Lecture 3 - Introduction - Part 2  
Lecture 4 - Basic concepts - Part 1  
Lecture 5 - Basic concepts - Part 2  
Lecture 6 - Basic concepts - Part 3  
Lecture 7 - Basic concepts - Part 4  
Lecture 8 - Basic concepts - Part 5  
Lecture 9 - Work and Heat - Part 1  
Lecture 10 - Work and Heat - Part 2  
Lecture 11 - Work and Heat - Part 3  
Lecture 12 - First law of thermodynamics  
Lecture 13 - Pure substances  
Lecture 14 - Ideal gases and ideal gas mixtures  
Lecture 15 - Two-phase mixtures - Part 1  
Lecture 16 - Two-phase mixtures - Part 2  
Lecture 17 - First law analysis of systems - Part 1  
Lecture 18 - First law analysis of systems - Part 2  
Lecture 19 - First law analysis of systems - Part 3  
Lecture 20 - First law analysis of systems - Part 4  
Lecture 21 - First law of thermodynamics for a control volume  
Lecture 22 - Control volume analysis of steady flow devices - Part 1  
Lecture 23 - Control volume analysis of steady flow devices - Part 2  
Lecture 24 - Control volume analysis of steady flow devices - Part 3  
Lecture 25 - Unsteady analysis  
Lecture 26 - Second law of Thermodynamics - Part 1  
Lecture 27 - Second law of Thermodynamics - Part 2  
Lecture 28 - Second law of Thermodynamics - Part 3  
Lecture 29 - Second law of Thermodynamics - Part 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Second law of Thermodynamics - Part 5
- Lecture 31 - Entropy - Part 1
- Lecture 32 - Entropy - Part 2
- Lecture 33 - Entropy - Part 3
- Lecture 34 - Entropy - Part 4
- Lecture 35 - Entropy - Part 5
- Lecture 36 - Entropy - Part 6
- Lecture 37 - Thermodynamic cycles - Part 1
- Lecture 38 - Thermodynamic cycles - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Applied Mechanics - Fluid Mechanics Laboratory

Subject Co-ordinator - Unknown

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Free and Forced Vortices - I
- Lecture 2 - Free and Forced Vortices - II
- Lecture 3 - Impact of Jet on hemispherical shell
- Lecture 4 - Impact of Jet on horizontal flat plate
- Lecture 5 - Pressure Distribution on a Circular Cylinder
- Lecture 6 - Verification of Bernoullis Theorem
- Lecture 7 - Visualization of potential flows
- Lecture 8 - Visualization of vortex shredding
- Lecture 9 - Wake Velocity Measurement for flow over a Circular Cylinder

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Interfacial Fluid Mechanics

Subject Co-ordinator - Prof. Harish N Dixit

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Non-dimensional numbers in interfacial flows
- Lecture 2 - Integral form of governing equations
- Lecture 3 - Boundary (Jump) conditions at a fluid-fluid interface (no surface tension)
- Lecture 4 - On surface tension and interfacial energy
- Lecture 5 - Introduction to surface tension effects
- Lecture 6 - Boundary (Jump) conditions at a fluid-fluid interface (with surface tension) - Part 1
- Lecture 7 - Boundary (Jump) conditions at a fluid-fluid interface (with surface tension) - Part 2
- Lecture 8 - Summary of equations
- Lecture 9 - Capillary statics shape of meniscus - Part 1
- Lecture 10 - Capillary statics shape of meniscus - Part 2
- Lecture 11 - Shape of static meniscus-Energy minimisation - Part 1
- Lecture 12 - Calculus of variations (a primer): Euler-Lagrange equations
- Lecture 13 - Shape of static meniscus-Energy minimisation - Part 2
- Lecture 14 - Method of Lagrange multipliers
- Lecture 15 - On wetting and shape of a drop
- Lecture 16 - The Young's Equation: Partial wetting
- Lecture 17 - Variational approach to the Young-Laplace equation - Part 1
- Lecture 18 - Variational approach to the Young-Laplace equation - Part 2
- Lecture 19 - Shape of a puddle - large/heavy drops
- Lecture 20 - Wetting on rough and textured surface - Part 1
- Lecture 21 - Wetting on rough and textured surface - Part 2
- Lecture 22 - Wetting on rough and textured surface - Part 3
- Lecture 23 - Law of capillary rise
- Lecture 24 - Dynamics of capillary rise
- Lecture 25 - Dynamics of capillary rise: Analysis of regimes
- Lecture 26 - Forced wetting and coating flows
- Lecture 27 - More on coating and Landau-Levich equation
- Lecture 28 - Lubrication approximation and thin films
- Lecture 29 - Free surface flows and interface conditions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Uniform flow down an incline
- Lecture 31 - Shape of a falling jet
- Lecture 32 - A quick tour of stability analysis
- Lecture 33 - Rayleigh-Plateau instability - Part 1
- Lecture 34 - Rayleigh-Plateau instability - Part 2
- Lecture 35 - Rayleigh-Plateau instability - Part 3
- Lecture 36 - Rupture of thin films - Part 1
- Lecture 37 - Rupture of thin films - Part 2
- Lecture 38 - Rupture of thin films - Effect of van der Waals force
- Lecture 39 - Rupture of thin films - Part 3
- Lecture 40 - Rupture of thin films - Part 4
- Lecture 41 - Benard-Marangoni Instability - Part 1
- Lecture 42 - Benard-Marangoni Instability - Part 2
- Lecture 43 - Benard-Marangoni Instability - Part 3
- Lecture 44 - Benard-Marangoni Instability - Part 4
- Lecture 45 - Kelvin helmholtz instability - Part 1
- Lecture 46 - Kelvin helmholtz instability - Part 2
- Lecture 47 - Kelvin helmholtz instability - Part 3
- Lecture 48 - Kelvin helmholtz instability - Part 4
- Lecture 49 - Contact angle hysteresis
- Lecture 50 - Thin film down an incline-a contact line problem - Part 1
- Lecture 51 - Thin film down an incline-a contact line problem - Part 2
- Lecture 52 - Local flow near a moving contact line
- Lecture 53 - Modelling of moving contact line

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Applied Thermodynamics

Subject Co-ordinator - Dr. Babu Viswanathan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Entropy change of a control volume - Part 1  
Lecture 3 - Entropy change of a control volume - Part 2  
Lecture 4 - Entropy change of a control volume - Part 3  
Lecture 5 - Work interaction of internally reversible steady flow processes  
Lecture 6 - Exergy - Part 1  
Lecture 7 - Exergy - Part 2  
Lecture 8 - Exergy - Part 3  
Lecture 9 - Exergy - Part 4  
Lecture 10 - Exergy - Part 5  
Lecture 11 - Thermodynamic cycles - Rankine cycle - Part 1  
Lecture 12 - Thermodynamic cycles - Rankine cycle - Part 2  
Lecture 13 - Thermodynamic cycles - Rankine cycle - Part 3  
Lecture 14 - Thermodynamic cycles - Air standard Brayton cycle - Part 1  
Lecture 15 - Thermodynamic cycles - Air standard Brayton cycle - Part 2  
Lecture 16 - Thermodynamic cycles - Air standard Brayton cycle - Part 3  
Lecture 17 - Thermodynamic cycles - Air standard Brayton cycle - Part 4  
Lecture 18 - Thermodynamic cycles - Air standard Brayton cycle - Part 5  
Lecture 19 - Thermodynamic cycles - Air standard Otto cycle  
Lecture 20 - Thermodynamic cycles - Air standard Diesel cycle - Part 1  
Lecture 21 - Thermodynamic cycles - Air standard Diesel cycle - Part 2  
Lecture 22 - Thermodynamic cycles - Vapor compression refrigeration cycle  
Lecture 23 - Psychrometry - Part 1  
Lecture 24 - Psychrometry - Part 2  
Lecture 25 - Psychrometry - Part 3  
Lecture 26 - Psychrometry - Part 4  
Lecture 27 - Psychrometry - Part 5  
Lecture 28 - Psychrometry - Part 6  
Lecture 29 - Psychrometry - Part 7

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Combustion thermodynamics - Part 1
- Lecture 31 - Combustion thermodynamics - Part 2
- Lecture 32 - Combustion Thermodynamics - Part 3
- Lecture 33 - Combustion thermodynamics - Part 4
- Lecture 34 - Compressible flow through nozzles - Part 1
- Lecture 35 - Compressible flow through nozzles - Part 2
- Lecture 36 - Compressible flow through nozzles - Part 3
- Lecture 37 - Compressible flow through nozzles - Part 4
- Lecture 38 - Compressible flow through nozzles - Part 5
- Lecture 39 - Compressible flow through nozzles - Part 6
- Lecture 40 - Compressible flow through nozzles - Part 7
- Lecture 41 - Compressible flow through nozzles - Part 8
- Lecture 42 - Compressible flow through nozzles - Part 9
- Lecture 43 - Compressible flow through nozzles - Part 10
- Lecture 44 - Compressible flow through nozzles - Part 11
- Lecture 45 - Compressible flow through nozzles - Part 12

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Heat Transfer (Prof .Dr.C. Balaji)

Subject Co-ordinator - Prof .Dr.C. Balaji

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Heat Transfer  
Lecture 2 - Introduction to Heat Transfer - Practical examples  
Lecture 3 - Introduction to Heat Transfer - Rate laws Conduction  
Lecture 4 - Introduction to Heat Transfer - Rate laws Convection  
Lecture 5 - Introduction to Heat Transfer - Rate laws Radiation  
Lecture 6 - Radiation Heat Transfer  
Lecture 7 - Radiation Laws  
Lecture 8 - Universal Black Body Curve  
Lecture 9 - Properties of Real Surfaces  
Lecture 10 - Properties of Real Surfaces (Continued...)  
Lecture 11 - Kirchoff's Law and example problems  
Lecture 12 - Radiosity Irradiation Method and Viewfactors  
Lecture 13 - Viewfactor Algebra  
Lecture 14 - Conduction  
Lecture 15 - Conduction: Steady state conduction equation  
Lecture 16 - Conduction in composite wall  
Lecture 17 - Conduction in cylinder  
Lecture 18 - Critical Radius of Insulation  
Lecture 19 - Conduction with heat generation  
Lecture 20 - Variable Thermal Conductivity and example problems  
Lecture 21 - Fin heat transfer  
Lecture 22 - Fin heat transfer continued  
Lecture 23 - Fin heat transfer continued  
Lecture 24 - Unsteady Heat Conduction  
Lecture 25 - Unsteady Heat Conduction (Continued...)  
Lecture 26 - Lumped capacitance Method  
Lecture 27 - Unsteady Heat Conduction (Continued...)  
Lecture 28 - Method of Separation of variables  
Lecture 29 - Conduction Analytical solution

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Conduction Numerical solution
- Lecture 31 - Introduction to convection
- Lecture 32 - Governing Equations for Convection
- Lecture 33 - Energy equation
- Lecture 34 - Convection - Boundary layer theory
- Lecture 35 - Convection - Integral momentum equation
- Lecture 36 - Solution to Integral Energy equation
- Lecture 37 - Internal Flow - Flow inside pipes and ducts
- Lecture 38 - Internal Flow - Turbulent heat transfer
- Lecture 39 - Natural Convection
- Lecture 40 - Heat Exchangers - 1
- Lecture 41 - Heat Exchangers - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Inverse Methods in Heat Transfer

Subject Co-ordinator - Prof. Balaji Srinivasan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Inverse Methods in Heat Transfer Course
- Lecture 2 - Inverse Problems - Definition, History and Applications
- Lecture 3 - The inverse problem solving process
- Lecture 4 - Review of Basic Heat Transfer for this course
- Lecture 5 - Introduction to Week - 2
- Lecture 6 - Introduction to Linear Regression for Inverse Problems
- Lecture 7 - Example Application of Linear regression for an inverse conduction problem
- Lecture 8 - Goodness of Fit and Coefficient of Determination
- Lecture 9 - Linear Regression with Quadratic Model
- Lecture 10 - Summary of Week - 2
- Lecture 11 - Introduction to Week - 3
- Lecture 12 - Introduction to Normal Equations for linear models
- Lecture 13 - Normal Equations for linear models (Continued...)
- Lecture 14 - Parity Plots
- Lecture 15 - Programming Inverse Methods using Normal Equations
- Lecture 16 - Variants on the Linear Model for inverse problems
- Lecture 17 - Summary of Week - 3
- Lecture 18 - The General Inverse Methods Process
- Lecture 19 - Simple nonlinear inverse problem - Transient Heat transfer
- Lecture 20 - Review of required calculus results
- Lecture 21 - Gradient Descent Algorithm
- Lecture 22 - Gradient Descent - Simple Example
- Lecture 23 - Gradient Descent for Nonlinear Inverse Problem - Theory
- Lecture 24 - Gradient Descent for Nonlinear Inverse Problem - Coding Example
- Lecture 25 - Newton Algorithm for a System of Equations
- Lecture 26 - Gauss Newton Algorithm - Derivation and Code
- Lecture 27 - Overfitting and Regularization for Linear Models
- Lecture 28 - Tikhonov Regularization and Levenberg-Marquardt - Theory
- Lecture 29 - Tikhonov and Levenberg-Marquardt - Example Code

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Probability for Inverse Methods
- Lecture 31 - Sum and Product Rules of Probability
- Lecture 32 - Bayes Theorem - Simple Examples
- Lecture 33 - Independence and Expectation
- Lecture 34 - Variance and Covariance
- Lecture 35 - Gaussian distribution and the standard normal table
- Lecture 36 - Maximum Likelihood Estimate
- Lecture 37 - MLE, MAP estimates
- Lecture 38 - Introduction to Bayesian Methods for Inverse Problems
- Lecture 39 - Offline Bayesian Estimation
- Lecture 40 - Offline Bayesian Estimation - MATLAB Demo
- Lecture 41 - MHMCMC for Inverse Problems
- Lecture 42 - MHMCMC for Inverse Problems - MATLAB Demo
- Lecture 43 - Why Machine Learning in Inverse Heat Transfer ?
- Lecture 44 - Overview of AI and ML
- Lecture 45 - Supervised Machine Learning as an Inverse Problem
- Lecture 46 - Introduction to Week 9 - From Linear Models to Neural Networks
- Lecture 47 - Gradient Descent - Batch, Stochastic and Mini Batch
- Lecture 48 - Logistic Regression - The Forward Model
- Lecture 49 - Logistic Regression - Binary Entropy Cost Function and Gradient
- Lecture 50 - Multiclass Classification
- Lecture 51 - Linear Separability and Neural Networks
- Lecture 52 - Introduction to Week 10 - XOR and Deeper networks
- Lecture 53 - Forward pass through a simple neural network
- Lecture 54 - Backprop in a scalar chain
- Lecture 55 - Backprop in a MLP
- Lecture 56 - Introduction to Week 11 - ANNs as Surrogate models
- Lecture 57 - Physics Informed Neural Networks - Introduction
- Lecture 58 - Physics Informed Neural Networks - an intuitive explanation
- Lecture 59 - Physics Informed Neural Networks - BC incorporation
- Lecture 60 - PINNs for inverse problems
- Lecture 61 - Introduction to Week 12 - Sensitivity Analysis
- Lecture 62 - Code Examples of Logistic Regression - OR and AND gates
- Lecture 63 - Code Example of shallow neural network - XOR gate
- Lecture 64 - Code walkthrough for PINNs in Burgers equation
- Lecture 65 - Formulation of a PINN based inverse problem in unsteady conduction
- Lecture 66 - Formulation of a surrogate model based inverse solution in unsteady conduction
- Lecture 67 - Summary of course

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Sustainable Energy Technology

Subject Co-ordinator - Dr. Sayak Banerjee

Co-ordinating Institute - IIT - Hyderabad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Fundamental Concepts - Part 1
- Lecture 2 - Introduction and Fundamental Concepts - Part 2
- Lecture 3 - Energy Scenario in Modern World - Part 1
- Lecture 4 - Energy Scenario in Modern World - Part 2
- Lecture 5 - Macro Trends in Energy Use - World and India - Part 1
- Lecture 6 - Macro Trends in Energy Use - World and India - Part 2
- Lecture 7 - Impact of Fossil fuels - Part 1
- Lecture 8 - Impact of Fossil fuels - Part 2
- Lecture 9 - Fossil Fuels and Climate Change - Part 1
- Lecture 10 - Fossil Fuels and Climate Change - Part 2
- Lecture 11 - Continual of previous lecture and Overview of Renewable energy Technology - Part 1
- Lecture 12 - Continual of previous lecture and Overview of Renewable energy Technology - Part 2
- Lecture 13 - Numerical examples - Part 1
- Lecture 14 - Numerical examples - Part 2
- Lecture 15 - Renewable Energy Contributions - Part 1
- Lecture 16 - Renewable Energy Contributions - Part 2
- Lecture 17 - Hydro Power - Part 1
- Lecture 18 - Hydro Power - Part 2
- Lecture 19 - The Fundamentals of various Turbine working principle - Part 1
- Lecture 20 - The Fundamentals of various Turbine working principle - Part 2
- Lecture 21 - Hydroturbine Selection Principle
- Lecture 22 - Pumped Hydro Storage
- Lecture 23 - Worked Out Examples of HydroPower
- Lecture 24 - Introduction to Wind Energy - Part 1
- Lecture 25 - Introduction to Wind Energy - Part 2
- Lecture 26 - Wind Speed and Power Analysis - Part 1
- Lecture 27 - Wind Speed and Power Analysis - Part 2
- Lecture 28 - Design of Wind Turbine - Part 1
- Lecture 29 - Design of Wind Turbine - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Wind Turbine Parts and Performance - Part 1
- Lecture 31 - Wind Turbine Parts and Performance - Part 2
- Lecture 32 - Wind farms, Offshore Wind Turbines and Numerical Examples in Wind Energy - Part 1
- Lecture 33 - Wind farms, Offshore Wind Turbines and Numerical Examples in Wind Energy - Part 2
- Lecture 34 - Introduction to Solar Energy - Part 1
- Lecture 35 - Introduction to Solar Energy - Part 2
- Lecture 36 - Solar Thermal Energy Systems - Part 1
- Lecture 37 - Solar Thermal Energy Systems - Part 2
- Lecture 38 - Solar Water Heaters - Part 1
- Lecture 39 - Solar Water Heaters - Part 2
- Lecture 40 - Concentrated Solar Thermal Power (CSP)
- Lecture 41 - Introduction to Solar Photovoltaic Systems - Part 1
- Lecture 42 - Introduction to Solar Photovoltaic Systems - Part 2
- Lecture 43 - Solar Photovoltaic Technology - Part 1
- Lecture 44 - Solar Photovoltaic Technology - Part 2
- Lecture 45 - Doping of a Semiconductor - Part 1
- Lecture 46 - Doping of a Semiconductor - Part 2
- Lecture 47 - Structure of a Solar Cell and its Electrical Properties - Part 1
- Lecture 48 - Structure of a Solar Cell and its Electrical Properties - Part 2
- Lecture 49 - Solar Cell Efficiency - Part 1
- Lecture 50 - Solar Cell Efficiency - Part 2
- Lecture 51 - Types of solar cells - Part 1
- Lecture 52 - Types of solar cells - Part 2
- Lecture 53 - Bioenergy and Biofuels - Part 1
- Lecture 54 - Bioenergy and Biofuels - Part 2
- Lecture 55 - Biofuel Feedstocks
- Lecture 56 - Bioenergy Technology and Sustainability - Part 1
- Lecture 57 - Bioenergy Technology and Sustainability - Part 2
- Lecture 58 - Production Technologies for Bioethanol, Biodiesel and Biogas
- Lecture 59 - Introduction of Geothermal Energy
- Lecture 60 - Different types of Geothermal power systems
- Lecture 61 - Characteristics of electricity demand and the technology is developed to respond the energy demand
- Lecture 62 - Continuation of Energy demand and adaptation of renewable energies
- Lecture 63 - Introduction of Energy storage system
- Lecture 64 - Major parameters of energy storage technology
- Lecture 65 - Mechanical Energy Storage Technologies
- Lecture 66 - Compressed Air Energy Storage System
- Lecture 67 - Flywheel Based Energy Storage System - Part 1
- Lecture 68 - Flywheel Based Energy Storage System - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Energy Storage System Through Capacitor
- Lecture 70 - Electrolytic Capacitor
- Lecture 71 - Super Capacitor
- Lecture 72 - Electrochemical Energy Storage Systems
- Lecture 73 - Performance Characteristics of Battery
- Lecture 74 - Types of Rechargeable Batteries - Part 1
- Lecture 75 - Types of Rechargeable Batteries - Part 2
- Lecture 76 - Thermal Energy Storage Systems - Part 1
- Lecture 77 - Thermal Energy Storage Systems - Part 2
- Lecture 78 - Storage of Coolness and Synoptic View of Energy Storage Technology
- Lecture 79 - Storage Needs for the Grid
- Lecture 80 - Energy Storage Types
- Lecture 81 - Trends in Energy Storage Types and their Characteristics
- Lecture 82 - Analysis of Growth in Energy Storage-focussed on Pumped Hydro Storage, Flywheels and Li-ion batt
- Lecture 83 - Fuel Cells and Hydrogen Energy Economy
- Lecture 84 - Hydrogen production and storage technologies
- Lecture 85 - Hydrogen storage technologies
- Lecture 86 - Fuel cell technology
- Lecture 87 - Fuel cell types
- Lecture 88 - Carbon Capture and Storage (CCS) technologies - Part 1
- Lecture 89 - Carbon Capture and Storage (CCS) technologies - Part 2



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Strength of Materials - IITM

Subject Co-ordinator - Prof. K. Ramesh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Strength of Materials - 1  
Lecture 2 - Introduction to Strength of Materials - 2  
Lecture 3 - Stress Component is Scalar  
Lecture 4 - Stress Vector  
Lecture 5 - Stress Tensor  
Lecture 6 - Equilibrium Conditions  
Lecture 7 - Mohr's Circle  
Lecture 8 - Proof of Mohr's Circle  
Lecture 9 - Principal Stresses  
Lecture 10 - Octahedral and Deviatoric Stresses and Principal Directions  
Lecture 11 - Free Surfaces  
Lecture 12 - Photoelasticity  
Lecture 13 - Strain  
Lecture 14 - State of Strain  
Lecture 15 - Strain Measurement  
Lecture 16 - Tension Test  
Lecture 17 - Stress Strain Relations  
Lecture 18 - Interrelations between Elastic Constants  
Lecture 19 - Thermal Strain  
Lecture 20 - Torsion 1 - Thought and Physical Experiments  
Lecture 21 - Torsion 2 - Mathematical Development  
Lecture 22 - Torsion 3 - Problem solving, Hollow shaft  
Lecture 23 - Bending 1 - Euler-Bernoulli Hypothesis  
Lecture 24 - Bending 2 - Flexure Formula  
Lecture 25 - Bending 3 - Engineering Analysis of Beams  
Lecture 26 - Bending 4 - Shear Stress in Beams  
Lecture 27 - Bending 5 - Composite Beams  
Lecture 28 - Bending 6 - Shear in I Beams and Shear Centre  
Lecture 29 - Bending 7 - Unsymmetrical Bending and Combined Loading

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Review 1
- Lecture 31 - Deflection 1 - Moment-Curvature and Load Deflection
- Lecture 32 - Deflection 2 - Moment-Area Method
- Lecture 33 - Deflection 3 - Method of Superposition and Energy Method
- Lecture 34 - Deflection 4 - Fictitious Load Method
- Lecture 35 - Theories of Failure 1 - Overview
- Lecture 36 - Theories of Failure 2 - Yield surfaces, Mohr's Theory and Failure in Combined Loading
- Lecture 37 - Stability 1 - Governing Equations, Fixed-free and Pinned-pinned
- Lecture 38 - Stability 2 - Fixed-pinned, Fixed-fixed
- Lecture 39 - Review 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Engineering Thermodynamics

Subject Co-ordinator - Prof. V. Raghavan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course outline  
Lecture 2 - Introduction - Part 1  
Lecture 3 - Introduction - Part 2  
Lecture 4 - Basic concepts - Part 1  
Lecture 5 - Basic concepts - Part 2  
Lecture 6 - Basic concepts - Part 3  
Lecture 7 - Basic concepts - Part 4  
Lecture 8 - Basic concepts - Part 5  
Lecture 9 - Tutorial 1 - Basic concepts, pressure and temperature measurements - Part 1  
Lecture 10 - Tutorial 1 - Basic concepts, pressure and temperature measurements - Part 2  
Lecture 11 - Tutorial 1 - Basic concepts, pressure and temperature measurements - Part 3  
Lecture 12 - Work and Heat - Part 1  
Lecture 13 - Work and Heat - Part 2  
Lecture 14 - Work and Heat - Part 3  
Lecture 15 - Tutorial 2 - Work and heat transfer examples - Part 1  
Lecture 16 - Tutorial 2 - Work and heat transfer examples - Part 2  
Lecture 17 - Tutorial 2 - Work and heat transfer examples - Part 3  
Lecture 18 - First law of thermodynamics  
Lecture 19 - Pure substances  
Lecture 20 - Ideal gases and ideal gas mixtures  
Lecture 21 - Two-phase mixtures - Part 1  
Lecture 22 - Two-phase mixtures - Part 2  
Lecture 23 - First law analysis of systems - Part 1  
Lecture 24 - First law analysis of systems - Part 2  
Lecture 25 - First law analysis of systems - Part 3  
Lecture 26 - First law analysis of systems - Part 4  
Lecture 27 - Tutorial 3 - First law analysis of system - Part 1  
Lecture 28 - Tutorial 3 - First law analysis of system - Part 2  
Lecture 29 - Tutorial 3 - First law analysis of system - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial 4 - Systems involving ideal gas mixtures - Part 1
- Lecture 31 - Tutorial 4 - Systems involving ideal gas mixtures - Part 2
- Lecture 32 - Tutorial 4 - Systems involving ideal gas mixtures - Part 3
- Lecture 33 - Tutorial 5 - Systems involving Steam and R134a using table - Part 1
- Lecture 34 - Tutorial 5 - Systems involving Steam and R134a using table - Part 2
- Lecture 35 - Tutorial 5 - Systems involving Steam and R134a using table - Part 3
- Lecture 36 - Tutorial 5 - Systems involving Steam and R134a using table - Part 4
- Lecture 37 - Tutorial 5 - Systems involving Steam and R134a using table - Part 5
- Lecture 38 - Tutorial 5 - Systems involving Steam and R134a using table - Part 6
- Lecture 39 - First law of thermodynamics for a control volume
- Lecture 40 - Control volume analysis of steady flow devices - Part 1
- Lecture 41 - Control volume analysis of steady flow devices - Part 2
- Lecture 42 - Control volume analysis of steady flow devices - Part 3
- Lecture 43 - Unsteady analysis
- Lecture 44 - Tutorial 6 - First law for control volumes
- Lecture 45 - Second law of Thermodynamics - Part 1
- Lecture 46 - Second law of Thermodynamics - Part 2
- Lecture 47 - Second law of Thermodynamics - Part 3
- Lecture 48 - Second law of Thermodynamics - Part 4
- Lecture 49 - Second law of Thermodynamics - Part 5
- Lecture 50 - Tutorial 7 - Second law of thermodynamics - Part 1
- Lecture 51 - Tutorial 7 - Second law of thermodynamics - Part 2
- Lecture 52 - Tutorial 7 - Second law of thermodynamics - Part 3
- Lecture 53 - Tutorial 7 - Second law of thermodynamics - Part 4
- Lecture 54 - Tutorial 7 - Second law of thermodynamics - Part 5
- Lecture 55 - Entropy - Part 1
- Lecture 56 - Entropy - Part 2
- Lecture 57 - Entropy - Part 3
- Lecture 58 - Entropy - Part 4
- Lecture 59 - Entropy - Part 5
- Lecture 60 - Entropy - Part 6
- Lecture 61 - Tutorial 8 - Entropy - Part 1
- Lecture 62 - Tutorial 8 - Entropy - Part 2
- Lecture 63 - Tutorial 8 - Entropy - Part 3
- Lecture 64 - Tutorial 8 - Entropy - Part 4
- Lecture 65 - Tutorial 8 - Entropy - Part 5
- Lecture 66 - Thermodynamic cycles - Part 1
- Lecture 67 - Thermodynamic cycles - Part 2
- Lecture 68 - Tutorial 9 - Thermodynamic cycles - Part 1

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Tutorial 9 - Thermodynamic cycles - Part 2

Lecture 70 - Tutorial 9 - Thermodynamic cycles - Part 3

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Theory of Fire Propagation (Fire Dynamics)

Subject Co-ordinator - Prof. V. Raghavan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basics of Fire - Part 1  
Lecture 2 - Basics of Fire - Part 2  
Lecture 3 - Basics of Fire - Part 3  
Lecture 4 - Basics of Fire - Part 4  
Lecture 5 - Basics of Fire - Part 5  
Lecture 6 - Basics of Fire - Part 6  
Lecture 7 - Basics of Fire - Part 7  
Lecture 8 - Basics of Fire - Part 8  
Lecture 9 - Basics of Fire - Part 9  
Lecture 10 - Review of thermo-chemistry, chemical equilibrium and kinetics - Part 1  
Lecture 11 - Review of thermo-chemistry, chemical equilibrium and kinetics - Part 2  
Lecture 12 - Review of thermo-chemistry, chemical equilibrium and kinetics - Part 3  
Lecture 13 - Review of thermo-chemistry, chemical equilibrium and kinetics - Part 4  
Lecture 14 - Review of thermo-chemistry, chemical equilibrium and kinetics - Part 5  
Lecture 15 - Review of thermo-chemistry, chemical equilibrium and kinetics - Part 6  
Lecture 16 - Review of thermo-chemistry, chemical equilibrium and kinetics - Part 7  
Lecture 17 - Review of thermo-chemistry, chemical equilibrium and kinetics - Part 8  
Lecture 18 - Review of Premixed and Diffusion Flames - Part 1  
Lecture 19 - Review of Premixed and Diffusion Flames - Part 2  
Lecture 20 - Review of Premixed and Diffusion Flames - Part 3  
Lecture 21 - Review of Premixed and Diffusion Flames - Part 4  
Lecture 22 - Review of Premixed and Diffusion Flames - Part 5  
Lecture 23 - Review of Premixed and Diffusion Flames - Part 6  
Lecture 24 - Review of Premixed and Diffusion Flames - Part 7  
Lecture 25 - Review of Premixed and Diffusion Flames - Part 8  
Lecture 26 - Burning of Liquid Fuels- Part 1  
Lecture 27 - Burning of Liquid Fuels- Part 2  
Lecture 28 - Burning of Liquid Fuels- Part 3  
Lecture 29 - Burning of Liquid Fuels- Part 4

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- Lecture 30 - Burning of Liquid Fuels- Part 5
- Lecture 31 - Burning of Liquid Fuels- Part 6
- Lecture 32 - Burning of Liquid Fuels- Part 7
- Lecture 33 - Burning of Liquid Fuels- Part 8
- Lecture 34 - Burning of Solid Fuels - Part 1
- Lecture 35 - Burning of Solid Fuels - Part 2
- Lecture 36 - Burning of Solid Fuels - Part 3
- Lecture 37 - Burning of Solid Fuels - Part 4
- Lecture 38 - Burning of Solid Fuels - Part 5
- Lecture 39 - Burning of Solid Fuels - Part 6
- Lecture 40 - Burning of Solid Fuels - Part 7
- Lecture 41 - Analysis of Fire Plumes - Part 1
- Lecture 42 - Analysis of Fire Plumes - Part 2
- Lecture 43 - Analysis of Fire Plumes - Part 3
- Lecture 44 - Analysis of Fire Plumes - Part 4
- Lecture 45 - Analysis of Fire Plumes - Part 5
- Lecture 46 - Analysis of Fire Plumes - Part 6
- Lecture 47 - Enclosure Fires - Part 1
- Lecture 48 - Enclosure Fires - Part 2
- Lecture 49 - Enclosure Fires - Part 3
- Lecture 50 - Enclosure Fires - Part 4
- Lecture 51 - Enclosure Fires - Part 5
- Lecture 52 - Enclosure Fires - Part 6
- Lecture 53 - Enclosure Fires - Part 7
- Lecture 54 - Introduction to dust ignition, dust explosion and forest fires - Part 1
- Lecture 55 - Introduction to dust ignition, dust explosion and forest fires - Part 2
- Lecture 56 - Introduction to dust ignition, dust explosion and forest fires - Part 3
- Lecture 57 - Introduction to dust ignition, dust explosion and forest fires - Part 4
- Lecture 58 - Introduction to dust ignition, dust explosion and forest fires - Part 5
- Lecture 59 - Fire safety aspects - Part 1
- Lecture 60 - Fire safety aspects - Part 2
- Lecture 61 - Fire safety aspects - Part 3

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Applied Thermodynamics (2024)

Subject Co-ordinator - Prof. V. Raghavan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Entropy change of a control volume - Part 1

Lecture 3 - Entropy change of a control volume - Part 2

Lecture 4 - Entropy change of a control volume - Part 3

Lecture 5 - Work interaction of internally reversible steady flow processes

Lecture 6 - Tutorial 1 - Entropy change of a control volume - Part 1

Lecture 7 - Tutorial 1 - Entropy change of a control volume - Part 2

Lecture 8 - Tutorial 2 - Entropy change of a control volume - Part 3

Lecture 9 - Tutorial 2 - Entropy change of a control volume - Part 4

Lecture 10 - Tutorial 2 - Entropy change of a control volume - Part 5

Lecture 11 - Tutorial 3 - Entropy change of a control volume, Work interaction of internally reversible - Part 1

Lecture 12 - Tutorial 3 - Entropy change of a control volume, Work interaction of internally reversible - Part 2

Lecture 13 - Tutorial 3 - Entropy change of a control volume, Work interaction of internally reversible - Part 3

Lecture 14 - Exergy - Part 1

Lecture 15 - Exergy - Part 2

Lecture 16 - Exergy - Part 3

Lecture 17 - Exergy - Part 4

Lecture 18 - Exergy - Part 5

Lecture 19 - Tutorial 4 - Exergy transfer and exergy change of a system - Part 1

Lecture 20 - Tutorial 4 - Exergy transfer and exergy change of a system - Part 2

Lecture 21 - Tutorial 5 - Exergy transfer and exergy change of a system - Part 3

Lecture 22 - Tutorial 5 - Exergy transfer and exergy change of a system - Part 4

Lecture 23 - Tutorial 5 - Exergy transfer and exergy change of a system - Part 5

Lecture 24 - Tutorial 6 - Exergy transfer and exergy change of a control volume - Part 1

Lecture 25 - Tutorial 6 - Exergy transfer and exergy change of a control volume - Part 2

Lecture 26 - Tutorial 6 - Exergy transfer and exergy change of a control volume - Part 3

Lecture 27 - Thermodynamic cycles - Rankine cycle - Part 1

Lecture 28 - Thermodynamic cycles - Rankine cycle - Part 2

Lecture 29 - Thermodynamic cycles - Rankine cycle - Part 3

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- Lecture 30 - Thermodynamic cycles - Air standard Brayton cycle - Part 1
- Lecture 31 - Thermodynamic cycles - Air standard Brayton cycle - Part 2
- Lecture 32 - Thermodynamic cycles - Air standard Brayton cycle - Part 3
- Lecture 33 - Thermodynamic cycles - Air standard Brayton cycle - Part 4
- Lecture 34 - Thermodynamic cycles - Air standard Brayton cycle - Part 5
- Lecture 35 - Thermodynamic cycles - Air standard Otto cycle
- Lecture 36 - Thermodynamic cycles - Air standard Diesel cycle - Part 1
- Lecture 37 - Thermodynamic cycles - Air standard Diesel cycle - Part 2
- Lecture 38 - Thermodynamic cycles - Vapor compression refrigeration cycle
- Lecture 39 - Psychrometry - Part 1
- Lecture 40 - Psychrometry - Part 2
- Lecture 41 - Psychrometry - Part 3
- Lecture 42 - Psychrometry - Part 4
- Lecture 43 - Psychrometry - Part 5
- Lecture 44 - Psychrometry - Part 6
- Lecture 45 - Psychrometry - Part 7
- Lecture 46 - Tutorial 7 - Psychrometry and Air conditioning processes - Part 1
- Lecture 47 - Tutorial 7 - Psychrometry and Air conditioning processes - Part 2
- Lecture 48 - Tutorial 8 - Psychrometry and Air conditioning processes - Part 3
- Lecture 49 - Tutorial 8 - Psychrometry and Air conditioning processes - Part 4
- Lecture 50 - Combustion Thermodynamics - Part 1
- Lecture 51 - Combustion Thermodynamics - Part 2
- Lecture 52 - Combustion Thermodynamics - Part 3
- Lecture 53 - Combustion Thermodynamics - Part 4
- Lecture 54 - Tutorial 9 - Stoichiometry - Part 1
- Lecture 55 - Tutorial 9 - Stoichiometry - Part 2
- Lecture 56 - Tutorial 10 - Heat and temperature calculations in combustion - Part 1
- Lecture 57 - Tutorial 10 - Heat and temperature calculations in combustion - Part 2
- Lecture 58 - Tutorial 10 - Heat and temperature calculations in combustion - Part 3
- Lecture 59 - Tutorial 10 - Heat and temperature calculations in combustion - Part 4
- Lecture 60 - Tutorial 10 - Heat and temperature calculations in combustion - Part 5
- Lecture 61 - Compressible flow through nozzles - Part 1
- Lecture 62 - Compressible flow through nozzles - Part 2
- Lecture 63 - Compressible flow through nozzles - Part 3
- Lecture 64 - Compressible flow through nozzles - Part 4
- Lecture 65 - Compressible flow through nozzles - Part 5
- Lecture 66 - Compressible flow through nozzles - Part 6
- Lecture 67 - Compressible flow through nozzles - Part 7
- Lecture 68 - Compressible flow through nozzles - Part 8

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- Lecture 69 - Compressible flow through nozzles - Part 9
- Lecture 70 - Compressible flow through nozzles - Part 10
- Lecture 71 - Compressible flow through nozzles - Part 11
- Lecture 72 - Compressible flow through nozzles - Part 12

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Design of Mechanical Transmission Systems

Subject Co-ordinator - Prof. Ramkumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction, Evaluation, and Application of Gearbox
- Lecture 2 - Machine Tool Gearbox: GP, Step Ratio, Preferred Numbers, Structural Formula and Rules of Optimum
- Lecture 3 - Machine Tool Gearbox: Ray Diagram Construction
- Lecture 4 - Machine Tool Gearbox: Kinematic Diagram Construction
- Lecture 5 - Machine Tool Gearbox: Centre Distance and Teeth Calculation
- Lecture 6 - Machine Tool Gearbox: Problem Solving
- Lecture 7 - Automobile Gearbox: General Engine Operation and Transmission Types
- Lecture 8 - Automobile Gearbox: Saw Tooth Diagram and Design Procedure for Gearbox
- Lecture 9 - Automobile Gearbox: Problem Solving and Tyre Specification
- Lecture 10 - Automobile Gearbox: Basic Transmission Types and Kinematic Diagram
- Lecture 11 - Automobile Gearbox: Gear Failures and Material Selection
- Lecture 12 - Automobile Gearbox: Module Calculation Concept - Part I
- Lecture 13 - Automobile Gearbox: Module Calculation Concept - Part II
- Lecture 14 - Automobile Gearbox: Shaft Design, Lubrication Selection and Method
- Lecture 15 - Automobile Gearbox: Bearing Selection and Gearbox Losses
- Lecture 16 - Brake: Introduction, Working Principle and Types
- Lecture 17 - Brake: Torque Requirement for Drum Brake Systems
- Lecture 18 - Brake: Problem Solving
- Lecture 19 - Brake: Torque Requirement for Disc Brake Systems
- Lecture 20 - Brake: Static and Dynamic Analysis
- Lecture 21 - Brake: Dynamic Analysis - Brake Force Distribution and Optimum
- Lecture 22 - Brake: Problem Solving
- Lecture 23 - Brake: Braking Efficiency and Distance and Brake Factor
- Lecture 24 - Brake: Problem Solving and Friction Materials
- Lecture 25 - Brake: Thermal Analysis and Braking Conditions
- Lecture 26 - Brake: Energy and Power, Braking Power Absorbed by Lining and Drum/Disc
- Lecture 27 - Brake: Single Stop Braking and Repeated Braking - Temperature Analysis
- Lecture 28 - Brake: Thermal Analysis Problem Solving
- Lecture 29 - Clutch: Types and Working Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Clutch: Torque Transmitting Capacity - Uniform Pressure and Wear Theories
- Lecture 31 - Clutch: Multiple Discs and Cone Clutches, Problem Solving
- Lecture 32 - Clutch: Centrifugal Clutch
- Lecture 33 - Clutch: Dynamic Analysis
- Lecture 34 - Clutch: Dynamic Analysis Problem Solving

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Advanced Manufacturing Processes

Subject Co-ordinator - Dr. A.K. Sharma

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Manufacturing and Manufacturing Systems
- Lecture 2 - Manufacturing Trends and Challenges
- Lecture 3 - Manufacturing Aspects, Selection and Classification
- Lecture 4 - Description and Taxonomy of the Mfg. Processes
- Lecture 5 - Metal Casting basics, Gating and Riser design
- Lecture 6 - Evaporative Pattern Casting Process (EPC)
- Lecture 7 - Continuous, Permanent mold, Centrifugal and Pressure Die Casting
- Lecture 8 - Hybrid EPC Processes and Vacuum EPC Process
- Lecture 9 - Set-up of VEPC and Investment Casting Processes
- Lecture 10 - Ceramic Shell Investment Casting Process
- Lecture 11 - Shell Molding Process
- Lecture 12 - Abrasive Flow Machining
- Lecture 13 - Mechanism of Material Removal in AFM and Variant processes in AFM
- Lecture 14 - Abrasive Jet Machining (AJM)
- Lecture 15 - Water Jet and Abrasive Water Jet Machining
- Lecture 16 - Ultrasonic Machining Process (USM)
- Lecture 17 - Mechanism, Processes Variants and applications of USM
- Lecture 18 - Micro USM and advances in USM
- Lecture 19 - Electric Discharge Machining (EDM) Process
- Lecture 20 - Die-Sinker EDM and Wire Cut Electric Discharge Machining (WEDM)
- Lecture 21 - Variant Processes in EDM
- Lecture 22 - Electro Chemical Discharge Machining (ECDM)
- Lecture 23 - Laser Beam Machining (LBM)
- Lecture 24 - Equipment and Process Parameters in LBM
- Lecture 25 - Electrochemical Machining (ECM)
- Lecture 26 - ECM Kinematics and Tool Design
- Lecture 27 - The Subsystems in ECM, advantages and applications
- Lecture 28 - Variant Processes in ECM
- Lecture 29 - Electron Beam, Plasma Beam and Ion Beam Machining

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Submerged Arc Welding (SAW)
- Lecture 31 - Resistance Welding Process
- Lecture 32 - Solid State Welding processes
- Lecture 33 - Friction Welding process
- Lecture 34 - Electron Beam and Plasma Welding Processes
- Lecture 35 - Laser Beam welding and Diffusion welding processes
- Lecture 36 - High Energy Rate Forming Processes
- Lecture 37 - Rapid Prototyping Technology (RPT)
- Lecture 38 - Rapid Manufacturing, applications and advancements
- Lecture 39 - Microwave Processing of Materials
- Lecture 40 - Applications and new trends in Microwave Material Processing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Computational Fluid Dynamics (Dr. K.M. Singh)

Subject Co-ordinator - Dr. K.M. Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General Introduction
- Lecture 2 - CFD
- Lecture 3 - Conservation Laws and Mathematical Preliminaries
- Lecture 4 - Mass Conservation
- Lecture 5 - Momentum Equation
- Lecture 6 - Momentum Equation
- Lecture 7 - Navier-Stokes Equation and its Simplified Forms
- Lecture 8 - Energy and Scalar Transport Equations
- Lecture 9 - Scalar Transport, Mathematical Classification and Boundary Conditions
- Lecture 10 - Finite Difference Method
- Lecture 11 - Finite Difference Approximation of First Order Derivatives
- Lecture 12 - Finite Difference Approximation of Second Order Derivatives - 1
- Lecture 13 - Finite Difference Approximation of Second Order Derivatives - 2
- Lecture 14 - Approximation of Mixed Derivatives and Multi-Dimensional F.D. Formulae
- Lecture 15 - Implementation of Boundary Conditions and Finite Difference Algebraic System
- Lecture 16 - Applications of FDM to Scalar Transport Problems - 1
- Lecture 17 - Applications of FDM to Scalar Transport Problems - 2
- Lecture 18 - Application of FDM to Advection-Diffusion and Computer Implementation Aspects
- Lecture 19 - Computer Implementation of FDM for Steady State Heat Diffusion Problems - 1
- Lecture 20 - Computer Implementation of FDM for Steady State Heat Diffusion Problems - 2
- Lecture 21 - Computer Implementation of FDM for Steady State Heat Diffusion Problems - 3
- Lecture 22 - Solution of Discrete Algebraic Systems
- Lecture 23 - Direct and Basic Iterative Methods for Linear Systems
- Lecture 24 - Accelerated Iterative Methods for Linear Systems
- Lecture 25 - Two Level and Multi-Level Methods for First Order IVPs - 1
- Lecture 26 - Two Level and Multi-Level Methods for First Order IVPs - 2
- Lecture 27 - Application to Unsteady Transport Problems
- Lecture 28 - Introduction to Finite Volume Method
- Lecture 29 - Finite Volume Interpolation Schemes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Application of FVM to Scalar Transport
- Lecture 31 - Introduction to Finite Element Method
- Lecture 32 - Finite Element Shape Functions and Numerical Integration - 1
- Lecture 33 - Finite Element Shape Functions and Numerical Integration - 2
- Lecture 34 - Application of FEM to Scalar Transport
- Lecture 35 - Special Features of Navier-Stokes Equations
- Lecture 36 - Time Integration Techniques for Navier-Stokes Equations
- Lecture 37 - Implicit Pressure Correction Methods
- Lecture 38 - SIMPLEC, SIMPLER and Fractional Step Methods
- Lecture 39 - Turbulent Flows
- Lecture 40 - Reynolds Averaging and RANS Simulation Models
- Lecture 41 - RANS Turbulence Models and Large Eddy Simulation
- Lecture 42 - Introduction to Grid Generation
- Lecture 43 - Aspects of Practical CFD Analysis



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Metal Casting

Subject Co-ordinator - Dr. D. B. Karunakar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Overview of different casting processes - 1  
Lecture 3 - Overview of different casting processes - 2  
Lecture 4 - Overview of different casting processes - 3  
Lecture 5 - Terminology and Tools of Sand Moulding  
Lecture 6 - Moulding Sands and Design - 1  
Lecture 7 - Moulding Sands and Design - 2  
Lecture 8 - Moulding Sands Properties  
Lecture 9 - Moulding Sand Properties Testing  
Lecture 10 - Cores and Core Sands  
Lecture 11 - Patterns and Allowances  
Lecture 12 - Steps Involved in Making a Sand Casting  
Lecture 13 - Design of Riser System - 1  
Lecture 14 - Design of Riser System - 2  
Lecture 15 - Design of Riser System - 3  
Lecture 16 - Design of Riser System - 4  
Lecture 17 - Design of Riser System - 5  
Lecture 18 - Design of Gating System - 1  
Lecture 19 - Design of Gating System - 2  
Lecture 20 - Sand Casting Defects - 1  
Lecture 21 - Sand Casting Defects - 2  
Lecture 22 - Melting Furnaces and Practice  
Lecture 23 - Treatment of Molten Metal  
Lecture 24 - Fluidity of Molten Metal  
Lecture 25 - Solidification  
Lecture 26 - Cast Irons and Steels  
Lecture 27 - Aluminum and Magnesium Cast Alloys  
Lecture 28 - Copper, Zinc and Titanium Cast Alloys  
Lecture 29 - Die Casting Process - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Die Casting Process - II
- Lecture 31 - Investment Casting Process - I
- Lecture 32 - Investment Casting Process - II
- Lecture 33 - Continuous Casting Process
- Lecture 34 - Centrifugal Casting Process
- Lecture 35 - Evaporative Pattern Casting and Plaster Moulding
- Lecture 36 - Vacuum Sealed Moulding and Squeeze Casting
- Lecture 37 - Shakeout, Fettling and Finishing
- Lecture 38 - Inspection, Testing and Quality Control
- Lecture 39 - Design Consideration and Economics
- Lecture 40 - Environment, Health and Safety Aspects

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Processing of non metals

Subject Co-ordinator - Dr. Inderdeep Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Engineering Materials and Processing Techniques

Lecture 2 - Properties of Non-Metals

Lecture 3 - Glass Structure and Properties

Lecture 4 - Glass Processing - I

Lecture 5 - Glass Processing - II

Lecture 6 - Ceramics - I

Lecture 7 - Ceramics - II

Lecture 8 - Ceramic Powder Preparation

Lecture 9 - Ceramic Powder Preparation â I

Lecture 10 - Processing of Ceramic Parts ? Pressing

Lecture 11 - Processing of Ceramic Parts â II

Lecture 12 - Ceramics

Lecture 13 - Thermoplastics and Thermosets

Lecture 14 - Processing of Plastics

Lecture 15 - Extrusion of Plastics

Lecture 16 - Transfer Molding and Compression Molding

Lecture 17 - Injection Molding

Lecture 18 - Thermoforming

Lecture 19 - Rotational Molding and Blow Molding

Lecture 20 - Composite Materials

Lecture 21 - Composite Materials

Lecture 22 - Processing of Polymer Matrix Composites

Lecture 23 - Hand Lay-up and Spray Lay-up

Lecture 24 - Pultrusion

Lecture 25 - Compression Molding

Lecture 26 - Filament Winding

Lecture 27 - Injection Molding-1

Lecture 28 - Pre-pregging and Sheet Molding Compounds

Lecture 29 - Resin Transfer Molding and Autoclave Molding

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ceramic Matrix Composites
- Lecture 31 - Ceramic Matrix Composites
- Lecture 32 - Powder Processing
- Lecture 33 - Chemical Vapour Infiltration
- Lecture 34 - Ceramic Matrix Composites
- Lecture 35 - Ceramic Matrix Composites
- Lecture 36 - Drilling of Polymer Matrix Composites
- Lecture 37 - Hole Making Techniques for Polymer Matrix Composites
- Lecture 38 - Joining of Polymer Matrix Composites
- Lecture 39 - Microwave Joining of Polymer Matrix Composites
- Lecture 40 - Research Tools for Secondary Processing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Vibration control

Subject Co-ordinator - Dr. S. P. Harsha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basics of Vibrations for Simple Mechanical Systems
- Lecture 2 - Introduction to Damping in Free and Force Vibrations
- Lecture 3 - Free and Forced Vibrations of Two Degree of Systems
- Lecture 4 - Multi Degree of Freedom Systems
- Lecture 5 - Reduction at source - 1
- Lecture 6 - Reduction at source - 2
- Lecture 7 - Reduction at source - 3
- Lecture 8 - Feedback Control System - 1
- Lecture 9 - Shunt Damping
- Lecture 10 - Vibration Isolation - 1
- Lecture 11 - Vibration Isolation - 2
- Lecture 12 - Vibration Isolation - 3
- Lecture 13 - Source Classification
- Lecture 14 - Self Excitation Vibration
- Lecture 15 - Flow Induction Vibration
- Lecture 16 - Field Balancing of Rigid / Flexible Rotors
- Lecture 17 - Damping
- Lecture 18 - Damping
- Lecture 19 - Numerical Problems
- Lecture 20 - Design Sensitivity - I
- Lecture 21 - Design Specification
- Lecture 22 - Design for Enhanced Material Damping
- Lecture 23 - Basics of Passive Vibration Control
- Lecture 24 - Design of Absorber
- Lecture 25 - Shock Absorber
- Lecture 26 - Isolators with Stiffness and Damping
- Lecture 27 - Basics of Active Vibration Control
- Lecture 28 - Piezoelectric Material - I
- Lecture 29 - Piezoelectric Material - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Piezoelectric Accelerometers
- Lecture 31 - Electro-rheological (ER) Fluids
- Lecture 32 - Magneto-rheological (MR) Fluids
- Lecture 33 - Magneto and Electrostrictive Materials
- Lecture 34 - Shape Memory Alloy
- Lecture 35 - Electro-Magnetics
- Lecture 36 - Numerical Problems
- Lecture 37 - Basics of Vibration Measurement System
- Lecture 38 - Data Acquisition
- Lecture 39 - Fourier Transformation
- Lecture 40 - Filters

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Welding Engineering

Subject Co-ordinator - Dr. D.K. Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Welding Engineering  
Lecture 2 - Classification of Welding Processes - I  
Lecture 3 - Classification of Welding Processes - II  
Lecture 4 - Sources of Heat and Protection of Weld pool  
Lecture 5 - Protection of Weld Pool  
Lecture 6 - Introduction  
Lecture 7 - Fundamentals of Arc Initiation  
Lecture 8 - Arc Maintenance & Arc Characteristics  
Lecture 9 - Arc Forces  
Lecture 10 - Arc Efficiency  
Lecture 11 - Melting Rate in Different Welding Processes  
Lecture 12 - Types of power sources and their characteristics - I  
Lecture 13 - Types of power sources and their characteristics - II  
Lecture 14 - SMAW - I  
Lecture 15 - SMAW - II  
Lecture 16 - GTAW - I  
Lecture 17 - GTAW - II  
Lecture 18 - PAW & SAW  
Lecture 19 - SAW  
Lecture 20 - GMAW  
Lecture 21 - Brazing, Soldering & Braze Welding  
Lecture 22 - Braze welding and Electroslag welding  
Lecture 23 - Weld Thermal Cycle  
Lecture 24 - Effect of WTC and Cooling rate in welding  
Lecture 25 - Cooling rate  
Lecture 26 - Peak temperature & Solidification rate  
Lecture 27 - Residual stress - I  
Lecture 28 - Residual stress - II  
Lecture 29 - Introduction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Type of joints and welds
- Lecture 31 - Edge preparation
- Lecture 32 - Design for static and fatigue loading
- Lecture 33 - Fatigue fracture of weld joints - I
- Lecture 34 - Fatigue fracture of weld joints - II
- Lecture 35 - Introduction-
- Lecture 36 - DT & NDT
- Lecture 37 - Understanding Weldability
- Lecture 38 - Reactions in weldment
- Lecture 39 - Weldability of Al alloys
- Lecture 40 - Failure analysis and prevention



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Industrial Engineering

Subject Co-ordinator - Prof. P.K. Jain, Dr. Pradeep Kumar, Dr. Inderdeep Singh, Dr. D.K. Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Production Planning and Control
- Lecture 2 - Product Design and Development
- Lecture 3 - Statistical Process Control - Part I
- Lecture 4 - Statistical Process Control - Part II
- Lecture 5 - Statistical Process Control - Part III
- Lecture 6 - Productivity
- Lecture 7 - Factors Affecting the Productivity
- Lecture 8 - Improving the Productivity Introduction to Work Study
- Lecture 9 - Work Study Human Component and Method Study
- Lecture 10 - Recording Techniques for Method Study - Part I
- Lecture 11 - Recording Techniques for Method Study - Part II
- Lecture 12 - Recording Techniques Critical Examination
- Lecture 13 - Principles of Motion Economy
- Lecture 14 - Work Measurement Time Study - Part I
- Lecture 15 - Work Measurement Time Study - Part II
- Lecture 16 - Performance Rating Allowances
- Lecture 17 - Work Measurement
- Lecture 18 - PMT System Standard Data Method
- Lecture 19 - Ergonomics
- Lecture 20 - Metabolism and Organization at Work
- Lecture 21 - Working Conditions Lights Vibrations
- Lecture 22 - Materials Management - Part I
- Lecture 23 - Materials Management - Part II
- Lecture 24 - Materials Requirement Planning
- Lecture 25 - Sales Forecasting - Part I
- Lecture 26 - Sales Forecasting - Part II
- Lecture 27 - Capacity Planning - Part I
- Lecture 28 - Capacity Planning - Part II
- Lecture 29 - Network Analysis - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Network Analysis - Part II
- Lecture 31 - Facility Design Part - Part I
- Lecture 32 - Facility Design Part - Part II
- Lecture 33 - Facility Design Part - Part III
- Lecture 34 - Facility Design Part - Part IV
- Lecture 35 - Product Design Development
- Lecture 36 - Materials Handling
- Lecture 37 - Quality Concepts
- Lecture 38 - Value Engineering
- Lecture 39 - Reliability
- Lecture 40 - Industrial Safety

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Manufacturing Processes I

Subject Co-ordinator - Dr. D.B. Karunakar, Dr. Inderdeep Singh. Dr. D.K. Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Powder Metallurgy - Part I
- Lecture 2 - Powder Metallurgy - Part II
- Lecture 3 - Powder Metallurgy - Part III
- Lecture 4 - Metal Forming - Fundamentals
- Lecture 5 - Forging
- Lecture 6 - Swaging and Wire Drawing
- Lecture 7 - Sheet Metal Operations - Part I
- Lecture 8 - Sheet Metal Operations - Part II
- Lecture 9 - Sheet Metal Operations - Part III
- Lecture 10 - Sheet Metal Working - Presses
- Lecture 11 - Sheet Metal Working - Equipment
- Lecture 12 - High Energy Rate Forming Processes
- Lecture 13 - Machining Fundamentals
- Lecture 14 - Machining - Part I
- Lecture 15 - Machining - Part II
- Lecture 16 - Machining - Part III
- Lecture 17 - Metal casting - Part I
- Lecture 18 - Metal casting - Part II
- Lecture 19 - Metal Casting - Part III
- Lecture 20 - Metal Casting - Part IV
- Lecture 21 - Metal Casting - Part V
- Lecture 22 - Metal Casting - Part VI
- Lecture 23 - Metal Casting - Part VII
- Lecture 24 - Metal Casting - Part VIII
- Lecture 25 - Metal Casting - Part IX
- Lecture 26 - Metal Casting - Part X
- Lecture 27 - Introduction
- Lecture 28 - Welding Process Classification
- Lecture 29 - Brazing Soldering Braze Welding

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Arc Welding Power Source - Part I
- Lecture 31 - Arc Welding Power Source - Part II
- Lecture 32 - Shielded Metal Arc Welding - Part I
- Lecture 33 - Shielded Metal Arc Welding - Part II
- Lecture 34 - Submerged Arc Welding
- Lecture 35 - Gas Metal Arc Welding - Part I
- Lecture 36 - Gas Metal Arc Welding - Part II
- Lecture 37 - Tungsten Inert Gas Welding - Part I
- Lecture 38 - Tungsten Inert Gas Welding - Part II
- Lecture 39 - Resistance Welding Process
- Lecture 40 - Reaction in Weld Region Welding Defects

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Strength of Materials

Subject Co-ordinator - Dr. S.P. Harsha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Solid Mechanics  
Lecture 2 - Strength of Materials  
Lecture 3 - Strength of Materials  
Lecture 4 - Solid Mechanics  
Lecture 5 - Strength of Materials  
Lecture 6 - Strength of Materials  
Lecture 7 - Strength of Materials  
Lecture 8 - Strength of Materials  
Lecture 9 - Strength of Materials  
Lecture 10 - Strength of Materials  
Lecture 11 - Strength of Materials  
Lecture 12 - Strength of Materials  
Lecture 13 - Strength of Materials  
Lecture 14 - Strength of Materials  
Lecture 15 - Strength of Materials  
Lecture 16 - Strength of Materials  
Lecture 17 - Strength of Materials  
Lecture 18 - Strength of Materials  
Lecture 19 - Strength of Materials  
Lecture 20 - Strength of Materials  
Lecture 21 - Strength of Materials  
Lecture 22 - Strength of Materials  
Lecture 23 - Strength of Materials  
Lecture 24 - Strength of Materials  
Lecture 25 - Strength of Materials  
Lecture 26 - Strength of Materials  
Lecture 27 - Strength of Materials  
Lecture 28 - Strength of Materials  
Lecture 29 - Strength of Materials

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Strength of Materials  
Lecture 31 - Strength of Materials  
Lecture 32 - Strength of Materials  
Lecture 33 - Strength of Materials  
Lecture 34 - Strength of Materials  
Lecture 35 - Strength of Materials  
Lecture 36 - Strength of Materials  
Lecture 37 - Strength of Materials  
Lecture 38 - Strength of Materials  
Lecture 39 - Strength of Materials  
Lecture 40 - Strength of Materials

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Two Phase Flow and Heat Transfer

Subject Co-ordinator - Dr. Arup Kumar Das

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Flow Regimes
- Lecture 3 - Homogeneous Model
- Lecture 4 - Drift Flux Model
- Lecture 5 - (Missing Lecture)
- Lecture 6 - Dispersed Flow
- Lecture 7 - Slug Flow
- Lecture 8 - Annular Flow
- Lecture 9 - Droplet Annular and Stratified Flow
- Lecture 10 - Measurement of Void Fraction
- Lecture 11 - Signal Analysis
- Lecture 12 - Two Fluid and Population Balance Model
- Lecture 13 - Interface Tracking
- Lecture 14 - Lattice Boltzmann Method
- Lecture 15 - Smoothed Particle Hydrodynamics
- Lecture 16 - Molecular Perspective of Two Phase Flow
- Lecture 17 - Boiling Heat Transfer
- Lecture 18 - Condensation
- Lecture 19 - Solid-Liquid Flow
- Lecture 20 - Gas-Solid Flow

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Refrigeration and Air-Conditioning

Subject Co-ordinator - Prof. Ravi Kumar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Recapitulation of Thermodynamics  
Lecture 2 - Introduction to Refrigeration  
Lecture 3 - Air Refrigeration Cycle  
Lecture 4 - Aircraft Refrigeration Cycles - 1  
Lecture 5 - Aircraft Refrigeration Cycles - 2  
Lecture 6 - Aircraft Refrigeration Cycles - 3  
Lecture 7 - Vapour Compression Cycle - 1  
Lecture 8 - Vapour Compression Cycle - 2  
Lecture 9 - P-h Charts  
Lecture 10 - Actual Vapour Compression Cycle - 1  
Lecture 11 - Actual Vapour Compression Cycle - 2  
Lecture 12 - Compound Compression with Intercooling - 1  
Lecture 13 - Compound Compression with Intercooling - 2  
Lecture 14 - Multiple Evaporator and Cascade System  
Lecture 15 - Problem Solving - 1  
Lecture 16 - Refrigerants - 1  
Lecture 17 - Refrigerants - 2  
Lecture 18 - Vpouir Absorption Systems - 1  
Lecture 19 - Vpouir Absorption Systems - 2  
Lecture 20 - Vpouir Absorption Systems - 3  
Lecture 21 - Introduction to Air-conditioning  
Lecture 22 - Properties of Moist Air  
Lecture 23 - Psychrometric Chart  
Lecture 24 - Psychrometric Processes - 1  
Lecture 25 - Psychrometric Processes - 2  
Lecture 26 - Psychrometric Processes - 3  
Lecture 27 - Infiltration  
Lecture 28 - Design Conditions  
Lecture 29 - Cooling Load - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cooling Load - 2
- Lecture 31 - Cooling Load - 3
- Lecture 32 - Air Distribution System - 1
- Lecture 33 - Air Distribution System - 2
- Lecture 34 - Problem Solving - 2
- Lecture 35 - Air-Conditioning Systems
- Lecture 36 - Human Physiology
- Lecture 37 - Thermal Comfort
- Lecture 38 - Indoor Environmental Health - 1
- Lecture 39 - Indoor Environmental Health - 2
- Lecture 40 - Problem Solving - 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Engineering Economic Analysis

Subject Co-ordinator - Dr. Pradeep K. Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Engineering Economy, Physical and Economic Environment, Phases in Engg. process
- Lecture 2 - Some economic concepts, Value and utility, Interest and Interest rate, Time value of money
- Lecture 3 - Interest formulas
- Lecture 4 - Interest formulas for discrete compounding and discrete payments
- Lecture 5 - Interest formulas for discrete compounding and discrete payments
- Lecture 6 - Problem solving on discrete compounding, discrete payment
- Lecture 7 - Interest formulas for Uniform gradient series
- Lecture 8 - Interest formulas for geometric gradient series
- Lecture 9 - Compounding frequency of Interest
- Lecture 10 - Problem solving on frequency compounding of interest and gradient series factors
- Lecture 11 - Economic equivalence
- Lecture 12 - Equivalence calculations involving cash flows
- Lecture 13 - Methods of comparison of alternatives
- Lecture 14 - comparison of alternatives
- Lecture 15 - Problem solving on equivalence and comparison of alternatives
- Lecture 16 - Replacement analysis
- Lecture 17 - Proper treatment of sunk cost in replacement
- Lecture 18 - Replacement because of improved efficiency, inadequacy, demand etc.
- Lecture 19 - Problem solving on replacement analysis
- Lecture 20 - Economic life of the asset
- Lecture 21 - Depreciation
- Lecture 22 - Basic depreciation methods
- Lecture 23 - Depreciation
- Lecture 24 - Modified accelerated cost recovery system (MACRS) method of depreciation, Depletion
- Lecture 25 - Depreciation
- Lecture 26 - Problem solving based on Depreciation and Depletion
- Lecture 27 - Elements of cost
- Lecture 28 - Breakeven analysis, Effect of fixed and variable cost on BEP.
- Lecture 29 - Economic order quantity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problem solving based on Breakeven analysis and EOQ
- Lecture 31 - Cost estimation
- Lecture 32 - cost estimating relationships
- Lecture 33 - Introduction to decision under risk Criteria for decision under risk
- Lecture 34 - Expected value decision making under risk
- Lecture 35 - Expected variance decision making under risk
- Lecture 36 - Problem solving based on decision under risk
- Lecture 37 - Income taxes
- Lecture 38 - Effect of method of depreciation on income taxes
- Lecture 39 - After tax economic analysis
- Lecture 40 - Problem solving based on Income tax analysis

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Convective Heat Transfer

Subject Co-ordinator - Dr. Arup Kumar Das

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Balance of Total Energy
- Lecture 3 - Different Forms of Thermal Energy Equation
- Lecture 4 - Thermal Boundary Layer
- Lecture 5 - Forced Convection
- Lecture 6 - Forced Convection
- Lecture 7 - Forced Convection over a Flat Plate
- Lecture 8 - Natural Convection
- Lecture 9 - Natural Convection
- Lecture 10 - Tutorial
- Lecture 11 - Forced Convection in Ducts
- Lecture 12 - Thermally Developed Slug Flow in a Duct
- Lecture 13 - Thermally and Hydrodynamically Developed Flow
- Lecture 14 - Thermally and Hydrodynamically Developed Flow
- Lecture 15 - Thermal Entrance Region
- Lecture 16 - Thermal Entrance Region
- Lecture 17 - Rayleigh Benard Convection
- Lecture 18 - Heat Transfer with Phase Change
- Lecture 19 - Mass Transfer
- Lecture 20 - Tutorial

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Mechanical Vibration

Subject Co-ordinator - Prof. Anil Kumar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lesson 1 - Introduction  
Lecture 2 - Lesson 2 - Addition of two harmonic motions and beat phenomenon  
Lecture 3 - Lesson 3 - Fourier series and harmonic analysis  
Lecture 4 - Lesson 4 - Vibration analysis procedure  
Lecture 5 - Lesson 5 - Numerical problems  
Lecture 6 - Lesson 1 - Undamped free vibration  
Lecture 7 - Lesson 2 - Energy method  
Lecture 8 - Lesson 3 - Damped free vibration  
Lecture 9 - Lesson 4 - Viscous damped systems and logarithmic decrement  
Lecture 10 - Lesson 5 - Coulomb damping  
Lecture 11 - Lesson 1 - Harmonic excitations  
Lecture 12 - Lesson 2 - Magnification factor and frequency response curve  
Lecture 13 - Lesson 3 - Rotating unbalance  
Lecture 14 - Lesson 4 - Excitation of the support  
Lecture 15 - Lesson 5 - Energy input and dissipation by viscous damping  
Lecture 16 - Lesson 1 - Coulomb damping and equivalent viscous damping  
Lecture 17 - Lesson 2 - Structural damping and equivalent viscous damping  
Lecture 18 - Lesson 3 - Vibration isolation and force transmissibility  
Lecture 19 - Lesson 4 - Motion transmissibility  
Lecture 20 - Lesson 5 - Numerical problems  
Lecture 21 - Lesson 1 - Transducers and vibration pickup  
Lecture 22 - Lesson 2 - Vibrometer  
Lecture 23 - Lesson 3 - Accelerometer  
Lecture 24 - Lesson 4 - Velocity pickup or Velometer  
Lecture 25 - Lesson 5 - Phase distortion and frequency measurement  
Lecture 26 - Lesson 1 - Undamped free vibration  
Lecture 27 - Lesson 2 - Principal modes of vibration  
Lecture 28 - Lesson 3 - Combined rectilinear and angular modes  
Lecture 29 - Lesson 4 - Damped free vibration

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lesson 5 - Undamped forced vibration with harmonic excitation
- Lecture 31 - Lesson 1 - Undamped dynamic vibration absorber
- Lecture 32 - Lesson 2 - Tuned absorber
- Lecture 33 - Lesson 3 - Numerical problems
- Lecture 34 - Lesson 4 - Damped dynamic vibration absorber
- Lecture 35 - Lesson 5 - Optimally tuned vibration absorber
- Lecture 36 - Lesson 1 - Undamped free vibration
- Lecture 37 - Lesson 2 - Eigen values and eigen vectors
- Lecture 38 - Lesson 3 - Flexibility influence coefficients
- Lecture 39 - Lesson 4 - Stiffness influence coefficients
- Lecture 40 - Lesson 5 - Static and dynamic coupling

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Joining Technologies for Metals

Subject Co-ordinator - Prof. Dheerendra Kumar Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction: Manufacturing and Joining
- Lecture 2 - Fundamental mechanisms of Joining
- Lecture 3 - Classification of Joining Processes
- Lecture 4 - Heat Generation in Welding
- Lecture 5 - Protection of Weld Metal
- Lecture 6 - Principle of Fusion Welding Processes: Gas Welding
- Lecture 7 - Fundamentals of Welding
- Lecture 8 - Physics of Welding Arc
- Lecture 9 - Shielded Metal Arc Welding
- Lecture 10 - Gas Tungsten Arc Welding
- Lecture 11 - Newer variants of Gas tungsten arc welding
- Lecture 12 - Gas metal arc welding
- Lecture 13 - Submerged arc welding
- Lecture 14 - Electro-slag and Electro-gas welding
- Lecture 15 - Laser beam welding
- Lecture 16 - Brazing
- Lecture 17 - Soldering and braze welding
- Lecture 18 - Fundamentals of resistance welding
- Lecture 19 - Resistance welding processes: spot and seam welding
- Lecture 20 - Flash butt welding
- Lecture 21 - Adhesive joining
- Lecture 22 - Weld bonding
- Lecture 23 - Solid state joining technologies: Fundamentals
- Lecture 24 - Ultrasonic welding
- Lecture 25 - Diffusion welding
- Lecture 26 - Explosive welding
- Lecture 27 - Magnetic pulse welding
- Lecture 28 - Weld thermal cycle
- Lecture 29 - Heat affected zone and weld thermal cycle - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heat affected zone and weld thermal cycle - II
- Lecture 31 - Solidification of weld metal
- Lecture 32 - Metallurgical transformations in weld and heat affected zone of steels
- Lecture 33 - Residual Stresses in Weld Joints
- Lecture 34 - Solidification cracking and their control
- Lecture 35 - Cracking of Welded Joints II - Cold Cracks
- Lecture 36 - Understanding Weldability Introduction - I
- Lecture 37 - Understanding Weldability Introduction - II
- Lecture 38 - Metal Properties and Weldability - I
- Lecture 39 - Metal Properties and Weldability - II
- Lecture 40 - Weldability of Work Hardenable Metals
- Lecture 41 - Weldability of Work Hardenable and Precipitation Strengthened Metals
- Lecture 42 - Weldability of Precipitation Strengthened Metals
- Lecture 43 - Weldability of Metals Strengthened by Grain Refinement and Transformation Hardening
- Lecture 44 - Weldability of Transformation Hardening Metals
- Lecture 45 - Weldability of Metals - Combination of Strengthening Mechanisms
- Lecture 46 - Weldability Consideration
- Lecture 47 - Weldability of Carbon and Alloy Steel - I
- Lecture 48 - Weldability of Carbon and Alloy Steel - II
- Lecture 49 - Weldability of Carbon and Alloy Steel - III
- Lecture 50 - Weldability of Low Carbon Steel and Mild Steel
- Lecture 51 - Weldability of Medium Carbon Steel and High Carbon Steel
- Lecture 52 - Weldability of High Strength Low Alloy Steels
- Lecture 53 - Weldability of HTLA Steel - I
- Lecture 54 - Weldability of HTLA Steel - II
- Lecture 55 - Weldability of Cr-Mo Steel - I
- Lecture 56 - Weldability of Cr-Mo Steel - II
- Lecture 57 - Weldability of Pre-coated Steel - I
- Lecture 58 - Weldability of Pre-coated Steel - II
- Lecture 59 - Weldability of Stainless Steel - I
- Lecture 60 - Weldability of Stainless Steel - II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Modelling and Simulation of Dynamic Systems

Subject Co-ordinator - Prof. Pushparaj Mani Pathak

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Modelling
- Lecture 2 - Examples of models
- Lecture 3 - Modeling of Dynamic Systems
- Lecture 4 - Introduction to Simulation
- Lecture 5 - MATLAB as a Simulation tool
- Lecture 6 - Bond graphs modelling
- Lecture 7 - Bond graph model and causality
- Lecture 8 - Generation of System Equations
- Lecture 9 - Methods of Drawing bond graph models - Mechanical Systems
- Lecture 10 - Methods of Drawing bond graph models - Electrical Systems
- Lecture 11 - Basic System Models - Mechanical Systems
- Lecture 12 - Basic System Models - Electrical Systems
- Lecture 13 - Basic System Models - Hydraulic Systems
- Lecture 14 - Basic System Models - Pneumatic Systems
- Lecture 15 - Basic System Models - Thermal Systems
- Lecture 16 - System Models
- Lecture 17 - System Model of Combined Rotary and Translatory Systems
- Lecture 18 - System Model of Electro Mechanical Systems
- Lecture 19 - System Model of Hydro Mechanical Systems
- Lecture 20 - System Models of Robots
- Lecture 21 - Dynamic response of the 1st order system
- Lecture 22 - Dynamic response of 2nd order system
- Lecture 23 - Performance measures for 2nd order system
- Lecture 24 - System Transfer functions
- Lecture 25 - Transfer Function of 1st and 2nd Order System
- Lecture 26 - Block Diagram Algebra
- Lecture 27 - Signal Flow Graphs
- Lecture 28 - State Variable Formulation
- Lecture 29 - Frequency Response

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- Lecture 30 - Bode Plot
- Lecture 31 - Simulation using SIMULINK
- Lecture 32 - Simulation of simple and compound pendulums
- Lecture 33 - Simulation of planar mechanisms
- Lecture 34 - Simulation of wheeled mobile robots
- Lecture 35 - Validation and Verification of Simulation Models
- Lecture 36 - Parameter estimation methods
- Lecture 37 - Parameter estimation examples
- Lecture 38 - System identifications
- Lecture 39 - Introduction to Optimization
- Lecture 40 - Optimization with modeling of engineering problems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Principles of Casting Technology

Subject Co-ordinator - Dr. Pradeep K. Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Casting Technology
- Lecture 2 - Mechanism of solidification
- Lecture 3 - Solidification of Pure Metals and Alloys
- Lecture 4 - Freeze Wave Mechanism and Solidification Time
- Lecture 5 - Problem Solving on Solidification
- Lecture 6 - Technology of pattern making
- Lecture 7 - Allowances in pattern making
- Lecture 8 - Moulding sands and its ingredients
- Lecture 9 - Testing of molding sands
- Lecture 10 - Sand preparation for casting
- Lecture 11 - Technology of mould making
- Lecture 12 - Technology of core making
- Lecture 13 - Special sand moulding process
- Lecture 14 - Organic binders
- Lecture 15 - Special moulding process
- Lecture 16 - Introduction of gating design
- Lecture 17 - Types of gate
- Lecture 18 - Pouring time calculation
- Lecture 19 - Aspiration effects in gating system
- Lecture 20 - Problem solving on gating design
- Lecture 21 - Solidification analysis
- Lecture 22 - Riser methods
- Lecture 23 - Shape factor
- Lecture 24 - Feeding and Chills effect
- Lecture 25 - Problem related to riser design
- Lecture 26 - Special casting process - 1
- Lecture 27 - Special casting process - 2
- Lecture 28 - Special casting process - 3
- Lecture 29 - Technology of melting

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- Lecture 30 - Melting practices
- Lecture 31 - Melting and Casting of cast metal
- Lecture 32 - Melting practice for gray iron
- Lecture 33 - Melting practice for Malleable iron and S.G iron
- Lecture 34 - Casting of steel and alloy steel
- Lecture 35 - Casting practices for non-ferrous metals and alloys
- Lecture 36 - Fettling of castings
- Lecture 37 - Heat treatment of castings
- Lecture 38 - Heat treatment practices for cast iron and non-ferrous metals and alloys
- Lecture 39 - Casting defects
- Lecture 40 - Diagnostics of casting defects

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Steam and Gas Power Systems

Subject Co-ordinator - Prof. Ravi Kumar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of Thermodynamics
- Lecture 2 - Rankine Cycle
- Lecture 3 - Performance of Rankine Cycle
- Lecture 4 - Binary vapour cycle and co-generation
- Lecture 5 - Problem Solving (Rankine Cycle)
- Lecture 6 - Steam Generators
- Lecture 7 - Fire Tube Boilers
- Lecture 8 - Water Tube Boilers
- Lecture 9 - Boiler Mountings and Accessories
- Lecture 10 - High Pressure Boilers (Part-1)
- Lecture 11 - High Pressure Boilers (Part-2)
- Lecture 12 - Draught
- Lecture 13 - Performance of Boiler
- Lecture 14 - Combustion of Fuel
- Lecture 15 - Combustion of Fuel (Problem Solving)
- Lecture 16 - Boiler Trial
- Lecture 17 - Nozzles and Diffusers - Momentum and Continuity Equations
- Lecture 18 - Nozzles and Diffusers - Efficiency and Critical Pressure
- Lecture 19 - Nozzles and Diffusers - General Relationships and Supersaturated Flow
- Lecture 20 - Problem Solving (Nozzles and diffusers)
- Lecture 21 - Steam Turbine
- Lecture 22 - Compounding of Steam Turbine
- Lecture 23 - Impulse Steam Turbine
- Lecture 24 - Impulse Steam Turbine Performance
- Lecture 25 - Problem solving (Impulse Steam Turbine)
- Lecture 26 - Impulse Reaction Steam Turbine
- Lecture 27 - Impulse Reaction Steam Turbine Performance
- Lecture 28 - Energy Losses in Steam Turbine
- Lecture 29 - Condensers

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- Lecture 30 - Problem Solving (Steam Turbine)
- Lecture 31 - Gas turbine cycle
- Lecture 32 - Gas Turbine cycle Performance Evaluations
- Lecture 33 - Gas Turbine cycle - Modifications
- Lecture 34 - Problem Solving (Gas Turbine Cycle)
- Lecture 35 - Centrifugal Compressors
- Lecture 36 - Centrifugal Compressors Characteristics
- Lecture 37 - Axial Flow Compressor
- Lecture 38 - Axial Flow Compressor Characteristics
- Lecture 39 - Jet Propulsion
- Lecture 40 - Problem Solving

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Product Design and Development

Subject Co-ordinator - Prof. Indradeep Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to product design and development

Lecture 2 - Product life-cycle

Lecture 3 - Product policy of an organization and selection of profitable products

Lecture 4 - Product design

Lecture 5 - Product design steps and product analysis

Lecture 6 - Value engineering concepts

Lecture 7 - Problem Identification and VEJP

Lecture 8 - Function analysis

Lecture 9 - Functional analysis system technique

Lecture 10 - Case study on value engineering

Lecture 11 - Quality function deployment

Lecture 12 - Computer aided design

Lecture 13 - Rubust design

Lecture 14 - Design for X

Lecture 15 - Ergonomics in product design

Lecture 16 - DFMA guidelines

Lecture 17 - Product design for manual assembly

Lecture 18 - Design guidelines for different processes

Lecture 19 - Rapid prototyping

Lecture 20 - Rapid prototyping processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Manufacturing Processes

Subject Co-ordinator - Dr. D. K. Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Understanding Manufacturing
- Lecture 2 - Fundamental Approaches of Manufacturing
- Lecture 3 - Manufacturing Process Specific Advantages and Limitations
- Lecture 4 - Material and Manufacturing Processes
- Lecture 5 - Classification of Manufacturing Processes
- Lecture 6 - Selection of Manufacturing Processes
- Lecture 7 - Applications of Manufacturing Processes
- Lecture 8 - Effect of Manufacturing Processes on Mechanical Properties
- Lecture 9 - Break Even Analysis in Manufacturing Processes
- Lecture 10 - Casting
- Lecture 11 - Steps of Casting Processes
- Lecture 12 - Casting
- Lecture 13 - The Pattern Allowances - I
- Lecture 14 - The Pattern Allowances - II
- Lecture 15 - Casting
- Lecture 16 - Sand Moulding - II
- Lecture 17 - Casting
- Lecture 18 - Casting
- Lecture 19 - Casting
- Lecture 20 - Casting
- Lecture 21 - Casting
- Lecture 22 - Casting
- Lecture 23 - Casting
- Lecture 24 - Casting
- Lecture 25 - Metal Working Processes
- Lecture 26 - Metal Working Processes
- Lecture 27 - Metal Working Processes
- Lecture 28 - Metal Working Processes
- Lecture 29 - Metal Working Processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Metal Working Processes
- Lecture 31 - Sheet Metal Operations
- Lecture 32 - Metal Working Processes
- Lecture 33 - Metal Working Processes
- Lecture 34 - Metal Working Processes
- Lecture 35 - Material Removal Processes
- Lecture 36 - Material Removal Processes
- Lecture 37 - Material Removal Processes
- Lecture 38 - Material Removal Processes
- Lecture 39 - Material Removal Processes
- Lecture 40 - Material Removal Processes
- Lecture 41 - Material Removal Processes
- Lecture 42 - Material removal processes
- Lecture 43 - Material removal processes
- Lecture 44 - Material removal Processes
- Lecture 45 - Material removal Processes
- Lecture 46 - Material removal processes
- Lecture 47 - Joining of metals
- Lecture 48 - Joining of metals
- Lecture 49 - Joining of metals
- Lecture 50 - Brazing, soldering and weldability
- Lecture 51 - Weldability and welding defects
- Lecture 52 - Heat treatment
- Lecture 53 - Heat treatment
- Lecture 54 - Heat treatment
- Lecture 55 - Heat treatment
- Lecture 56 - Heat treatment
- Lecture 57 - Improving surface properties
- Lecture 58 - Improving surface properties
- Lecture 59 - Improving surface properties
- Lecture 60 - Improving surface properties

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Modelling and Simulation of Discrete Event System

Subject Co-ordinator - Dr. Pradeep K. Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Simulation
- Lecture 2 - Concept of System, Model and Simulation
- Lecture 3 - Time advance mechanism, Components of a simulation model
- Lecture 4 - Program organization and logic, Steps in a simulation study
- Lecture 5 - Simulation examples
- Lecture 6 - Statistical Models in Simulation
- Lecture 7 - Input probability distribution functions for discrete systems
- Lecture 8 - Continuous distribution functions
- Lecture 9 - Continuous distribution functions and empirical distribution functions
- Lecture 10 - Problem solving on statistical models in simulation
- Lecture 11 - Characteristics of a queueing system
- Lecture 12 - Performance measures of queueing system
- Lecture 13 - Analysis of a single server queueing system
- Lecture 14 - Simulation of a single server queueing system
- Lecture 15 - Computer representation of simulation of single server queueing system
- Lecture 16 - Generation of Random Numbers
- Lecture 17 - Issues and Challenges in Congruential Generators
- Lecture 18 - Testing of random numbers
- Lecture 19 - Generation of Random Variates
- Lecture 20 - Problem Solving on Random Number and Random Variate Generation
- Lecture 21 - Input modeling
- Lecture 22 - Input modeling
- Lecture 23 - Input modeling
- Lecture 24 - Input modeling
- Lecture 25 - Problem Solving on input modeling
- Lecture 26 - Output analysis of a single system
- Lecture 27 - Obtaining a specified precision
- Lecture 28 - Comparison of alternative system configurations
- Lecture 29 - Confidence Intervals for comparing more than two systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problem Solving on output analysis of single and alternative systems
- Lecture 31 - Introduction to simulation of manufacturing and material handling system
- Lecture 32 - Issues in material handling system
- Lecture 33 - Modeling of system randomness
- Lecture 34 - Verification of simulation models
- Lecture 35 - Model validity and credibility
- Lecture 36 - Problem solving and case studies on simulation of manufacturing system
- Lecture 37 - Introduction to Monte Carlo Simulation
- Lecture 38 - Inventory Control Simulation using Monte Carlo Technique
- Lecture 39 - In this lecture, Monte Carlo technique was used to solve inventory system problems
- Lecture 40 - Problem solving on Monte Carlo Simulation

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Processing of Polymers and Polymer Composites

Subject Co-ordinator - Dr. Inderdeep Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to course
- Lecture 2 - Engineering materials and processing techniques
- Lecture 3 - Thermoplastics and thermosets
- Lecture 4 - Processing of polymers
- Lecture 5 - Thermoforming processes
- Lecture 6 - Extrusion - I
- Lecture 7 - Extrusion - II
- Lecture 8 - Compression molding
- Lecture 9 - Injection molding - I
- Lecture 10 - injection molding - II
- Lecture 11 - Transfer molding
- Lecture 12 - Rotational molding
- Lecture 13 - Blow molding
- Lecture 14 - Composite materials
- Lecture 15 - Classification of composite materials
- Lecture 16 - Processing of polymer composites
- Lecture 17 - Hand lay-up
- Lecture 18 - Spray lay-up
- Lecture 19 - Compression molding
- Lecture 20 - Injection molding
- Lecture 21 - Reaction injection molding
- Lecture 22 - Autoclave molding
- Lecture 23 - Resin transfer molding
- Lecture 24 - Filament winding
- Lecture 25 - Pultrusion process
- Lecture 26 - Sheet molding
- Lecture 27 - Pre-pregging and challenges in primary processing of composites
- Lecture 28 - Secondary processing of polymer composites
- Lecture 29 - Joining of polymer composites

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Adhesive joining
- Lecture 31 - Mechanical joining
- Lecture 32 - Microwave joining
- Lecture 33 - Induction and resistance welding
- Lecture 34 - Drilling of polymer matrix composites - I
- Lecture 35 - Drilling of polymer matrix composites - II
- Lecture 36 - Methods to prevent drilling induced damage
- Lecture 37 - Non-conventional drilling
- Lecture 38 - Process simulation of secondary processing
- Lecture 39 - Intelligent drilling of polymer matrix composites
- Lecture 40 - Web based tools for polymer matrix composites

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Operations Management

Subject Co-ordinator - Dr. Inderdeep Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Operations Management
- Lecture 2 - Operations Management
- Lecture 3 - Operations Management
- Lecture 4 - Types of Production Systems
- Lecture 5 - Operations Strategy
- Lecture 6 - Product Life-Cycle
- Lecture 7 - Value Engineering Concepts
- Lecture 8 - Design for X (DFX)
- Lecture 9 - Ergonomics in Product Design
- Lecture 10 - Rapid Prototyping
- Lecture 11 - Sales Forecasting
- Lecture 12 - Forecasting System
- Lecture 13 - Qualitative Methods of Forecasting
- Lecture 14 - Quantitative Methods - I
- Lecture 15 - Quantitative Methods - II
- Lecture 16 - Facility Planning
- Lecture 17 - Factors Affecting Plant Location
- Lecture 18 - Plant Location
- Lecture 19 - Location Evaluation Methods - I
- Lecture 20 - Location Evaluation Methods - II
- Lecture 21 - Facility Layout and Planning - I
- Lecture 22 - Facility Layout and Planning - II
- Lecture 23 - Factors Influencing Plant Layout
- Lecture 24 - Material Flow Patterns
- Lecture 25 - Tools and Techniques used For Plant Layout Planning
- Lecture 26 - Production Planning and Control
- Lecture 27 - Process Planning
- Lecture 28 - Aggregate Production Planning
- Lecture 29 - Capacity Planning

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Capacity Planning
- Lecture 31 - Project Scheduling
- Lecture 32 - Network Diagrams
- Lecture 33 - Critical Path Method
- Lecture 34 - Critical Path Method
- Lecture 35 - Critical Path Method
- Lecture 36 - Program Evaluation and Review Technique (PERT)
- Lecture 37 - PERT Problems - I
- Lecture 38 - PERT Problems - II
- Lecture 39 - Time Cost Trade Off (Crashing)
- Lecture 40 - Project Network
- Lecture 41 - Production Control
- Lecture 42 - Sequencing
- Lecture 43 - Sequencing Problems - I
- Lecture 44 - Sequencing Problems - II
- Lecture 45 - Master Production Scheduling (MPS)
- Lecture 46 - Concept of Quality
- Lecture 47 - Total Quality Management (TQM)
- Lecture 48 - Total Productive Maintenance
- Lecture 49 - Statistical Quality Control (SQC)
- Lecture 50 - Six Sigma
- Lecture 51 - Materials Management
- Lecture 52 - Inventory Control
- Lecture 53 - Economic Order Quantity (EOQ) Models
- Lecture 54 - Economic Order Quantity (EOQ)
- Lecture 55 - Production Quantity Model
- Lecture 56 - Just In time (JIT)
- Lecture 57 - Kanban System
- Lecture 58 - Materials Requirement Planning (MRP) - I
- Lecture 59 - Materials Requirement Planning (MRP) - II
- Lecture 60 - Enterprise Resource Planning (ERP)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Theory of Production Processes

Subject Co-ordinator - Dr. Pradeep K. Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Theory and Practics of Casting
- Lecture 2 - Theory of Solidification
- Lecture 3 - Solidification of pure metals and alloys
- Lecture 4 - Factors affecting solidification process
- Lecture 5 - Fluidity of liquid metals
- Lecture 6 - Technology of patternmaking
- Lecture 7 - Patternmaking
- Lecture 8 - Molding sand ingredients and sand testing methods
- Lecture 9 - Sand molding methods
- Lecture 10 - Coremaking
- Lecture 11 - Gating system design
- Lecture 12 - Gating system design
- Lecture 13 - Introduction to riser design
- Lecture 14 - Riser design methods
- Lecture 15 - Problem solving on gating design and riser design methods
- Lecture 16 - Theory of melting
- Lecture 17 - Melting and production of Iron castings
- Lecture 18 - Production of steel and non-ferrous castings
- Lecture 19 - Casting design considerations
- Lecture 20 - Casting defects
- Lecture 21 - Concept of stress and strain, Elastic and plastic behavior
- Lecture 22 - State of stress in two and three dimensions, Mohr's circle
- Lecture 23 - Description of strain at a point
- Lecture 24 - Mean and deviator stresses, Elastic stress strain relationships
- Lecture 25 - Theory of plasticity
- Lecture 26 - Yield criteria for ductile materials
- Lecture 27 - Flow rules, Plastic stress strain relationships
- Lecture 28 - Classification of metal working processes
- Lecture 29 - Mechanics of metal working

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Temperature in metalworking
- Lecture 31 - Rolling process
- Lecture 32 - Analysis of rolling operation
- Lecture 33 - Introduction to forging Process
- Lecture 34 - Analysis of forging process
- Lecture 35 - Problem solving on rolling and forging processes
- Lecture 36 - Extrusion process
- Lecture 37 - Drawing of rods, tubes and wires
- Lecture 38 - Analysis of drawing operation
- Lecture 39 - Sheet metal operations
- Lecture 40 - Metal Forming Defects
- Lecture 41 - Classification of joining processes
- Lecture 42 - Heat flow in welding
- Lecture 43 - Metallurgy of fusion welds
- Lecture 44 - Heat affected zone in welding
- Lecture 45 - Heat treatment processes in welding
- Lecture 46 - Principle of shield arc welding processes
- Lecture 47 - Principle of gas shield arc welding processes
- Lecture 48 - Principle of Resistance welding
- Lecture 49 - Principle of Solid State Welding Processes
- Lecture 50 - Brazing, soldering and adhesive bonding
- Lecture 51 - Residual stresses in welding
- Lecture 52 - Methods of controlling residual stresses in welding
- Lecture 53 - Welding Distortion
- Lecture 54 - Control of welding distortion
- Lecture 55 - Preheat and postweld heat treatment of weldments
- Lecture 56 - Weldability of metals
- Lecture 57 - Weldability of steels
- Lecture 58 - Weldability of cast iron
- Lecture 59 - Weldability of non-ferrous materials
- Lecture 60 - Welding defects

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Automatic Control

Subject Co-ordinator - Dr. Anil Kumar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Definition and Types
- Lecture 2 - Performance Specifications
- Lecture 3 - Design Process
- Lecture 4 - Block Diagrams
- Lecture 5 - Laplace Transform and Transfer Function
- Lecture 6 - Translational Mechanical System
- Lecture 7 - Rotational Mechanical System
- Lecture 8 - Electrical System
- Lecture 9 - Linearization of Nonlinear Systems
- Lecture 10 - Numerical Problems
- Lecture 11 - Poles and Zeros
- Lecture 12 - First Order System
- Lecture 13 - Second Order System
- Lecture 14 - Underdamped Second Order System - I
- Lecture 15 - Underdamped Second Order System - II
- Lecture 16 - Definition of Stability
- Lecture 17 - Routh-Hurwitz Criterion
- Lecture 18 - Routh-Hurwitz Criterion- Special Cases
- Lecture 19 - Steady State Errors
- Lecture 20 - Static Error Constants
- Lecture 21 - Define Root Locus
- Lecture 22 - Sketching of Root Locus - I
- Lecture 23 - Sketching of Root Locus - II
- Lecture 24 - Sketching of Root Locus - III
- Lecture 25 - Numerical Examples and Second Order Approximation
- Lecture 26 - PI Controller Design
- Lecture 27 - PD Controller Design
- Lecture 28 - PID Controller Design
- Lecture 29 - Lag Compensation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lead and Lag-Lead Compensation
- Lecture 31 - State Space Representation
- Lecture 32 - Converting a Transfer Function to State Space
- Lecture 33 - Converting From State Space to Transfer Function
- Lecture 34 - Controller Design
- Lecture 35 - Controller Design and Controllability
- Lecture 36 - Transfer Function, Poles, Zeros, Response
- Lecture 37 - Steady State Error, Root Locus
- Lecture 38 - Design Via Root Locus, Compensation - I
- Lecture 39 - Design Via Root Locus, Compensation - II
- Lecture 40 - State Space Method

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Failure Analysis and Prevention

Subject Co-ordinator - Dr. D. K. Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - Need and scope of failure analysis and prevention
- Lecture 2 - Introduction - Engineering disasters and understanding failures
- Lecture 3 - Fundamental sources of failures - Deficient design - I
- Lecture 4 - Fundamental sources of failures - Deficient design - II
- Lecture 5 - Fundamental sources of failures - Deficient design - III and upgrading of a part
- Lecture 6 - Fundamental sources of failures - Imperfections in base metals
- Lecture 7 - Fundamental sources of failures - Improper Manufacturing - I
- Lecture 8 - Fundamental sources of failures - Improper Manufacturing - II
- Lecture 9 - Fundamental sources of failures - Improper Manufacturing - III
- Lecture 10 - Fundamental sources of failures - Improper Manufacturing - IV and improper service conditions
- Lecture 11 - Fundamental sources of failures - Poor assembly, service and maintenance
- Lecture 12 - Industrial engineering tool for failure analysis - Pareto diagram
- Lecture 13 - Industrial engineering tool for failure analysis - Fishbone diagram and FMEA
- Lecture 14 - Industrial engineering tool for failure analysis - FMEA
- Lecture 15 - Industrial engineering tool for failure analysis - Fault tree analysis
- Lecture 16 - Industrial engineering tool for failure analysis - Reliability - I
- Lecture 17 - Industrial engineering tool for failure analysis - Reliability - II
- Lecture 18 - General procedure of failure analysis - Steps
- Lecture 19 - General procedure of failure analysis - Background information collection
- Lecture 20 - General procedure of failure analysis - Preliminary examination
- Lecture 21 - General procedure of failure analysis - NDT for failure analysis
- Lecture 22 - General procedure of failure analysis - Destructive testing
- Lecture 23 - General procedure of failure analysis - DT, selection, preservation, cleaning and sectioning of
- Lecture 24 - General procedure of failure analysis - Macroscopy of fracture surfaces - I
- Lecture 25 - General procedure of failure analysis - Macroscopy of fracture surfaces - II
- Lecture 26 - General procedure of failure analysis - Macroscopy of fracture surfaces - III
- Lecture 27 - General procedure of failure analysis - Macroscopy of fracture surfaces - IV
- Lecture 28 - General procedure of failure analysis - Microscopy of fracture surfaces
- Lecture 29 - General procedure of failure analysis - Metallography of failed components

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - General procedure of failure analysis - Determination of type of fracture - I
- Lecture 31 - General procedure of failure analysis - Determination of type of fracture - II
- Lecture 32 - General procedure of failure analysis - Determination of type of fracture - III and chemical ana
- Lecture 33 - General procedure of failure analysis - Application of fracture mechanics - I
- Lecture 34 - General procedure of failure analysis - Application of fracture mechanics - II
- Lecture 35 - General procedure of failure analysis - Simulated test service conditions and analysis of eviden
- Lecture 36 - General procedure of failure analysis - Question for analysis
- Lecture 37 - General procedure of failure analysis - Reporting failure analysis and failure analysis of weld
- Lecture 38 - General procedure of failure analysis - Failure analysis of weld joint
- Lecture 39 - General procedure of failure analysis - Examples of failure analysis
- Lecture 40 - General procedure of failure analysis - Embrittlement of steels

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Mechanical Measurement System

Subject Co-ordinator - Prof. Ravi Kumar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic concepts of measurement
- Lecture 2 - Functional elements of instruments
- Lecture 3 - Classification of measuring instruments
- Lecture 4 - Methods of correction for interfering and modifying inputs
- Lecture 5 - Static characteristics of measuring instruments - 1
- Lecture 6 - Static characteristics of measuring instruments - 2
- Lecture 7 - Loading effect and Impedance matching
- Lecture 8 - Statistical analysis
- Lecture 9 - Chi-square test
- Lecture 10 - Least square method
- Lecture 11 - Uncertainty analysis
- Lecture 12 - Problem solving - 1
- Lecture 13 - Generalized model of a measuring system
- Lecture 14 - Zero and first order system
- Lecture 15 - First order system - step response
- Lecture 16 - First order system - ramp response
- Lecture 17 - First order system - impulse response
- Lecture 18 - First order system - frequency response
- Lecture 19 - Second order system - step response - 1
- Lecture 20 - Second order system - step response - 2
- Lecture 21 - Second order system - ramp response
- Lecture 22 - Second order system - impulse and frequency response
- Lecture 23 - Higher order systems
- Lecture 24 - Compensation
- Lecture 25 - Transducers - 1
- Lecture 26 - Transducers - 2
- Lecture 27 - Flow measurement - 1
- Lecture 28 - Flow measurement - 2
- Lecture 29 - Temperature measurement - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Temperature measurement - 2
- Lecture 31 - Strain gauges
- Lecture 32 - Piezoelectric transducers
- Lecture 33 - Pressure measurement
- Lecture 34 - Force and torque measurement
- Lecture 35 - Displacement and acceleration measurement
- Lecture 36 - Sound measurement
- Lecture 37 - Thermophysical properties measurement
- Lecture 38 - Flow visualization
- Lecture 39 - Air pollution sampling and measurement
- Lecture 40 - Problem solving - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Fundamentals of Surface Engineering: Mechanisms, Processes

Subject Co-ordinator - Dr. D. K. Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and need of surface engineering
- Lecture 2 - Surface/sub-surface regions and properties of importance for surface engineering
- Lecture 3 - Surface properties and their modification
- Lecture 4 - Classification of surface modification techniques - I
- Lecture 5 - Classification of surface modification techniques - II
- Lecture 6 - Comparison of surface modification techniques and scope of surface engineering
- Lecture 7 - Scope of surface engineering - I
- Lecture 8 - Surface properties for wear and friction resistance - I
- Lecture 9 - Surface properties for wear and friction resistance - II
- Lecture 10 - Surface properties for wear and friction resistance - III
- Lecture 11 - Issues and application of surface modification
- Lecture 12 - Surface damage
- Lecture 13 - Surface damage
- Lecture 14 - Surface damage
- Lecture 15 - Surface damage
- Lecture 16 - Surface damage
- Lecture 17 - Surface damage
- Lecture 18 - Surface damage
- Lecture 19 - Surface damage
- Lecture 20 - Surface damage
- Lecture 21 - Properties and mode of wear
- Lecture 22 - Metal systems
- Lecture 23 - Thermal barrier coatings
- Lecture 24 - Functionally graded materials and other materials
- Lecture 25 - Surface modification techniques
- Lecture 26 - Surface modification techniques
- Lecture 27 - Surface modification techniques
- Lecture 28 - Surface modification techniques
- Lecture 29 - Surface modification techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Surface modification techniques
- Lecture 31 - Surface modification techniques
- Lecture 32 - Surface modification techniques
- Lecture 33 - Surface modification techniques
- Lecture 34 - Surface modification techniques
- Lecture 35 - Surface modification techniques
- Lecture 36 - Surface modification techniques
- Lecture 37 - Surface modification techniques
- Lecture 38 - Surface modification techniques
- Lecture 39 - Surface modification techniques
- Lecture 40 - Surface modification techniques
- Lecture 41 - Surface modification techniques
- Lecture 42 - Surface modification techniques
- Lecture 43 - Surface modification techniques
- Lecture 44 - Surface modification techniques
- Lecture 45 - Surface modification techniques
- Lecture 46 - Surface modification techniques
- Lecture 47 - Surface modification techniques
- Lecture 48 - Surface modification techniques
- Lecture 49 - Surface modification techniques
- Lecture 50 - Surface modification techniques
- Lecture 51 - Surface modification techniques
- Lecture 52 - Surface modification techniques
- Lecture 53 - Surface modification techniques
- Lecture 54 - Surface modification techniques
- Lecture 55 - Characterization of modified surfaces
- Lecture 56 - Characterization of modified surfaces
- Lecture 57 - Characterization of modified surfaces
- Lecture 58 - Characterization of modified surfaces
- Lecture 59 - Characterization of modified surfaces
- Lecture 60 - Characterization of modified surfaces

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Work System Design

Subject Co-ordinator - Dr. Inderdeep Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Work System Design  
Lecture 2 - Introduction and Concept of Productivity  
Lecture 3 - Measurement of Productivity  
Lecture 4 - Productivity Measures  
Lecture 5 - Productivity Measurement Models  
Lecture 6 - Factors Influencing Productivity  
Lecture 7 - Causes of Low Productivity  
Lecture 8 - Productivity Improvement Technique  
Lecture 9 - Numerical Problems on Productivity  
Lecture 10 - Case Study on Productivity  
Lecture 11 - Work Study  
Lecture 12 - Steps Involved in Work Study  
Lecture 13 - Concept of Work Content  
Lecture 14 - Techniques of Work Study  
Lecture 15 - Human Aspects of Work Study  
Lecture 16 - Method Study  
Lecture 17 - Method Study  
Lecture 18 - Method Study  
Lecture 19 - Operation Process Charts  
Lecture 20 - Operation Process Charts  
Lecture 21 - Flow Process Charts  
Lecture 22 - Flow Process Charts  
Lecture 23 - Two-Handed-Process Charts  
Lecture 24 - Multiple Activity Charts  
Lecture 25 - Flow Diagrams  
Lecture 26 - String Diagrams  
Lecture 27 - Principles of Motion Economy  
Lecture 28 - Micro-Motion Study  
Lecture 29 - Therbligs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - SIMO Charts
- Lecture 31 - Memo-Motion Study
- Lecture 32 - Cycle Graph and Chronocycle Graph
- Lecture 33 - Critical Examination Techniques
- Lecture 34 - Development and Selection of New Method
- Lecture 35 - Installation and Maintenance of Improved Methods
- Lecture 36 - Work Measurement
- Lecture 37 - Techniques of Work Measurement
- Lecture 38 - Steps Involved in Time Study
- Lecture 39 - Steps and Equipment of Time Study
- Lecture 40 - Performance Rating
- Lecture 41 - Performance Rating
- Lecture 42 - Allowances in Time Study
- Lecture 43 - Computation of Standard Time - I
- Lecture 44 - Computation of Standard Time - II
- Lecture 45 - Work Measurement
- Lecture 46 - Work Sampling
- Lecture 47 - Procedure of Work Sampling
- Lecture 48 - Work Sampling
- Lecture 49 - Introduction to Synthetic Data and PMTS
- Lecture 50 - Introduction to MTM and MOST
- Lecture 51 - Ergonomics
- Lecture 52 - Industrial Ergonomics
- Lecture 53 - Ergonomics
- Lecture 54 - Man-Machine System - 1
- Lecture 55 - Man-Machine System - 2
- Lecture 56 - Case Study
- Lecture 57 - Case Study
- Lecture 58 - Case Study
- Lecture 59 - Case Study
- Lecture 60 - Case Study

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Principles of Metal Forming Technology

Subject Co-ordinator - Dr. Pradeep K. Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Metal Forming Technology
- Lecture 2 - Classification of Metal Working Processes
- Lecture 3 - Behavior of Materials
- Lecture 4 - Failure of Materials
- Lecture 5 - Concept of stress and strain
- Lecture 6 - Description of stress
- Lecture 7 - State of stress in three dimension
- Lecture 8 - Description of strain
- Lecture 9 - Hydrostatic and deviator components of stress and strain
- Lecture 10 - Elastic stress strain relationships
- Lecture 11 - Introduction to theory of plasticity and flow curve
- Lecture 12 - True stress and true strain
- Lecture 13 - Yield criteria for ductile materials
- Lecture 14 - Yield locus, Octahedral shear stress and strain
- Lecture 15 - Plastic stress strain relationships
- Lecture 16 - Measures of yielding and ductility in tensile testing
- Lecture 17 - Instability in tension
- Lecture 18 - Strain rate effects on flow properties
- Lecture 19 - Temperature effects on flow properties
- Lecture 20 - Influence of various parameters on flow properties
- Lecture 21 - Classification of metal working processes
- Lecture 22 - Mechanics of metalworking and analysis methods
- Lecture 23 - Determination of flow stresses in metal working
- Lecture 24 - Hot working and cold working
- Lecture 25 - Metallurgical considerations in metal forming
- Lecture 26 - Introduction and classification of forging processes
- Lecture 27 - Equipments used in forging
- Lecture 28 - Forging in plane strain
- Lecture 29 - Introduction and classification of rolling processes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of rolling load calculations
- Lecture 31 - Defects in rolled and forged products
- Lecture 32 - Introduction and classification of extrusion processes
- Lecture 33 - Analysis of extrusion processes
- Lecture 34 - Extrusion of tubes and pipes, extrusion defect
- Lecture 35 - Introduction to rod and wire drawing
- Lecture 36 - Analysis of wire drawing and tube drawing processes
- Lecture 37 - Sheet metal operations - I
- Lecture 38 - Sheet metal operations - II
- Lecture 39 - Powder metallurgy forming - I
- Lecture 40 - Powder metallurgy forming - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Radiative Heat Transfer

Subject Co-ordinator - Prof. Ankit Bansal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Fundamentals of Radiation
- Lecture 3 - Basic Laws of Thermal Radiation
- Lecture 4 - Properties of Plane Surfaces
- Lecture 5 - Radiative Properties of Materials
- Lecture 6 - View Factor
- Lecture 7 - Hottel Crossed String Method
- Lecture 8 - Inside Sphere and Monte Carlo Method
- Lecture 9 - Radiative Heat Exchange Between Black Surfaces
- Lecture 10 - Radiative Heat Exchange Between Gray Diffuse Surfaces
- Lecture 11 - Network Analogy
- Lecture 12 - Solution Methods for Governing Integral Equations
- Lecture 13 - Radiative Heat Exchange between Partially Specular Gray Surfaces
- Lecture 14 - Non-Gray Surfaces
- Lecture 15 - Radiative Heat Transfer in the Presence of Conduction/Convection
- Lecture 16 - Radiative Transfer in Participating Media
- Lecture 17 - Equation of Radiative Transfer
- Lecture 18 - Solution of Radiative Transfer Equation
- Lecture 19 - Radiative Heat Transfer in Cylindrical Media
- Lecture 20 - Approximate Methods-I
- Lecture 21 - Approximate Methods-II
- Lecture 22 - The Method of Spherical Harmonics (PN Approximation) - I
- Lecture 23 - The Method of Spherical Harmonics (PN Approximation) - II
- Lecture 24 - Discrete Ordinate Method (DOM)
- Lecture 25 - Zone Method
- Lecture 26 - Exchange Areas
- Lecture 27 - Monte Carlo Method for Thermal Radiation - I
- Lecture 28 - Monte Carlo Method for Thermal Radiation - II
- Lecture 29 - Radiative Properties of Gases

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Atomic and Molecular Spectra
- Lecture 31 - Line Radiation
- Lecture 32 - Spectral Modelling
- Lecture 33 - Wide Band Models
- Lecture 34 - WSGG Model
- Lecture 35 - k-Distribution Model
- Lecture 36 - Radiative Properties of Particulate Media
- Lecture 37 - Combustion and Flame
- Lecture 38 - Solar and Atmospheric Radiation
- Lecture 39 - Concentrated Solar Collector
- Lecture 40 - Experimental Methods

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Weldability of Metals

Subject Co-ordinator - Dr. D. K. Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Understanding Weldability

Lecture 2 - Understanding Weldability

Lecture 3 - Metal Properties and Weldability - I

Lecture 4 - Metal Properties and Weldability - II

Lecture 5 - Weldability of Work Hardenable Metals

Lecture 6 - Weldability of Work Hardenable and Precipitation Strengthened Metals

Lecture 7 - Weldability of Precipitation Strengthened Metals

Lecture 8 - Weldability of Metals Strengthened by Grain Refinement, dispersion Hardening and Transformation H

Lecture 9 - Weldability of Transformation Hardening Metals

Lecture 10 - Weldability of Metals

Lecture 11 - Weldability Consideration

Lecture 12 - Weldability of Carbon and Alloy Steel - I

Lecture 13 - Weldability of Carbon and Alloy Steel - II

Lecture 14 - Weldability of Carbon and Alloy Steel - III

Lecture 15 - Weldability of Low Carbon Steel and Mild Steel

Lecture 16 - Weldability of Medium Carbon Steel and High Carbon Steel

Lecture 17 - Weldability of Carbon and Welding Processes - I

Lecture 18 - Weldability of Carbon and Welding Processes - II

Lecture 19 - Weldability of Carbon Steel and Welding Processes - III

Lecture 20 - Weldability of Carbon Steel and Radiation Welding and Thermal Cutting

Lecture 21 - Weldability of High Strength Low Alloy Steels

Lecture 22 - Weldability of Q&T Steels - I

Lecture 23 - Weldability of Q&T Steels - II

Lecture 24 - Weldability of Q&T Steels - III

Lecture 25 - Weldability of Q&T Steels - IV

Lecture 26 - Weldability of HTLA Steel - I

Lecture 27 - Weldability of HTLA Steel - II

Lecture 28 - Weldability of Cr-Mo Steel - I

Lecture 29 - Weldability of Cr-Mo Steel - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Weldability of Cr-Mo Steel - III
- Lecture 31 - Weldability of Pre-Coated Steel - I
- Lecture 32 - Weldability of Pre-Coated Steel - II
- Lecture 33 - Weldability of Stainless Steel - I
- Lecture 34 - Weldability of Stainless Steel - II
- Lecture 35 - Weldability of Martensitic Stainless Steel - I
- Lecture 36 - Weldability of Martensitic Stainless Steel - II
- Lecture 37 - Weldability of Ferritic Stainless Steel - I
- Lecture 38 - Weldability of Austenitic Stainless Steel - I
- Lecture 39 - Weldability of Austenitic Stainless Steel - II
- Lecture 40 - Weldability of PH Stainless Steel

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Manufacturing Guidelines for Product Design

Subject Co-ordinator - Dr. Inderdeep Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Product Design
- Lecture 2 - Introduction of Manufacturing Processes
- Lecture 3 - Manufacturing Processes
- Lecture 4 - Manufacturing Processes
- Lecture 5 - Process Capabilities
- Lecture 6 - Engineering Materials
- Lecture 7 - Properties of materials
- Lecture 8 - Selection of materials - I
- Lecture 9 - Selection of materials - II
- Lecture 10 - Applications of Engineering Material
- Lecture 11 - Robust design
- Lecture 12 - Design for X
- Lecture 13 - Product Design for Manual Assembly
- Lecture 14 - DFMA Guidelines
- Lecture 15 - Ergonomics in Product Design
- Lecture 16 - Selection of processes - I
- Lecture 17 - Selection of processes - II
- Lecture 18 - Process Capabilities.
- Lecture 19 - Design Guidelines for Sand Casting
- Lecture 20 - Design Guidelines for Die Casting
- Lecture 21 - Product Design Guidelines
- Lecture 22 - Design Guidelines for Extrusion and Injection Molding
- Lecture 23 - Design Guidelines for Sheet Metal Working
- Lecture 24 - Design Guidelines for Machining
- Lecture 25 - Design Guidelines for Powder Metal Processing
- Lecture 26 - Assembly Processes
- Lecture 27 - Adhesive Joining
- Lecture 28 - Design Guidelines for Mechanical Fasteners
- Lecture 29 - Design Guidelines for Welding

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design guidelines
- Lecture 31 - Induction Welding
- Lecture 32 - Ultrasonic Welding
- Lecture 33 - Vibration and Spin Welding
- Lecture 34 - Microwave Joining
- Lecture 35 - Hole making
- Lecture 36 - Design for Environment
- Lecture 37 - Design for Environment
- Lecture 38 - Product Architecture
- Lecture 39 - Rapid Prototyping
- Lecture 40 - Product Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Inspection and Quality Control in Manufacturing

Subject Co-ordinator - Prof. Kaushik Pal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Need of Inspection

Lecture 3 - Destructive Inspection - I

Lecture 4 - Destructive Inspection - II

Lecture 5 - Testing of Composite Materials

Lecture 6 - Nondestructive Inspection - Visual Inspection

Lecture 7 - Dye Penetrant Inspection

Lecture 8 - Magnetic Particle Inspection

Lecture 9 - Eddy Current Inspection

Lecture 10 - Ultrasonic Inspection

Lecture 11 - Acoustic Emission Inspection

Lecture 12 - Radiography Inspection

Lecture 13 - Leak Testing

Lecture 14 - Thermographic Nondestructive Testing

Lecture 15 - Advanced Nondestructive Testing Techniques, NDT Standards, Safety in NDT

Lecture 16 - Engineering Metrology - Linear Measurement

Lecture 17 - Angular Measurement and Measurement of Surface Finish

Lecture 18 - Screw Thread Metrology

Lecture 19 - Gear Measurement

Lecture 20 - Miscellaneous Measurements

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Financial Mathematics

Subject Co-ordinator - Dr. Pradeep K. Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Financial Mathematics
- Lecture 2 - Important Mathematical Functions and its Characteristics
- Lecture 3 - Progressions and Series, Growth and Decay Curves
- Lecture 4 - Statistical Measures
- Lecture 5 - Problem Solving on Mathematical Functions and Statistical Measures
- Lecture 6 - Interest and Interest Rate, Time Value of Money
- Lecture 7 - Simple Discount, Focal Date and Equation of Value
- Lecture 8 - Introduction to Bank Discount
- Lecture 9 - Introduction to Compound Interest
- Lecture 10 - Problem Solving on Simple Interest and Bank Discount
- Lecture 11 - Introduction to Discrete Compounding and Discrete Payments
- Lecture 12 - Equal Payment Series and Gradient Series Factors
- Lecture 13 - Geometric Gradient Series Factors
- Lecture 14 - Annuities Due and Annuities Deferred
- Lecture 15 - Problem Solving on Compounding Factors
- Lecture 16 - Compounding Frequency of Interest
- Lecture 17 - Interest Factors for Continuous Compounding
- Lecture 18 - Introduction to Economic Equivalence
- Lecture 19 - Principles of Equivalence
- Lecture 20 - Problem Solving on Compounding Frequency and Economic Equivalence
- Lecture 21 - Methods of Comparison of Alternatives
- Lecture 22 - Payback Period
- Lecture 23 - Capitalized Equivalent and Capital Recovery with Return
- Lecture 24 - Project Balance
- Lecture 25 - Problem Solving on Alternatives Comparison and Project Balance
- Lecture 26 - Analysis of Credit and Loans
- Lecture 27 - Assessing Interest and Structured Payments in Loans
- Lecture 28 - Introduction to Cost of Credit and Amortization
- Lecture 29 - Analysis of Amortization Schedule

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- Lecture 30 - Graduated Payment Mortgage, Sinking Funds
- Lecture 31 - Introduction to Depreciation and Depletion
- Lecture 32 - Types of Depreciation
- Lecture 33 - Tax Depreciation Methods
- Lecture 34 - SOD and UOP Method of Depreciation, Depletion
- Lecture 35 - Problem Solving on Depreciation and Depletion
- Lecture 36 - Introduction to Break-Even Analysis
- Lecture 37 - Analysis of Break-Even Time and Dual Break-Even Points
- Lecture 38 - Economic Order Quantity
- Lecture 39 - Introduction to Leverage
- Lecture 40 - Financial Leverage and Total Leverage
- Lecture 41 - Introduction to Stocks
- Lecture 42 - Stock Valuation
- Lecture 43 - Two Stage Dividend Growth and Preferred Stocks
- Lecture 44 - Introduction to Bonds
- Lecture 45 - Bond Premium and Discount, Bond Purchase
- Lecture 46 - Introduction to Mutual funds
- Lecture 47 - Performance Measures
- Lecture 48 - Options
- Lecture 49 - Option Valuation
- Lecture 50 - Introduction to Cost of Capital and Ratio Analysis
- Lecture 51 - Introduction to Risk Measurement
- Lecture 52 - Decision-Making Under Risk
- Lecture 53 - Decision Under Uncertainty
- Lecture 54 - Risk Premium, Portfolio Return and Risk
- Lecture 55 - Portfolio Diversification
- Lecture 56 - Introduction to Insurance, Mortality Table
- Lecture 57 - Pure Endowment and Life Annuities
- Lecture 58 - Introduction to Life Insurance
- Lecture 59 - Types of Life Insurance Policies
- Lecture 60 - Reserve Funds, Property and Casualty Insurance

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Product Design Using Value Engineering

Subject Co-ordinator - Dr. Inderdeep Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Product Design and Development
- Lecture 2 - Product Design Steps and Product Analysis
- Lecture 3 - Profit Consideration
- Lecture 4 - Value Engineering (VE) History, Concept and Definitions
- Lecture 5 - Value Engineering vs Cost Cutting
- Lecture 6 - Creative Thinking
- Lecture 7 - Problem Identification and VEJP
- Lecture 8 - Types of Product Functions
- Lecture 9 - Functional Analysis
- Lecture 10 - Functional Analysis System Technique
- Lecture 11 - Function-Cost Relationship - I
- Lecture 12 - Function-Cost Relationship - II
- Lecture 13 - VE Applications in Product Design
- Lecture 14 - Value Engineering
- Lecture 15 - Value Engineering
- Lecture 16 - VE Tools and Techniques - I
- Lecture 17 - VE Tools and Techniques - II
- Lecture 18 - VE Success Stories - I
- Lecture 19 - VE Success Stories - II
- Lecture 20 - Behavioral Roadblocks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC: Selection of Nanomaterials for Energy Harvesting and Storage

Subject Co-ordinator - Prof. Kaushik Pal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Solar Energy Harvesting

Lecture 3 - Perovskite Solar Cells

Lecture 4 - Solar Thermal Energy

Lecture 5 - Heat Transfer Fluids

Lecture 6 - Hydrogen Energy

Lecture 7 - Hydrogen Production from Thermochemical Process

Lecture 8 - Hydrogen Production from Electrolysis

Lecture 9 - Photo-electrochemical Production of Hydrogen Using Solar Energy

Lecture 10 - Hydrogen Production from Biological Process

Lecture 11 - Nanogenerators

Lecture 12 - Triboelectric Nanogenerators

Lecture 13 - Pyroelectric Nanogenerators

Lecture 14 - Thermoelectric Nanogenerators and Electromagnetic generators

Lecture 15 - Other Energy Resources

Lecture 16 - Energy Storage

Lecture 17 - Electrochemical Energy Storage (Batteries)

Lecture 18 - Supercapacitors

Lecture 19 - Hydrogen Storage

Lecture 20 - Thermal Energy Storage

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Robotics and Control: Theory and Practice

Subject Co-ordinator - Prof. N. Sukavanam, Prof. M. Felix Orlando

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Coordinate Frames and Homogeneous Transformations - I
- Lecture 3 - Coordinate Frames and Homogeneous Frames - II
- Lecture 4 - Differential Transformations
- Lecture 5 - Transforming Differential Changes between Coordinate Frames
- Lecture 6 - Kinematic Model for Robot Manipulator
- Lecture 7 - Direct Kinematics
- Lecture 8 - Inverse Kinematics
- Lecture 9 - Manipulator Jacobian
- Lecture 10 - Manipulator Jacobian Example
- Lecture 11 - Trajectory Planning
- Lecture 12 - Dynamics of Manipulator
- Lecture 13 - Dynamics of Manipulator (Continued...)
- Lecture 14 - Manipulator Dynamics Multiple Degree of Freedom
- Lecture 15 - Stability of Dynamical System
- Lecture 16 - Manipulator Control
- Lecture 17 - Biped Robot Basics and Flat Foot Biped Model
- Lecture 18 - Biped Robot Flat Foot and Toe Foot Model
- Lecture 19 - Artificial Neural Network
- Lecture 20 - Neural Network based control for Robot Manipulator
- Lecture 21 - Redundancy Resolution of Human Fingers in Cooperative Object Translation - I
- Lecture 22 - Redundancy Resolution of Human Fingers in Cooperative Object Translation - II
- Lecture 23 - Fundamentals of Robot Manipulability
- Lecture 24 - Manipulability Analysis of Human Fingers in Cooperative Rotational Motion
- Lecture 25 - Robotic Exoskeletons
- Lecture 26 - Introduction to Robotic Hand Exoskeleton
- Lecture 27 - Design and Development of a Three Finger Exoskeleton
- Lecture 28 - Force Control of an Index Finger Exoskeleton
- Lecture 29 - Neural Control of a Hand Exoskeleton

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Neural Control of a Hand Exoskeleton Based on Human Subject's Intention
- Lecture 31 - Robot Assisted Percutaneous Interventions
- Lecture 32 - Experiments on Robot Assisted Percutaneous Interventions
- Lecture 33 - Sliding Mode Control
- Lecture 34 - Higher Order Sliding Mode Control
- Lecture 35 - Smart Needles for Percutaneous Interventions - I
- Lecture 36 - Smart Needles for Percutaneous Interventions - II
- Lecture 37 - Flexible Link Kinematics - I
- Lecture 38 - Flexible Link Kinematics - II
- Lecture 39 - Model Based Control of Robot Manipulators
- Lecture 40 - Simulation of Robot Manipulators

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Acoustic Metamaterials

Subject Co-ordinator - Prof. Sneha Singh

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Sound Wave Propagation in Fluid - I
- Lecture 3 - Sound Wave Propagation in Fluid - II
- Lecture 4 - Sound Wave Propagation in Fluid - III
- Lecture 5 - Sound Propagation at Medium Boundaries - I
- Lecture 6 - Sound Propagation at Medium Boundaries - II
- Lecture 7 - Standing Waves and Modes
- Lecture 8 - Sound Signal Analysis - I
- Lecture 9 - Sound Signal Analysis - II
- Lecture 10 - Principles of Noise Control
- Lecture 11 - Acoustic Materials
- Lecture 12 - Enclosures
- Lecture 13 - Barriers
- Lecture 14 - Enclosures and Barriers - Tutorial
- Lecture 15 - Sound Absorbing Materials
- Lecture 16 - Porous-Fibrous Sound Absorbers
- Lecture 17 - Panel Sound Absorbers
- Lecture 18 - Helmholtz Resonators
- Lecture 19 - Tutorial on Sound Absorbers
- Lecture 20 - Perforated Panel Absorbers
- Lecture 21 - Microperforated Panel Absorbers - 1
- Lecture 22 - Microperforated Panel Absorbers - 2
- Lecture 23 - Microperforated Panel Absorbers - 3
- Lecture 24 - Introduction to Acoustic Metamaterials - 1
- Lecture 25 - Introduction to Acoustic Metamaterials - 2
- Lecture 26 - History of Acoustic Metamaterials
- Lecture 27 - Applications of Acoustic Metamaterials
- Lecture 28 - Membrane Type Acoustic Metamaterials - 1
- Lecture 29 - Membrane Type Acoustic Metamaterials - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Membrane Type Acoustic Metamaterials - 3
- Lecture 31 - Membrane Type Acoustic Metamaterials - 4
- Lecture 32 - Advantages and Applications of Membrane Type AMM
- Lecture 33 - Tutorial on Membrane Type AMM
- Lecture 34 - Introduction to Sonic Crystals
- Lecture 35 - Fundamentals of Crystals
- Lecture 36 - Principle of Working of Sonic Crystals - 1
- Lecture 37 - Principle of Working of Sonic Crystals - 2
- Lecture 38 - Tutorial on Sonic Crystals
- Lecture 39 - More on Sonic Crystals and Conclusions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Power Plant Engineering

Subject Co-ordinator - Prof. Ravi Kumar

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Energy Scenario and Basic Concepts  
Lecture 2 - Steam Power Plant Cycle  
Lecture 3 - Fossil Fuel Steam Generator - I  
Lecture 4 - Fossil Fuel Steam Generator - II  
Lecture 5 - Mountings and Accessories - I  
Lecture 6 - Mountings and Accessories - II  
Lecture 7 - Boiler Performance  
Lecture 8 - Coal Properties  
Lecture 9 - Coal Handling  
Lecture 10 - Problem Solving - I  
Lecture 11 - Burning of Fuel  
Lecture 12 - Ash Handling  
Lecture 13 - Feed Water Treatment  
Lecture 14 - Steam Turbines  
Lecture 15 - Impulse Steam Turbines  
Lecture 16 - Impulse-Reaction Steam Turbines  
Lecture 17 - Energy Losses in Steam Turbines  
Lecture 18 - Steam Condensers  
Lecture 19 - Gas Turbines  
Lecture 20 - Problem Solving - II  
Lecture 21 - Hydroelectric power plant  
Lecture 22 - Hydro plants and forces on plates  
Lecture 23 - Hydro Turbines - I  
Lecture 24 - Hydro Turbines - II  
Lecture 25 - Problem solving - III  
Lecture 26 - Principles of nuclear energy  
Lecture 27 - Nuclear power plants - I  
Lecture 28 - Nuclear power plants - II  
Lecture 29 - Combined operations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Solar radiations
- Lecture 31 - Solar thermal power
- Lecture 32 - Wind energy
- Lecture 33 - Wave and geothermal energy
- Lecture 34 - Photo-voltaic conversion
- Lecture 35 - Problem solving - IV
- Lecture 36 - Direct energy conversion
- Lecture 37 - Instrumentation in power plant
- Lecture 38 - Economic of power generation
- Lecture 39 - Environmental aspects of power generation
- Lecture 40 - Problem solving - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Principles of Industrial Engineering

Subject Co-ordinator - Prof. D K Dwivedi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction  
Lecture 3 - Introduction  
Lecture 4 - Tool of IE and Organizational Structure  
Lecture 5 - Organisational Structure  
Lecture 6 - Organizational Structure  
Lecture 7 - Organizational Structure  
Lecture 8 - Organizational Structure  
Lecture 9 - Organizational Structure  
Lecture 10 - Organizational Structure and Culture  
Lecture 11 - Organizational Structure  
Lecture 12 - Plant Location and Layout  
Lecture 13 - Plant Location and Layout  
Lecture 14 - Plant Location and Layout  
Lecture 15 - Plant Location and Layout  
Lecture 16 - Plant Location and Layout  
Lecture 17 - Plant Location and Layout  
Lecture 18 - Plant Layout  
Lecture 19 - Plant Layout  
Lecture 20 - Plant Layout  
Lecture 21 - Plant Layout  
Lecture 22 - Plant Layout  
Lecture 23 - Plant Layout  
Lecture 24 - Organization of Facility  
Lecture 25 - Organization of Facility and Material Handling  
Lecture 26 - Material Handling  
Lecture 27 - Production Planning and Control  
Lecture 28 - Production Planning and Control  
Lecture 29 - Production Planning and Control

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Production Planning and Control
- Lecture 31 - Production Planning and Control
- Lecture 32 - Production Planning and Control
- Lecture 33 - Production Planning and Control
- Lecture 34 - Production Planning and Control
- Lecture 35 - Production Planning and Control
- Lecture 36 - Inventory
- Lecture 37 - Inventory
- Lecture 38 - Inventory
- Lecture 39 - Inventory
- Lecture 40 - Inventory
- Lecture 41 - Project Management and Network Modelling
- Lecture 42 - Network Modelling
- Lecture 43 - Network Analysis
- Lecture 44 - Network Analysis
- Lecture 45 - Network Analysis
- Lecture 46 - Network Analysis
- Lecture 47 - Forecasting
- Lecture 48 - Forecasting
- Lecture 49 - Forecasting
- Lecture 50 - Forecasting
- Lecture 51 - Forecasting
- Lecture 52 - Forecasting
- Lecture 53 - Quality Control
- Lecture 54 - Quality Control
- Lecture 55 - Quality Control
- Lecture 56 - Quality Control
- Lecture 57 - Quality Control
- Lecture 58 - Quality Control
- Lecture 59 - Quality Control
- Lecture 60 - Productivity and Work Study



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Mechatronics

Subject Co-ordinator - Prof. Pushparaj Mani Pathak

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Mechatronics System Examples
- Lecture 3 - Electric Circuits and Components
- Lecture 4 - Semiconductor Electronics
- Lecture 5 - Application of Transistors
- Lecture 6 - Sensors Performance Terminology
- Lecture 7 - Displacement, Position and Proximity Sensors - I
- Lecture 8 - Displacement, Position and Proximity Sensors - II
- Lecture 9 - Force, Fluid Flow Sensors
- Lecture 10 - Acceleration and Vibration Measurement Sensors
- Lecture 11 - Mechanical Actuation Systems
- Lecture 12 - Hydraulic and Pneumatic Actuators
- Lecture 13 - Electrical Actuation Systems - I
- Lecture 14 - Electrical Actuation Systems - II
- Lecture 15 - Data Presentation Systems
- Lecture 16 - Introduction to Signal Conditioning and Op-Amp
- Lecture 17 - OP-AMP As Signal Conditioner
- Lecture 18 - Analogue To Digital Converters
- Lecture 19 - Digital To Analogue Converters
- Lecture 20 - Artificial Intelligence
- Lecture 21 - Digital Circuits - I
- Lecture 22 - Digital Circuits - II
- Lecture 23 - Microprocessor
- Lecture 24 - Microcontroller
- Lecture 25 - Microcontroller Programming Example
- Lecture 26 - Mechanical System Model
- Lecture 27 - Electrical System Model
- Lecture 28 - Fluid System Model
- Lecture 29 - Dynamic Response of Systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transfer Function and Frequency Response
- Lecture 31 - Controllers
- Lecture 32 - Digital Controllers
- Lecture 33 - Program Logic Controllers
- Lecture 34 - Input, output and Communication systems
- Lecture 35 - Fault Finding
- Lecture 36 - Project using Microcontroller - ATMEGA16
- Lecture 37 - Myoelectrically Controlled Robotic Arm
- Lecture 38 - ABU Robocon 2019 - Part I
- Lecture 39 - ABU Robocon 2019 - Part II
- Lecture 40 - Design of a Legged Robot

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - Micro and Smart Systems

Subject Co-ordinator - Dr. K.J. Vinoy, Prof. S. Gopalakrishnan, Prof. K.N. Bhat, Prof. G.K. Anathasuresh

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Glimpses of Microsystems
- Lecture 2 - Smart Materials and Systems
- Lecture 3 - Microsensors
- Lecture 4 - Microactuators
- Lecture 5 - Microsystems
- Lecture 6 - Smart systems Application and Structural Health Monitoring
- Lecture 7 - Microfabrication Technologies
- Lecture 8 - Thin-film Materials and their Deposition
- Lecture 9 - Approaches for Pattern Transfer
- Lecture 10 - Surface Micromachining of Microstructures
- Lecture 11 - Bulk Micromachining of Microsystems
- Lecture 12 - Extended Approaches for Working Microsystems
- Lecture 13 - Non-conventional Approaches for Microsystems
- Lecture 14 - Packaging of Microsystems
- Lecture 15 - Deformation Strains and Stresses
- Lecture 16 - Microdevice Suspensions
- Lecture 17 - Residual Stress and Stress Gradients
- Lecture 18 - Torsion and Twist
- Lecture 19 - Vibrations of Microsystems Devices
- Lecture 20 - Vibrations of Microsystems Devices
- Lecture 21 - Micromachined Gyroscopes
- Lecture 22 - Modelling of Coupled Electrostatic Microsystems
- Lecture 23 - Coupled Electrothermal-elastic Modelling
- Lecture 24 - Modelling of Microsystems
- Lecture 25 - Finite Element Method and Microsystems
- Lecture 26 - Theoretical Basis for the Finite Element Method
- Lecture 27 - Energy Theorems and Weak Form of the Governing Equation
- Lecture 28 - Finite Element Equation Development and Shape Functions
- Lecture 29 - Isoparametric FE Formulation and some Examples

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Finite Element for Structures with Piezoelectric Materials
- Lecture 31 - Semiconductor Device Physics
- Lecture 32 - BJT and MOSFET Characteristics and Op-Amps
- Lecture 33 - Op-Amp Circuits and Signal conditioning for Microsystems Devices
- Lecture 34 - Control and Microsystems
- Lecture 35 - Vibration Control of a Beam
- Lecture 36 - Signal Conditioning Circuits and Integration of Microsystems and Microelectronics
- Lecture 37 - Pressure Sensor Design Concepts, Processing, and Packaging
- Lecture 38 - Pressure Sensor Design Concepts, Processing, and Packaging
- Lecture 39 - Pressure Sensor Design Concepts, Processing, and Packaging
- Lecture 40 - Capacitive Micro-accelerometer

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Variational Methods in Mechanics

Subject Co-ordinator - Prof. G.K. Anathasuresh

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Classification of optimization problems and the place of Calculus of Variations in it - Part I
- Lecture 2 - Classification of optimization problems and the place of Calculus of Variations in it - Part II
- Lecture 3 - Genesis of Calculus of Variations - Part I
- Lecture 4 - Genesis of Calculus of Variations - Part II
- Lecture 5 - Formulation of Calculus of Variations problems in geometry and mechanics and design - Part I
- Lecture 6 - Formulation of Calculus of Variations problems in geometry and mechanics and design - Part II
- Lecture 7 - Unconstrained minimization in one and many variables - Part I
- Lecture 8 - Unconstrained minimization in one and many variables - Part II
- Lecture 9 - Constrained minimization KKT conditions - Part I
- Lecture 10 - Constrained minimization KKT conditions - Part II
- Lecture 11 - Sufficient conditions for constrained minimization - Part I
- Lecture 12 - Sufficient conditions for constrained minimization - Part II
- Lecture 13 - Mathematical preliminaries function, functional, metrics and metric space, norm and vector space
- Lecture 14 - Mathematical preliminaries function, functional, metrics and metric space, norm and vector space
- Lecture 15 - Function spaces and Gateaux variation
- Lecture 16 - First variation of a functional Frechet differential and variational derivative
- Lecture 17 - Fundamental lemma of calculus of variations and Euler Lagrange equations - Part I
- Lecture 18 - Fundamental lemma of calculus of variations and Euler Lagrange equations - Part II
- Lecture 19 - Extension of Euler-Lagrange equations to multiple derivatives
- Lecture 20 - Extension of Euler-Lagrange equations to multiple functions in a functional
- Lecture 21 - Global Constraints in calculus of variations - Part I
- Lecture 22 - Global Constraints in calculus of variations - Part II
- Lecture 23 - Local (finite subsidiary) constraints in calculus of variations - Part I
- Lecture 24 - Local (finite subsidiary) constraints in calculus of variations - Part II
- Lecture 25 - Size optimization of a bar for maximum stiffness for given volume - Part I
- Lecture 26 - Size optimization of a bar for maximum stiffness for given volume - Part II
- Lecture 27 - Size optimization of a bar for maximum stiffness for given volume - Part III
- Lecture 28 - Calculus of variations in functionals involving two and three independent variables - Part I
- Lecture 29 - Calculus of variations in functionals involving two and three independent variables - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - General variation of a functional, transversality conditions. Broken extremals, Wierstrass-Erdma
- Lecture 31 - General variation of a functional, transversality conditions. Broken extremals, Wierstrass-Erdma
- Lecture 32 - Variational (energy) methods in statics; principles of minimum potential energy and virtual work
- Lecture 33 - General framework of optimal structural designs - Part I
- Lecture 34 - General framework of optimal structural designs - Part II
- Lecture 35 - Optimal structural design of bars and beams using the optimality criteria method
- Lecture 36 - Invariants of Euler-Lagrange equations and canonical forms
- Lecture 37 - Noether's theorem
- Lecture 38 - Minimum characterization of Sturm-Liouville problems
- Lecture 39 - Rayleigh quotient for natural frequencies and mode shapes of elastic systems
- Lecture 40 - Stability analysis and buckling using calculus of variations
- Lecture 41 - Strongest (most stable) column
- Lecture 42 - Dynamic compliance optimization
- Lecture 43 - Electro-thermal-elastic structural optimization
- Lecture 44 - Formulating the extremization problem starting from the differential equation, self-adjointness

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Compliant Mechanisms: Principles and Design

Subject Co-ordinator - Prof. G. K. Ananthasuresh

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Overview

Lecture 2 - Spirit of compliant design

Lecture 3 - A glimpse of applications

Lecture 4 - Mobility and degrees of freedom in compliant mechanisms

Lecture 5 - Maxwell's rule and Grubler's formula

Lecture 6 - Using compatibility and force equilibrium matrices to identify degrees of freedom and states of stress

Lecture 7 - Empirical formula for flexure joints

Lecture 8 - Types of elastic pairs (flexures)

Lecture 9 - Linear finite element analysis of compliant mechanisms with beam elements

Lecture 10 - A compliant mechanism kit

Lecture 11 - Linear and nonlinear finite element analyses using continuum elements

Lecture 12 - Subtleties in finite element analysis: geometric nonlinearity and contact

Lecture 13 - Deformation of a cantilever under a tip-load, using elliptic integrals

Lecture 14 - Elliptic integrals and their use in elastica analysis

Lecture 15 - Frisch-Fay's approach to large deformation of beam

Lecture 16 - Burns-Crossley's kinematic model

Lecture 17 - Howell-Midha's elastic model

Lecture 18 - Putting together the pseudo rigid-body model

Lecture 19 - Modeling a partially compliant mechanism

Lecture 20 - Kinematic coefficients of a four-bar linkage with and without springs

Lecture 21 - Solving equations of PRB modeling and comparing with finite element analysis

Lecture 22 - Loop-closure equations for PRB models of compliant mechanisms

Lecture 23 - Burmester theory for compliant mechanisms

Lecture 24 - PRB-based Synthesis Examples

Lecture 25 - Structural optimization approach

Lecture 26 - Early works on design for compliance

Lecture 27 - Design for deflection of trusses

Lecture 28 - Design for deflection of beams and frames

Lecture 29 - Design of elastic continua for desired deflection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Continuum element-based topology optimization of compliant mechanisms
- Lecture 31 - YinSyn; synthesis of nonlinear responses with compliant mechanisms
- Lecture 32 - Five different formulations for compliant mechanism design and some benchmark problems
- Lecture 33 - Distributed compliance
- Lecture 34 - How to achieve distributed compliance
- Lecture 35 - Shape optimization
- Lecture 36 - Cam-flexure clamp-case-study
- Lecture 37 - SL model for compliant mechanisms
- Lecture 38 - Feasibility maps for compliant mechanisms
- Lecture 39 - Selection of compliant mechanisms for given user-specifications
- Lecture 40 - Two case-studies using feasibility maps technique
- Lecture 41 - SML model for compliant mechanisms for dynamic response
- Lecture 42 - Re-design of compliant mechanisms; Matlab and Java codes
- Lecture 43 - Non-dimensional analysis of beams
- Lecture 44 - Deformation index and slenderness ratio of compliant mechanisms
- Lecture 45 - Kinetoelastostatic maps
- Lecture 46 - Designing with kinetoelastic maps
- Lecture 47 - Non-dimensionalization of stress, frequency, and other measures
- Lecture 48 - Designing compliant suspensions using kinetoelastic maps
- Lecture 49 - Instant centre method for designing compliant mechanisms
- Lecture 50 - Stiffness and compliance ellipsoids
- Lecture 51 - Building block method of designing compliant mechanisms
- Lecture 52 - Comparative analysis of different methods for designing compliant mechanisms
- Lecture 53 - Aspects of Mechanical advantage of compliant mechanisms
- Lecture 54 - Mechanical advantage of rigid-body and compliant mechanisms
- Lecture 55 - Bistability in elastic systems
- Lecture 56 - Analysis of bistable arches
- Lecture 57 - Compliant mechanisms with bistable arches
- Lecture 58 - Static balancing and zero-free-length springs
- Lecture 59 - Static balance of a compliant mechanism using a linkage
- Lecture 60 - Static balancing method for compliant mechanisms
- Lecture 61 - A catalogue of compliant mechanisms
- Lecture 62 - Compliant suspension mechanism in microsystems (MEMS)
- Lecture 63 - Micromechanical signal processors using compliant mechanisms
- Lecture 64 - A few special concepts of compliant mechanisms
- Lecture 65 - Materials and prototyping of compliant mechanisms
- Lecture 66 - Summary of the course
- Lecture 67 - Micromachined accelerometers with Displacement-amplifying Compliant Mechanisms (DaCMs)
- Lecture 68 - Miniature compliant mechanisms as cell-manipulation tools

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Micro-newton force sensor
- Lecture 70 - Compliant tissue cutting mechanism
- Lecture 71 - A compliant pipe-crawling robots
- Lecture 72 - A compliant easy-chair for the elderly

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Heat Transfer and Combustion in Multiphase Systems

Subject Co-ordinator - Prof. Saptarshi Basu

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Multiphase
- Lecture 2 - Thermodynamics of Multiphase systems
- Lecture 3 - Thermodynamics of Interface - I
- Lecture 4 - Thermodynamics of Interface - II
- Lecture 5 - Interfacial phenomena key concepts - I
- Lecture 6 - Interfacial phenomena key concepts - II
- Lecture 7 - Interfacial heat and mass transfer - I - Interfacial mass, momentum and energy balance, Surface t
- Lecture 8 - Interfacial heat and mass transfer - II - Interfacial dynamics, Instabilities of the interface
- Lecture 9 - Interfacial heat and mass transfer - III - Evaporation from thin films
- Lecture 10 - Governing equations and interfacial conditions
- Lecture 11 - Governing equations
- Lecture 12 - Governing equations
- Lecture 13 - Governing equations
- Lecture 14 - Interface shapes
- Lecture 15 - Transport processes at interface with key concepts - I
- Lecture 16 - Transport processes at interface with key concepts - II
- Lecture 17 - Interfacial transport
- Lecture 18 - Interfacial transport including dynamic behavior
- Lecture 19 - Interface behavior
- Lecture 20 - Heat transfer and evaporation in droplets
- Lecture 21 - Droplet vaporization models - I
- Lecture 22 - Droplet vaporization models - II
- Lecture 23 - Droplet vaporization dynamics - I
- Lecture 24 - Droplet vaporization dynamics - II
- Lecture 25 - Droplet liquid phase transport
- Lecture 26 - Comprehensive droplet vaporization model and correlations - I
- Lecture 27 - Comprehensive droplet vaporization model and correlations - II
- Lecture 28 - Comparison of droplet vaporization models
- Lecture 29 - Species transport in droplet

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heat transfer and transport processes in sessile droplets
- Lecture 31 - Introduction to atomization
- Lecture 32 - Atomization principles and governing parameters
- Lecture 33 - Spray / droplet breakup models  $\hat{A}$  I (TAB model)
- Lecture 34 - Spray / droplet breakup models  $\hat{A}$  II (WAVE model)
- Lecture 35 - Droplet combustion - I
- Lecture 36 - Droplet combustion - II
- Lecture 37 - Regimes in spray combustion
- Lecture 38 - Boiling - I
- Lecture 39 - Boiling - II (Bubble dynamics)
- Lecture 40 - Boiling - II (Bubble dynamics and critical heat flux)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Convective Heat Transfer (2018)

Subject Co-ordinator - Prof. Saptarshi Basu

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to convective heat transfer  
Lecture 2 - Governing equations I - Momentum Conservation  
Lecture 3 - Governing equations II - Energy Conservation  
Lecture 4 - Introduction to external forced convection  
Lecture 5 - Scaling Analysis - Momentum  
Lecture 6 - Scaling Analysis - Energy I  
Lecture 7 - Scaling Analysis - Energy II  
Lecture 8 - Similarity solution - Momentum  
Lecture 9 - Similarity solution - Energy  
Lecture 10 - Integral solutions - Momentum  
Lecture 11 - Integral solutions - Energy  
Lecture 12 - Suction and Blowing  
Lecture 13 - Falkner-Skan solution  
Lecture 14 - Arbitrary Wall temperature  
Lecture 15 - Internal forced convection - Developing flow  
Lecture 16 - Hydrodynamic fully developed flow  
Lecture 17 - Mean temperature in fully developed flow  
Lecture 18 - Uniform heat flux  
Lecture 19 - Uniform wall temperature  
Lecture 20 - Tube surrounded by isothermal flow  
Lecture 21 - Heat transfer to fully developed flow - I  
Lecture 22 - Heat transfer to fully developed flow - II  
Lecture 23 - Laminar slug flow  
Lecture 24 - Power law fluids  
Lecture 25 - Forced convection - Tutorial I  
Lecture 26 - Forced convection - Tutorial II  
Lecture 27 - Forced convection - Tutorial III  
Lecture 28 - Introduction to external natural convection  
Lecture 29 - Scaling analysis - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Scaling analysis - II
- Lecture 31 - Integral solution
- Lecture 32 - Similarity solution
- Lecture 33 - Uniform wall heat flux
- Lecture 34 - Thermal stratification
- Lecture 35 - Mixed convection
- Lecture 36 - Internal natural convection - Scaling analysis
- Lecture 37 - Heat transfer regimes
- Lecture 38 - Regime III
- Lecture 39 - Regime IV - Shallow enclosure limit - I
- Lecture 40 - Regime IV - Shallow enclosure limit - II
- Lecture 41 - Partially divided enclosures
- Lecture 42 - Inclined enclosures
- Lecture 43 - Natural convection - Tutorial I
- Lecture 44 - Natural convection - Tutorial II
- Lecture 45 - Introduction to Turbulence
- Lecture 46 - Reynold's Averaged Navier Stokes equation - I
- Lecture 47 - Reynold's Averaged Navier Stokes equation - II
- Lecture 48 - Turbulent boundary layer - Viscous sub layer
- Lecture 49 - Turbulent boundary layer - Fully turbulent sub layer
- Lecture 50 - Heat transfer in turbulent boundary layer
- Lecture 51 - Turbulent internal flow - I
- Lecture 52 - Turbulent internal flow - II
- Lecture 53 - Turbulent internal flow - III
- Lecture 54 -  $k - \epsilon$  model
- Lecture 55 - Turbulence - Tutorial
- Lecture 56 - Experimental techniques - Thermochromic liquid crystals
- Lecture 57 - Experimental techniques - IR thermography
- Lecture 58 - Droplet evaporation - Sessile I
- Lecture 59 - Droplet evaporation - Sessile II
- Lecture 60 - Droplet evaporation - Contact free

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:A Short Lecture series on Contour Integration in the Complex Plane

Subject Co-ordinator - Prof. Venkata Sonti

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to complex variables

Lecture 2 - Cauchy Riemann Equations

Lecture 3 - Analytic Functions

Lecture 4 - Simple definitions

Lecture 5 - Definition of sets, domains, theorem on antiderivative

Lecture 6 - Cauchy Goursat Theorem

Lecture 7 - Implications of Cauchy Goursat Theorem, Cauchy Integral Formula

Lecture 8 - Implications of CIF, converse of CG theorem

Lecture 9 - Examples in contour integrals, ratios of polynomials

Lecture 10 - Contour integration of sinc function

Lecture 11 - Method of path deformation

Lecture 12 - Method of path deformation (Continued...)

Lecture 13 - Infinite and finite branch cuts

Lecture 14 - Finite Branch Cut

Lecture 15 - Infinite branch cut example

Lecture 16 - Contour integration

Lecture 17 - Finite square root branch cut

Lecture 18 - Example on finite branch cut

Lecture 19 - Pole on a branch cut

Lecture 20 - L shaped branch cut

Lecture 21 - L shaped branch cut continued

Lecture 22 - Inverse Laplace Transform

Lecture 23 - Inverse Laplace Transform (Continued...)

Lecture 24 - Additional material or corrections to lectures

Lecture 25 - Summary of the total course

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Introduction to Soft Matter

Subject Co-ordinator - Prof. Aloke Kumar

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Deborah number
- Lecture 3 - Response of Elastic solid
- Lecture 4 - Response of Viscous fluid
- Lecture 5 - Viscoelastic material
- Lecture 6 - Creep and stress relaxation
- Lecture 7 - Creep and stress relaxation functions
- Lecture 8 - Linearity
- Lecture 9 - Mechanical Analogues
- Lecture 10 - Tutorial
- Lecture 11 - Atoms and bonds
- Lecture 12 - Interatomic bonds
- Lecture 13 - Polymers
- Lecture 14 - Polymers (Continued...)
- Lecture 15 - Polymers (Continued...)
- Lecture 16 - Freely jointed model
- Lecture 17 - Constitutive equations
- Lecture 18 - Constitutive equations (Continued...)
- Lecture 19 - Constitutive equations (Continued...)
- Lecture 20 - Viscoelastic effects
- Lecture 21 - Lab Session
- Lecture 22 - Polymer concentrations
- Lecture 23 - Lagrangian and Eulerian perspectives
- Lecture 24 - Maxwell model
- Lecture 25 - Maxwell model (Continued...)
- Lecture 26 - Kelvin-Meyer-Voigt model
- Lecture 27 - Three parameter model
- Lecture 28 - Three parameter model (Continued...)
- Lecture 29 - Three parameter model (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Jeffereyâ s model
- Lecture 31 - Two Maxwell model
- Lecture 32 - N-Maxwell model
- Lecture 33 - N-Maxwell model (Continued...)
- Lecture 34 - N-Kelvin Meyer Voigt model
- Lecture 35 - Constitutive modelling
- Lecture 36 - Objectivity
- Lecture 37 - Objectivity
- Lecture 38 - Sinusoidal oscillations
- Lecture 39 - Sinusoidal oscillations (Continued...)
- Lecture 40 - Sinusoidal oscillations (Continued...)
- Lecture 41 - Summary
- Lecture 42 - Tutorial
- Lecture 43 - Tutorial (Continued...)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Robotics: Basics and Selected Advanced Concepts

Subject Co-ordinator - Prof. Ashitava Ghosal

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction, Types and Classification of Robots

Lecture 2 - Main Elements of a Robot

Lecture 3 - Modelling and Analysis of Robots

Lecture 4 - Mathematical Preliminaries, Homogeneous Transformations

Lecture 5 - Elements of robot - Joints, Elements of robots - Links

Lecture 6 - Examples of D-H parameters and Link transformation matrices

Lecture 7 - Introduction, Direct Kinematics of Serial Robots

Lecture 8 - Inverse Kinematics of Serial Robots

Lecture 9 - Inverse Kinematics of Serial Robots with  $n < 6$ , Inverse Kinematics of Serial Robots with  $n > 6$

Lecture 10 - Elimination Theory and Solution of Non-linear Equations, Inverse Kinematics of a General 6R Robot

Lecture 11 - Introduction, Loop-closure Equations

Lecture 12 - Direct Kinematics of Parallel Manipulators

Lecture 13 - Mobility of Parallel Manipulators

Lecture 14 - Inverse Kinematics of Parallel Manipulators

Lecture 15 - Direct Kinematics of Stewart Platform Manipulators

Lecture 16 - Sun tracking using 3-DOF parallel manipulator

Lecture 17 - Stewart-Gough platform-based force-torque sensor

Lecture 18 - Vibration isolation using a Stewart-Gough platform

Lecture 19 - Introduction, Linear and Angular Velocity of Links

Lecture 20 - Serial Manipulator Jacobian Matrix

Lecture 21 - Parallel Manipulator Jacobian Matrix

Lecture 22 - Singularities in Serial and Parallel Manipulators

Lecture 23 - Statics of Serial and Parallel Manipulators

Lecture 24 - Hyper-redundant robots

Lecture 25 - Redundancy resolution in human arm

Lecture 26 - Flexible robots

Lecture 27 - Introduction, Lagrangian formulation

Lecture 28 - Examples of Equations of Motion

Lecture 29 - Inverse Dynamics and Simulation of Equations of Motion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Recursive Formulations of Dynamics of Manipulators
- Lecture 31 - Motion planning
- Lecture 32 - Control of a single link
- Lecture 33 - Control of a multi-link serial manipulator
- Lecture 34 - Control of a multi-link manipulator
- Lecture 35 - Control of constrained and parallel manipulator, Cartesian control of serial manipulators
- Lecture 36 - Force control of manipulators, Hybrid position/force control of manipulators
- Lecture 37 - Advanced topics in non-linear control of manipulators
- Lecture 38 - Wheeled Mobile Robots (WMR) on Flat Terrain
- Lecture 39 - Wheeled Mobile Robots (WMR) on Uneven Terrain
- Lecture 40 - Kinematics and Dynamics of WMR on Uneven Terrain
- Lecture 41 - Over-Constrained Mechanism and Deployable Structures
- Lecture 42 - Kinematic and Static Analysis

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Sound and Structural Vibration

Subject Co-ordinator - Prof. Venkata R. Sonti

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The longitudinal wave in vibrating spring
- Lecture 2 - Harmonically excited systems
- Lecture 3 - The concept of coincidence frequency
- Lecture 4 - A classical problem in sound-structure interaction
- Lecture 5 - Classical problem (Continued...)
- Lecture 6 - Uncoupled solution to the classical problem
- Lecture 7 - Uncoupled solution (Continued...).
- Lecture 8 - Introduction to the coupled problem.
- Lecture 9 - The coupled roots
- Lecture 10 - Physical meaning of terms
- Lecture 11 - Derivation of coupled roots using asymptotic method
- Lecture 12 - Coupled roots derivation (Continued...)
- Lecture 13 - Regions of heavy and light fluid loading
- Lecture 14 - Light and heavy fluid loading (Continued...)
- Lecture 15 - The coupled vibration field
- Lecture 16 - The coupled acoustic field and stationary phase
- Lecture 17 - The 2-D structural-acoustic waveguide
- Lecture 18 - The coupled partial differential equations
- Lecture 19 - Derivation of the coupled dispersion equation
- Lecture 20 - A schematic of coupled waves
- Lecture 21 - Derivation of coupled waves using asymptotic method
- Lecture 22 - Asymptotic method (Continued...) and Maple demo
- Lecture 23 - Physics of the coupled waves
- Lecture 24 - Critical points
- Lecture 25 - Heavy fluid loading
- Lecture 26 - Summary of the rectangular waveguide
- Lecture 27 - Impedance and mobility
- Lecture 28 - Derivation of acoustic and vibration response
- Lecture 29 - Derivation of vibro-acoustic response (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Derivation of vibro-acoustic response (Continued...)
- Lecture 31 - Numerical example
- Lecture 32 - Coupled resonance analysis using matrices
- Lecture 33 - Coupled resonance analysis (Continued...)
- Lecture 34 - Sound radiation from a baffled panel
- Lecture 35 - Derivation of pressure response.
- Lecture 36 - Radiation efficiency
- Lecture 37 - Physics of volume velocity cancellation
- Lecture 38 - Derivations in the frequency domain: 1-D
- Lecture 39 - Physics of the vibration spectrum in 2-D
- Lecture 40 - Modal character across the frequency range
- Lecture 41 - Simultaneous radiation from several modes
- Lecture 42 - Panel radiation model using monopoles
- Lecture 43 - Physics of panel radiation using monopole model
- Lecture 44 - Physics of panel radiation using monopole model (Continued...)
- Lecture 45 - Radiation resistance derivation from Maidanikâ s work (Continued...)
- Lecture 46 - Radiation resistance derivation from Maidanikâ s work (Continued...)
- Lecture 47 - Radiation resistance derivation from Maidanikâ s work (Continued...)
- Lecture 48 - Modal average radiation efficiency
- Lecture 49 - Modal average radiation efficiency (Continued...)
- Lecture 50 - Transmission of sound through a rigid panel with flexible mounts
- Lecture 51 - Frequency dependence of sound transmission
- Lecture 52 - Sound transmission through a flexible partition
- Lecture 53 - Transmission loss in different situations
- Lecture 54 - Cylindrical shell vibration
- Lecture 55 - Behavior of uncoupled shell waves
- Lecture 56 - Fluid waves in rigid-walled cylindrical shells
- Lecture 57 - Wave propagation characteristics in flexible cylindrical shells carrying fluid: Fullers paper
- Lecture 58 - Wave impedance of an infinite plate: fluid loading
- Lecture 59 - Fluid loading in a finite plate
- Lecture 60 - Summary of the entire course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Vibrations of Plates and Shells

Subject Co-ordinator - Prof. Venkata R. Sonti

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to differential geometry
- Lecture 2 - Properties of surfaces: First fundamental form
- Lecture 3 - Properties of surfaces: Second fundamental form
- Lecture 4 - Surfaces of revolution
- Lecture 5 - Gauss Codazzi relations
- Lecture 6 - Gauss Codazzi (Continued...)
- Lecture 7 - Differential element length in a thin shell
- Lecture 8 - Strain of a differential element
- Lecture 9 - Explicit strain expressions
- Lecture 10 - Love simplifications and inconsistencies Of the theory
- Lecture 11 - Euler Bernoulli Beam equation using the Hamilton's Law
- Lecture 12 - Euler Bernoulli Beam and Hamilton's Law (Continued...)
- Lecture 13 - Beta definition, force and moment resultants
- Lecture 14 - Hamilton's Law for a general shell
- Lecture 15 - The Hamilton's law (Continued...)
- Lecture 16 - Final Dynamical Equations and boundary conditions
- Lecture 17 - Physics of each term in the dynamic equations
- Lecture 18 - Physics of each term (Continued...)
- Lecture 19 - The sixth equation of motion
- Lecture 20 - The sixth equation of motion (Continued...)
- Lecture 21 - Equations of motion for a rectangular plate using Hamilton's law
- Lecture 22 - Equations of motion for a rectangular Plate (Continued...)
- Lecture 23 - Rectangular plate boundary conditions
- Lecture 24 - Rectangular plate equation using force balance
- Lecture 25 - Modeshapes and resonances of a vibrating beam
- Lecture 26 - Modeshapes and resonances of a vibrating Rectangular plate
- Lecture 27 - Modeshapes and resonances of a vibrating Circular plate
- Lecture 28 - Vibrating circular plate (Continued...)
- Lecture 29 - Modeshapes and resonances of a vibrating Circular ring

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Details of vibrating rings
- Lecture 31 - Insights into vibrations of ring
- Lecture 32 - Cylindrical shell equations of motion using Force balance
- Lecture 33 - Cylindrical shell: Transverse equation of motion
- Lecture 34 - Orthogonality of modeshapes
- Lecture 35 - Orthogonality of Modes (Continued...)
- Lecture 36 - The Rayleigh Quotient
- Lecture 37 - Rayleigh Quotient Example: Simply-supported beam
- Lecture 38 - The Rayleigh Ritz method
- Lecture 39 - The Rayleigh Ritz method applied to a Complicated system
- Lecture 40 - The Lagrange Multiplier method
- Lecture 41 - The penalty method
- Lecture 42 - Orthogonal polynomials of RB Bhat
- Lecture 43 - Rayleigh Ritz paper by RB Bhat
- Lecture 44 - Numerical examples of the Rayleigh Ritz method
- Lecture 45 - Numerical examples of Rayleigh Ritz method And animations
- Lecture 46 - Rayleigh Ritz applied to curved structures
- Lecture 47 - Forced response of plates and shells
- Lecture 48 - Forced response (Continued...)
- Lecture 49 - Simply-supported plate response to various forces
- Lecture 50 - Simply-supported plate response to various Forces (Continued...)
- Lecture 51 - Simply-supported cylindrical shell response to a Point harmonic force
- Lecture 52 - Cylindrical shell response (Continued...)
- Lecture 53 - Cylindrical shell response (Continued...)
- Lecture 54 - Cylindrical shell response to a traveling load using Only transverse modes
- Lecture 55 - The Receptance method
- Lecture 56 - The receptance method (Continued...)
- Lecture 57 - Stiffening a cylindrical shell using rings
- Lecture 58 - Stiffening of a cylindrical shell (Continued...)
- Lecture 59 - Damping in structures
- Lecture 60 - Loss factor and Complex Young modulus

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Dynamics and Control of Mechanical Systems

Subject Co-ordinator - Prof. Ashitava Ghosal

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Course
- Lecture 2 - Position and Orientation of a Rigid Body
- Lecture 3 - Homogenous Transformation
- Lecture 4 - Linear and angular velocity of rigid body
- Lecture 5 - Motion of Rigid Body and Particles
- Lecture 6 - Introduction to multi-body systems
- Lecture 7 - Joints, Degrees of Freedom and Constraints
- Lecture 8 - Position, Velocity and Acceleration in Multi-body Systems
- Lecture 9 - Mass and Inertia of a Rigid Body
- Lecture 10 - External forces and moments
- Lecture 11 - Angular momentum, Spinning tops and Gyroscopes
- Lecture 12 - Free-body diagram and Equations of motion
- Lecture 13 - Newton-Euler Formulation for Serial Chains
- Lecture 14 - Lagrangian Formulation
- Lecture 15 - Examples of Equations of Motion
- Lecture 16 - Equations of Motion Using Computer Tools
- Lecture 17 - Introduction and Examples of equations of motion
- Lecture 18 - Inverse dynamics and Simulations of equations Of motion
- Lecture 19 - Simulation using Computer Tools
- Lecture 20 - Introduction and Goal of control
- Lecture 21 - State Space Formulation
- Lecture 22 - Solution of State Equations
- Lecture 23 - Stability of Dynamical Systems
- Lecture 24 - Controllability and Observability of Linear Systems
- Lecture 25 - Examples of Controllability and Observability
- Lecture 26 - Introduction to Classical Control
- Lecture 27 - Root Locus
- Lecture 28 - Frequency Domain Approach
- Lecture 29 - PID Control

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Root Locus based Controller Design
- Lecture 31 - State Space Design
- Lecture 32 - 3 Case Studies



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Optical Methods for Solid and Fluid Mechanics

Subject Co-ordinator - Prof. Aloke Kumar, Prof. Koushik Viswanathan

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Mathematical Preliminaries - I  
Lecture 3 - Tensors and Deformations  
Lecture 4 - Lagrangian and Eulerian Perspectives  
Lecture 5 - Mathematical Preliminaries - II  
Lecture 6 - Image Processing Preliminaries  
Lecture 7 - Image Processing Operations  
Lecture 8 - Light Matter Interaction - I  
Lecture 9 - Lab Demo I: Optical Microscope  
Lecture 10 - Optical System: Lenses  
Lecture 11 - Lab Demo II: Lenses and Camera  
Lecture 12 - Light Matter Interaction - II (Lab Demonstration)  
Lecture 13 - Light Matter Interaction - II (Lab Demonstration)  
Lecture 14 - Tracer Particles for Flow Visualisation  
Lecture 15 - Particle Tracking Velocimetry  
Lecture 16 - Particle Image Velocimetry - I  
Lecture 17 - Particle Image Velocimetry - II  
Lecture 18 - Particle Image Velocimetry - III  
Lecture 19 - Particle Image Velocimetry - IV  
Lecture 20 - Particle Image Velocimetry - V  
Lecture 21 - Particle Image Velocimetry - VI  
Lecture 22 - Schlieren and Shadowgraphy  
Lecture 23 - Lab Demo III: PIV and Schlieren  
Lecture 24 - Introduction to optical methods for solids  
Lecture 25 - Basics of Digital Image Correlation  
Lecture 26 - Iterative implementation of DIC  
Lecture 27 - Example implementations  
Lecture 28 - How is a DIC experiment set up ?  
Lecture 29 - DIY(C)!

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Photoelasticity
- Lecture 31 - Why do we see fringes ?
- Lecture 32 - How does light interact with matter ?
- Lecture 33 - Origin of Birefringence
- Lecture 34 - Loaded sample in a polarizer
- Lecture 35 - Stress-induced birefringence
- Lecture 36 - Analyses of optical paths using matrix methods
- Lecture 37 - Putting it all together
- Lecture 38 - What is tomography ?
- Lecture 39 - Signal processing and Fourier methods
- Lecture 40 - Rays and the Radon transforms
- Lecture 41 - Geometric interpretations
- Lecture 42 - The inverse problem: From Radon transform to 2D cross-section
- Lecture 43 - Cone beams, parallel beams and the Feldkamp algorithm

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mechanical Engineering - NOC:Statistical Thermodynamics for Engineers

Subject Co-ordinator - Prof. Saptarshi Basu

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Statistical Thermodynamics
- Lecture 2 - Basic Probability Theory and Statistics
- Lecture 3 - Important Probability Distributions
- Lecture 4 - Combinatorial Analysis for Statistical Thermodynamics
- Lecture 5 - Basic Concepts
- Lecture 6 - Macrostates and Microstates
- Lecture 7 - Bose Einstein and Fermi Dirac Statistics
- Lecture 8 - Entropy and the equilibrium particle distribution
- Lecture 9 - Operator Theory - 1
- Lecture 10 - Stirling Approximation and Lagrange Multipliers
- Lecture 11 - Equilibrium particle distribution
- Lecture 12 - The Dilute Limit and Concept of Molecular Partition Function
- Lecture 13 - The Molecular Partition Function and its relationship with Classical Thermodynamics
- Lecture 14 - Historical Survey of Quantum Mechanics
- Lecture 15 - Operator Theory - 2
- Lecture 16 - Operator Theory - 3
- Lecture 17 - Bohr Model for the Spectrum of Atomic Hydrogen
- Lecture 18 - Heuristic Introduction to the Schrodinger Equation
- Lecture 19 - The postulates of Quantum Mechanics
- Lecture 20 - The Steady State Schrodinger Equation: Single Particle Analysis
- Lecture 21 - Coordinate System - 1
- Lecture 22 - Coordinate System - 2
- Lecture 23 - Coordinate System - 3
- Lecture 24 - The Steady State Schrodinger Equation: Multiparticle analysis
- Lecture 25 - The Particle in a Box
- Lecture 26 - The Uncertainty Principle
- Lecture 27 - The Pauli Exclusion and the Correspondence Principle
- Lecture 28 - Problem Solving - 1
- Lecture 29 - Problem Solving - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Internal Motion for a two particle system
- Lecture 31 - The rotational and vibrational energy mode for a diatomic molecule
- Lecture 32 - Hermite polynomials as vibrational energy mode solution
- Lecture 33 - Equivalent two body model of atomic hydrogen
- Lecture 34 - The Electronic Energy Mode for Atomic Hydrogen
- Lecture 35 - Problem Solving - 3
- Lecture 36 - The four quantum numbers and multielectron systems
- Lecture 37 - Spectroscopic term symbols for multielectron atoms
- Lecture 38 - Electron energies for multielectron systems
- Lecture 39 - Combined energy modes for atoms and diatomic molecules
- Lecture 40 - Perturbation analysis of the Schrodinger Wave equation
- Lecture 41 - Selection rules
- Lecture 42 - The Rotational and vibrational spectroscopy
- Lecture 43 - Ro-vibrational spectroscopy (Simplex model)
- Lecture 44 - Rotation vibration coupling (Complex model)
- Lecture 45 - Ro-vibrational spectroscopy (Complex model)
- Lecture 46 - Ro-vibronic spectroscopy
- Lecture 47 - Working with Spectroscopic Schemes, Notations and Term Symbols
- Lecture 48 - From Particles to assembly - I
- Lecture 49 - From Particles to assembly - II
- Lecture 50 - Connecting Quantum Mechanics to Classical Mechanics
- Lecture 51 - The Equipartition principle and ideal gas
- Lecture 52 - Thermodynamic properties of ideal monoatomic and diatomic gas
- Lecture 53 - The zero of energy (rotational and vibrational)
- Lecture 54 - Specific heats, Internal energy through Vibrational and Ro-vibrational energy modes
- Lecture 55 - The Ro-vibrational partition function and Introduction to intersction of Radiation and Matter
- Lecture 56 - Absorption and Emission of Radiation
- Lecture 57 - The Rabi frequency and Beer's Law
- Lecture 58 - Insights into radiative spectral transitions
- Lecture 59 - Theory of Absorption Spectroscopy

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Phase Field Modelling: The Materials Science, Math

Subject Co-ordinator - Dr. M.P. Gururajan

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Module 1  
Lecture 2 - Module 1  
Lecture 3 - Module 1  
Lecture 4 - Module 1  
Lecture 5 - Module 1  
Lecture 6 - Module 2  
Lecture 7 - Module 1  
Lecture 8 - Module 1  
Lecture 9 - Module 1  
Lecture 10 - Module 1  
Lecture 11 - Module 1  
Lecture 12 - Module 2  
Lecture 13 - Module 2  
Lecture 14 - Module 2  
Lecture 15 - Module 2  
Lecture 16 - Module 2  
Lecture 17 - Module 3  
Lecture 18 - Module 3  
Lecture 19 - Module 3  
Lecture 20 - Module 3  
Lecture 21 - Module 3  
Lecture 22 - Module 3  
Lecture 23 - Module 2  
Lecture 24 - Module 4  
Lecture 25 - Module 4  
Lecture 26 - Module 4  
Lecture 27 - Module 4  
Lecture 28 - Module 4  
Lecture 29 - Module 5

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Module 5  
Lecture 31 - Module 5  
Lecture 32 - Module 6  
Lecture 33 - Module 6  
Lecture 34 - Module 6  
Lecture 35 - Module 6  
Lecture 36 - Module 7  
Lecture 37 - Module 7  
Lecture 38 - Module 8  
Lecture 39 - Module 8  
Lecture 40 - Module 8  
Lecture 41 - Module 8  
Lecture 42 - Module 9  
Lecture 43 - Module 9  
Lecture 44 - Module 9  
Lecture 45 - Module 9  
Lecture 46 - Module 10  
Lecture 47 - Module 10  
Lecture 48 - Module 10  
Lecture 49 - Module 10  
Lecture 50 - Module 10  
Lecture 51 - Module 11  
Lecture 52 - Module 11  
Lecture 53 - Module 11  
Lecture 54 - Module 11  
Lecture 55 - Module 12  
Lecture 56 - Module 12  
Lecture 57 - Module 12  
Lecture 58 - Module 12  
Lecture 59 - Module 12  
Lecture 60 - Module 13  
Lecture 61 - Module 13  
Lecture 62 - Module 13  
Lecture 63 - Module 13  
Lecture 64 - Module 13  
Lecture 65 - Module 14  
Lecture 66 - Module 14  
Lecture 67 - Module 14  
Lecture 68 - Module 14

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Module 15  
Lecture 70 - Module 15  
Lecture 71 - Module 16  
Lecture 72 - Module 16  
Lecture 73 - Module 16  
Lecture 74 - Module 16  
Lecture 75 - Module 17  
Lecture 76 - Module 17  
Lecture 77 - Module 18  
Lecture 78 - Module 18  
Lecture 79 - Module 18  
Lecture 80 - Module 18  
Lecture 81 - Module 19  
Lecture 82 - Module 19  
Lecture 83 - Module 20  
Lecture 84 - Module 20  
Lecture 85 - Module 21  
Lecture 86 - Module 21  
Lecture 87 - Module 22

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Dealing with Materials Data: Collection, Analysis

Subject Co-ordinator - Dr. M.P. Gururajan

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Descriptive Statistics - I  
Lecture 2 - Descriptive Statistics - II  
Lecture 3 - Probability and Distribution  
Lecture 4 - Random variable and Expectation - I  
Lecture 5 - Random variable and Expectation - II  
Lecture 6 - Random variable and Expectation - III  
Lecture 7 - Random variable and Expectation - IV  
Lecture 8 - Module  
Lecture 9 - R  
Lecture 10 - R as calculator and plotter  
Lecture 11 - R as calculator and plotter  
Lecture 12 - Data in tabular form  
Lecture 13 - Tabular data in R  
Lecture 14 - Dataframe in R  
Lecture 15 - R libraries for plotting  
Lecture 16 - Importing and plotting data  
Lecture 17 - Property charts  
Lecture 18 - Introduction to R  
Lecture 19 - Descriptive statistics  
Lecture 20 - Presenting experimental results  
Lecture 21 - Property based reports, errors, significant digits  
Lecture 22 - Dealing with distributions  
Lecture 23 - Grain size data  
Lecture 24 - Case study  
Lecture 25 - Grain size in a two phase steel  
Lecture 26 - Presenting experimental results  
Lecture 27 - Errors and their propagation  
Lecture 28 - Fitting experimental data to distributions  
Lecture 29 - Combining uncertainties

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- Lecture 30 - Summary
- Lecture 31 - Special Random Variables - I
- Lecture 32 - Special Random Variables - II
- Lecture 33 - Special Random Variables - III
- Lecture 34 - Special Random Variables - IV
- Lecture 35 - Special Random Variables - V
- Lecture 36 - Probabilty Plots
- Lecture 37 - Probability distributions
- Lecture 38 - Properties of probability distributions
- Lecture 39 - Bernoulli trials and binomial distributions
- Lecture 40 - Atom probe technique and negative binomial distribution
- Lecture 41 - Atom probe and hypergeometric distribution
- Lecture 42 - Atom probe
- Lecture 43 - Nucleation and Poisson distribution
- Lecture 44 - Normal distribution
- Lecture 45 - Normal distribution and error function
- Lecture 46 - Probability scale
- Lecture 47 - Sampling Distribution - I
- Lecture 48 - Sampling Distribution - II
- Lecture 49 - Sampling Distribution - III
- Lecture 50 - Parameter Estimation - I
- Lecture 51 - Parameter Estimator - II
- Lecture 52 - Parameter Estimator - III
- Lecture 53 - Parameter Estimator - IV
- Lecture 54 - Bayesian Estimation
- Lecture 55 - Log normal distribution
- Lecture 56 - Lorentz/Cauchy distribution
- Lecture 57 - Lifetime and exponential distributions
- Lecture 58 - Distributions from statistical mechanics
- Lecture 59 - Uniform distribution and summary of probability distributions
- Lecture 60 - Data processing
- Lecture 61 - Distribution function of a data series
- Lecture 62 - Estimating mean and mean-square-deviation of data
- Lecture 63 - Data with unequal weights
- Lecture 64 - Robust estimates
- Lecture 65 - From data to underlying distribution
- Lecture 66 - Bootstrap method
- Lecture 67 - Summary
- Lecture 68 - Hypothesis Testing - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Hypothesis Testing - II
- Lecture 70 - Hypothesis Testing - III
- Lecture 71 - Hypothesis Testing - IV
- Lecture 72 - Hypothesis Testing - V
- Lecture 73 - Hypothesis Testing - VI
- Lecture 74 - Graphical handling of data
- Lecture 75 - Fitting and graphical handling of data
- Lecture 76 - Data transformable to linear
- Lecture 77 - Data of known functional form
- Lecture 78 - Calibration, Fitting, Hypotheses testing
- Lecture 79 - Analysis of variance
- Lecture 80 - Summary
- Lecture 81 - Regression Analysis - I
- Lecture 82 - Regression Analysis - II
- Lecture 83 - Regression Analysis - III
- Lecture 84 - Regression Analysis - IV
- Lecture 85 - Analysis of Variance - I
- Lecture 86 - Analysis of Variance - II
- Lecture 87 - Design of Experiment - I
- Lecture 88 - Design of Experiment - II
- Lecture 89 - Design of Experiment - III
- Lecture 90 - Design of Experiment - IV
- Lecture 91 - Summary of the course
- Lecture 92 - Case studies
- Lecture 93 - Case study 1
- Lecture 94 - Case study 1
- Lecture 95 - Case study 2
- Lecture 96 - Case study 3
- Lecture 97 - Case study 4
- Lecture 98 - Case study 5
- Lecture 99 - Course summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Aqueous Corrosion and its Control

Subject Co-ordinator - Prof. V. S. Raja

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the course and corrosion implications

Lecture 2 - Can we predict if a metal corrodes? - Part I

Lecture 3 - Can we predict if a metal corrodes? - Part II

Lecture 4 - Can we calculate the rate of corrosion

Lecture 5 - Can we calculate the rate of corrosion

Lecture 6 - Can we calculate the corrosion rate of metals

Lecture 7 - Passivity (Continued...)

Lecture 8 - DC polarisation experiments and their relation to mixed potential theory/Evans diagram

Lecture 9 - Pourbaix diagram and electrochemical corrosion

Lecture 10 - Forms of corrosion

Lecture 11 - Forms of corrosion

Lecture 12 - Forms of corrosion

Lecture 13 - Forms of corrosion

Lecture 14 - Forms of corrosion

Lecture 15 - Forms of corrosion

Lecture 16 - Forms of corrosion

Lecture 17 - Forms of corrosion

Lecture 18 - Forms of corrosion

Lecture 19 - Forms of corrosion

Lecture 20 - Forms of corrosion

Lecture 21 - Forms of corrosion

Lecture 22 - Forms of corrosion

Lecture 23 - Forms of corrosion

Lecture 24 - Forms of corrosion

Lecture 25 - Forms of corrosion

Lecture 26 - Forms of corrosion

Lecture 27 - Forms of corrosion

Lecture 28 - Forms of corrosion

Lecture 29 - Forms of corrosion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Forms of corrosion
- Lecture 31 - Forms of corrosion
- Lecture 32 - Forms of corrosion
- Lecture 33 - Forms of corrosion
- Lecture 34 - Effective corrosion management

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Cathodic Protection Engineering

Subject Co-ordinator - Prof. V.S. Raja

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the course and understanding corrosion

Lecture 2 - External corrosion of pipelines

Lecture 3 - Electrochemical principles

Lecture 4 - Criteria

Lecture 5 - Assessment of pipeline condition through surveys - Part I

Lecture 6 - Assessment of pipeline condition through surveys - Part II

Lecture 7 - Anode ground bed for cathodic protection

Lecture 8 - Perspectives in storage tanks and off-shore structures

Lecture 9 - Anodes

Lecture 10 - Worked out examples

Lecture 11 - Stray current corrosion and its control

Lecture 12 - Coatings and rectifier selection

Lecture 13 - Internal corrosion of oil and steel gas pipelines

Lecture 14 - Anodic protection engineering

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Introduction to Materials Science and Engineering

Subject Co-ordinator - Prof. Rajesh Prasad

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Crystal geometry
- Lecture 3 - Unit cell
- Lecture 4 - Classification of lattices
- Lecture 5 - Gaps in Bravais lattice list
- Lecture 6 - Symmetry - I
- Lecture 7 - Symmetry - II
- Lecture 8 - Classification of lattices on the basis of symmetry
- Lecture 9 - A symmetry based approach to Bravais lattices
- Lecture 10 - Miller indices of directions
- Lecture 11 - Miller indices for planes
- Lecture 12 - Miller indices for plane and its normal in Cubic Crystal
- Lecture 13 - Weiss Zone law and its applications
- Lecture 14 - Inter-planar spacing
- Lecture 15 - Bragg's Law
- Lecture 16 - Close-packing of hard spheres
- Lecture 17 - Hexagonal Close-Packed (HCP) structure
- Lecture 18 - Lattice and motif of HCP crystals
- Lecture 19 - c/a ratio of an ideal HCP crystal
- Lecture 20 - ABCABC stacking of close-packed spheres
- Lecture 21 - Voids in close-packed structures
- Lecture 22 - Solid solutions - I
- Lecture 23 - Solid solutions - II
- Lecture 24 - Hume-Rothery rules
- Lecture 25 - Ordered and disordered solid solutions
- Lecture 26 - Graphene
- Lecture 27 - Structure of graphite
- Lecture 28 - Structure of diamond
- Lecture 29 - Carbon nanotubes (CNT)

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- Lecture 30 - Buckminsterfullerene (C60)
- Lecture 31 - Ionic solids
- Lecture 32 - NaCl
- Lecture 33 - CsCl
- Lecture 34 - ZnS
- Lecture 35 - BCC vs CsCl
- Lecture 36 - Amorphous Solids
- Lecture 37 - Polymers
- Lecture 38 - Vinyl Polymers
- Lecture 39 - Thermoplasts and Thermosets
- Lecture 40 - Tacticity
- Lecture 41 - Copolymers
- Lecture 42 - Crystallinity in Polymers
- Lecture 43 - Defects in Crystals
- Lecture 44 - Vacancies
- Lecture 45 - Edge dislocation
- Lecture 46 - Edge dislocation
- Lecture 47 - Characteristic vectors of a dislocation
- Lecture 48 - Edge, screw and mixed dislocations
- Lecture 49 - Screw dislocations
- Lecture 50 - Burgers circuit
- Lecture 51 - Elastic energy of a dislocation line
- Lecture 52 - Burgers vector
- Lecture 53 - Burgers vector of a dislocation is constant along the line
- Lecture 54 - Geometrical properties of a dislocations
- Lecture 55 - Dislocation cannot end abruptly in a crystal
- Lecture 56 - Dislocation cannot end abruptly in a crystal
- Lecture 57 - Dislocation cannot end abruptly in a crystal
- Lecture 58 - Dislocation motion
- Lecture 59 - 2D defects
- Lecture 60 - Free surface or external surface of the crystal
- Lecture 61 - Stacking faults
- Lecture 62 - Twin boundary
- Lecture 63 - Grain boundary
- Lecture 64 - Small angle symmetric tilt boundary
- Lecture 65 - Ball bearing model
- Lecture 66 - Phase diagrams
- Lecture 67 - Phases and components
- Lecture 68 - Uses of phase diagrams

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Phases present in the system
- Lecture 70 - Composition of phases present in the system
- Lecture 71 - Proportion of phases present in the system
- Lecture 72 - Microstructure evolution during solidification in isomorphous systems
- Lecture 73 - Eutectic system
- Lecture 74 - Eutectic reaction
- Lecture 75 - Eutectic, hypoeutectic and hypereutectic alloys
- Lecture 76 - Gibbs's phase rule
- Lecture 77 - Fe-C phase diagram
- Lecture 78 - Eutectoid, hypoeutectoid and hypereutectoid steels
- Lecture 79 - Microstructure of a hypoeutectoid steel
- Lecture 80 - Microstructure of a hypereutectoid steel
- Lecture 81 - Diffusion
- Lecture 82 - Fick's first law
- Lecture 83 - Fick's second law
- Lecture 84 - Error function solution of Fick's second law
- Lecture 85 - Atomic mechanisms of diffusion
- Lecture 86 - Substitutional diffusion revisited
- Lecture 87 - Diffusion paths
- Lecture 88 - Steady and unsteady state diffusion
- Lecture 89 - Phase Transformation
- Lecture 90 - Nucleation
- Lecture 91 - Nucleation and capillary rise
- Lecture 92 - Nucleation, growth and overall transformation
- Lecture 93 - Time-temperature-transformation (TTT) diagram
- Lecture 94 - Homogeneous and heterogeneous nucleation
- Lecture 95 - Heat treatment of steels
- Lecture 96 - TTT diagram of Eutectoid Steels
- Lecture 97 - Quenching and martensite
- Lecture 98 - Austempering and bainite
- Lecture 99 - Tempering
- Lecture 100 - Residual stresses and Quench cracks
- Lecture 101 - Marquenching and martempering
- Lecture 102 - TTT diagram of hypoeutectoid and hypereutectoid steels
- Lecture 103 - TTT diagram of alloy steel
- Lecture 104 - hardenability of steels
- Lecture 105 - Glass Ceramics
- Lecture 106 - Tensile test
- Lecture 107 - Plastic deformation and crystal structure

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Shape change
- Lecture 109 - Slip
- Lecture 110 - Resolved shear stress
- Lecture 111 - CRSS
- Lecture 112 - Schmid's law
- Lecture 113 - CRSS
- Lecture 114 - Why is experimental CRSS less than theoretical CRSS
- Lecture 115 - Strengthening mechanisms
- Lecture 116 - Dislocation density
- Lecture 117 - Frank-Read source
- Lecture 118 - strain hardening
- Lecture 119 - Dislocation interaction leading to strain hardening - I
- Lecture 120 - Dislocation interaction leading to strain hardening - II
- Lecture 121 - Solid solution hardening
- Lecture 122 - Grain size hardening
- Lecture 123 - Age hardening - I
- Lecture 124 - Age hardening - II
- Lecture 125 - Metastable precipitates
- Lecture 126 - Annealing of cold-worked metals
- Lecture 127 - Recovery
- Lecture 128 - Recrystallization
- Lecture 129 - Grain Growth
- Lecture 130 - True stress and true strain
- Lecture 131 - Creep
- Lecture 132 - Effect of stress and temperature on creep
- Lecture 133 - Creep Mechanisms
- Lecture 134 - Composites
- Lecture 135 - Isostrain modulus
- Lecture 136 - Isostress modulus
- Lecture 137 - Fracture
- Lecture 138 - Ductile and Brittle Fracture
- Lecture 139 - Role of crack size
- Lecture 140 - Griffith's Criterion
- Lecture 141 - Stress Concentration
- Lecture 142 - Ductile to brittle transition
- Lecture 143 - Enhancing fracture resistance
- Lecture 144 - Toughening of glass
- Lecture 145 - Toughening of glass
- Lecture 146 - Fatigue

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 147 - Sub-Critical crack growth

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Crystals, Symmetry and Tensors

Subject Co-ordinator - Prof. Rajesh Prasad

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 (1a)  
Lecture 2 (1b)  
Lecture 3 (1c)  
Lecture 4 (1d)  
Lecture 5 (1e)  
Lecture 6 (2a)  
Lecture 7 (2b)  
Lecture 8 (2c)  
Lecture 9 (2d)  
Lecture 10 (3a)  
Lecture 11 (3b)  
Lecture 12 (3c)  
Lecture 13 (4a)  
Lecture 14 (4b)  
Lecture 15 (5a)  
Lecture 16 (5b)  
Lecture 17 (5c)  
Lecture 18 (6a)  
Lecture 19 (6b)  
Lecture 20 (6c)  
Lecture 21 (6d)  
Lecture 22 (7a)  
Lecture 23 (7b)  
Lecture 24 (7c)  
Lecture 25 (8a)  
Lecture 26 (8b)  
Lecture 27 (9a)  
Lecture 28 (9b)  
Lecture 29 (9c)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 (9d)  
Lecture 31 (10a)  
Lecture 32 (10b)  
Lecture 33 (11a)  
Lecture 34 (11b)  
Lecture 35 (11c)  
Lecture 36 (11d)  
Lecture 37 (12a)  
Lecture 38 (12b)  
Lecture 39 (13a)  
Lecture 40 (13b)  
Lecture 41 (14a)  
Lecture 42 (14b)  
Lecture 43 (15a)  
Lecture 44 (15b)  
Lecture 45 (15c)  
Lecture 46 (16a)  
Lecture 47 (16b)  
Lecture 48 (17)  
Lecture 49 (18a)  
Lecture 50 (18b)  
Lecture 51 (18c)  
Lecture 52 (18d)  
Lecture 53 (19a)  
Lecture 54 (19b)  
Lecture 55 (19c)  
Lecture 56 (19d)  
Lecture 57 (20a)  
Lecture 58 (20b)  
Lecture 59 (20c)  
Lecture 60 (20d)  
Lecture 61 (20e)  
Lecture 62 (21a)  
Lecture 63 (21b)  
Lecture 64 (21c)  
Lecture 65 (21d)  
Lecture 66 (21e)  
Lecture 67 (22a)  
Lecture 68 (22b)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 (22c)  
Lecture 70 (22d)  
Lecture 71 (23a)  
Lecture 72 (23b)  
Lecture 73 (23c)  
Lecture 74 (24a)  
Lecture 75 (24b)  
Lecture 76 (24c)  
Lecture 77 (25a)  
Lecture 78 (25b)  
Lecture 79 (25c)  
Lecture 80 (25d)  
Lecture 81 (26a)  
Lecture 82 (26b)  
Lecture 83 (27a)  
Lecture 84 (27b)  
Lecture 85 (27c)  
Lecture 86 (27d)  
Lecture 87 (27e)  
Lecture 88 (27f)  
Lecture 89 (28a)  
Lecture 90 (28b)  
Lecture 91 (28c)  
Lecture 92 (28d)  
Lecture 93 (28e)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Corrosion-Environmental Degradation-Surface Engine

Subject Co-ordinator - Prof. (Hag) Harish Hirani

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Introduction to Crystal Elasticity and Crystal Pla

Subject Co-ordinator - Prof. Swarup bag

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Structure and properties of materials - Part I
- Lecture 2 - Structure and properties of materials - Part II
- Lecture 3 - Elasticity Isotropic elasticity of materials; Anisotropic elasticity - Part I
- Lecture 4 - Elasticity Isotropic elasticity of materials; Anisotropic elasticity - Part II
- Lecture 5 - Continuum Plasticity - I (Part A)
- Lecture 6 - Continuum Plasticity - I (Part B)
- Lecture 7 - Continuum Plasticity - II (Part A)
- Lecture 8 - Continuum Plasticity - II (Part B)
- Lecture 9 - Crystal Plasticity - I (Part A)
- Lecture 10 - Crystal Plasticity - I (Part B)
- Lecture 11 - Crystal Plasticity - II (Part A)
- Lecture 12 - Crystal Plasticity - II (Part B)
- Lecture 13 - Crystal Plasticity - II (Part C)
- Lecture 14 - Hardening Mechanisms in Metals - Part I
- Lecture 15 - Hardening Mechanisms in Metals - Part II
- Lecture 16 - Hardening Mechanisms in Metals - Part III
- Lecture 17 - Multi-Scale Approach to Materials Modelling

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Advanced Characterization Techniques

Subject Co-ordinator - Dr. Krishanu Biswas, Prof.N.P.Gurao

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Advanced Characterization Techniques  
Lecture 2 - Advanced Characterization Techniques  
Lecture 3 - Advanced Characterization Techniques  
Lecture 4 - Advanced Characterization Techniques  
Lecture 5 - Advanced Characterization Techniques  
Lecture 6 - Advanced Characterization Techniques  
Lecture 7 - Advanced Characterization Techniques  
Lecture 8 - Advanced Characterization Techniques  
Lecture 9 - Advanced Characterization Techniques  
Lecture 10 - Advanced Characterization Techniques  
Lecture 11 - Advanced Characterization Techniques  
Lecture 12 - Advanced Characterization Techniques  
Lecture 13 - Advanced Characterization Techniques  
Lecture 14 - Advanced Characterization Techniques  
Lecture 15 - Advanced Characterization Techniques  
Lecture 16 - Advanced Characterization Techniques  
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Lecture 22 - Advanced Characterization Techniques  
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Lecture 25 - Advanced Characterization Techniques  
Lecture 26 - Advanced Characterization Techniques  
Lecture 27 - Advanced Characterization Techniques  
Lecture 28 - Advanced Characterization Techniques  
Lecture 29 - Advanced Characterization Techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Advanced Characterization Techniques
- Lecture 31 - Advanced Characterization Techniques
- Lecture 32 - Advanced Characterization Techniques
- Lecture 33 - Advanced Characterization Techniques

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Electroceramics

Subject Co-ordinator - Dr. Ashish Garg

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
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Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
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Lecture 39  
Lecture 40  
Lecture 41

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Fuels Refractory and Furnaces

Subject Co-ordinator - Prof. Satish Ch. Koria

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Energy Resources and Environment
- Lecture 2 - Characterization of Fuels
- Lecture 3 - Characterization of Fuels
- Lecture 4 - Production of Secondary Fuels
- Lecture 5 - Materials Balance in Coke-making
- Lecture 6 - Heat Balance and Clean Development Mechanism
- Lecture 7 - Production of Secondary Fuels
- Lecture 8 - Materials and Heat Balance in Gasification
- Lecture 9 - Principles of combustion
- Lecture 10 - Principles of combustion
- Lecture 11 - Materials balance in combustion
- Lecture 12 - Principles of Combustion
- Lecture 13 - Flame Temperature Calculations
- Lecture 14 - Refractory in Furnaces
- Lecture 15 - Refractory in Furnaces
- Lecture 16 - Furnace
- Lecture 17 - Heat Utilization in furnaces, energy flow diagrams
- Lecture 18 - Heat Utilization in furnaces, energy flow diagrams
- Lecture 19 - Heat Utilization in Furnaces
- Lecture 20 - Heat Utilization in Furnaces
- Lecture 21 - Transport Phenomena in Furnaces
- Lecture 22 - Macroscopic Energy Balance
- Lecture 23 - Macroscopic Energy Balance
- Lecture 24 - Macroscopic Energy Balance
- Lecture 25 - Macroscopic Energy Balance
- Lecture 26 - Macroscopic Energy Balance
- Lecture 27 - Principles of Burner Design
- Lecture 28 - Transport Phenomena in Furnaces
- Lecture 29 - Transport Phenomena in Furnaces

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transport Phenomena in Furnaces
- Lecture 31 - Transport Phenomena in Furnaces
- Lecture 32 - Steady Heat flows in Furnace and Heat Exchanger
- Lecture 33 - Exercises on Heat Flow in Furnaces and Heat Exchangers
- Lecture 34 - Exercises on Heat Flow in Furnaces and Heat Exchangers
- Lecture 35 - Miscellaneous Topics
- Lecture 36 - Miscellaneous Topics
- Lecture 37 - Miscellaneous Topics
- Lecture 38 - Miscellaneous topics
- Lecture 39 - Furnace efficiency, Fuel Saving, Carbon Offset
- Lecture 40 - Furnace efficiency, Fuel Saving, Carbon Offset

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Introduction to Biomaterials

Subject Co-ordinator - Dr. Kantesh Balani, Dr. Birkamjit Basu

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to basic concepts of Biomaterials Science; Salient properties of important material
- Lecture 2 - Manufacturing and properties of metals, ceramics, polymers and composites
- Lecture 3 - Concept of biocompatibility, host response, structure-property of biological cell
- Lecture 4 - Structure and properties of cells, protein and cellular adaptation process
- Lecture 5 - Cell-I
- Lecture 6 - Cell-II
- Lecture 7 - Cell Migration and Cell Division and cell death
- Lecture 8 - Cell Differentiation and Cell Death
- Lecture 9 - Cell Apoptosis-I
- Lecture 10 - Cell Apoptosis-II
- Lecture 11 - Structure and properties of Protein; cell - material interaction
- Lecture 12 - Assessment of biocompatibility of biomaterials
- Lecture 13 - Biological testing (hemocompatibility, tribological testing)
- Lecture 14 - Structure and properties of bone as well as in vivo testing and histocompatibility assessment
- Lecture 15 - Important biometallic alloys
- Lecture 16 - Ti Alloy
- Lecture 17 - Co-Cr-Mo alloys
- Lecture 18 - Bioceramics
- Lecture 19 - Processing of Bioceramics
- Lecture 20 - Ceramics, Bioceramics and Glasses
- Lecture 21 - Sintering and mechanical properties of ceramics
- Lecture 22 - Fracture and toughening of ceramic composites
- Lecture 23 - Development of based bioceramic composites for hard tissue replacement
- Lecture 24 - Alternative phosphate materials, based composites with bactericidal property and glass ceramics
- Lecture 25 - Electrostatic Spraying of UHMWPE-HA-CNT composites
- Lecture 26 - Thin Films and Coatings
- Lecture 27 - Thermal Spray Coatings
- Lecture 28 - Biocompatibility of plasma sprayed CNT reinforced Hydroxyapatite biocomposite coatings
- Lecture 29 - Biocompatibility of Alumina and CNT reinforced Hydroxyapatite

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Glass-ceramics for dental restoration applications
- Lecture 31 - Structure and properties of polymers
- Lecture 32 - Biodegradable polymers (Importance)
- Lecture 33 - Biodegradable polymers (Types)
- Lecture 34 - Mechanisms of Bioerosion
- Lecture 35 - External field and material interaction
- Lecture 36 - Tissue Engineering and wound healing
- Lecture 37 - Understanding Design Concepts of Bio-implants
- Lecture 38 - Understanding Design Concepts of Dental-implants
- Lecture 39 - Understanding Design Concepts of Orthopedic-implant



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Materials and Energy balance in Metallurgical Processes

Subject Co-ordinator - Prof. Satish Ch. Koria

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Course
- Lecture 2 - Measurement of Quantities
- Lecture 3 - Exercises on Measurement of Quantities, Introduction to Stoichiometry
- Lecture 4 - Stoichiometry Concept and Exercise
- Lecture 5 - Exercise on Stoichiometry and Introduction to Thermochemistry
- Lecture 6 - Thermochemistry
- Lecture 7 - Exercise on Thermochemistry & Frequently Asked Questions
- Lecture 8 - Errors in Measurements
- Lecture 9 - Basics of Materials & Energy Balance
- Lecture 10 - Introduction to Mineral Beneficiation
- Lecture 11 - Materials Balance in Mineral Processing and Faq
- Lecture 12 - Exercises in Mineral Processing
- Lecture 13 - Calcination Concepts & Exercises
- Lecture 14 - Pyromet Extraction Unit Processes
- Lecture 15 - Predominance Area Diagram
- Lecture 16 - Material Balance in Roasting; illustration
- Lecture 17 - Heat Balance in Roasting illustration
- Lecture 18 - Exercises on Roasting
- Lecture 19 - Exercises on Roasting
- Lecture 20 - Smelting Matte Smelting
- Lecture 21 - Exercise-I Matte Smelting
- Lecture 22 - Exercise-II Matte Smelting
- Lecture 23 - Reduction Smelting
- Lecture 24 - Lead Smelting Material Balance
- Lecture 25 - Imperial Smelting Process
- Lecture 26 - Introduction to Ironmaking
- Lecture 27 - Coke Making
- Lecture 28 - Ironmaking Fundamentals
- Lecture 29 - Material & Heat Balance in Ironmaking - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Material & Heat Balance in Ironmaking - II
- Lecture 31 - RIST Diagram - I
- Lecture 32 - RIST Diagram - II
- Lecture 33 - Concepts in Converting
- Lecture 34 - Exercise in Converting
- Lecture 35 - Additional Topics - I Melting in Cupola
- Lecture 36 - Additional Topics - II Gasification
- Lecture 37 - Additional Topics - III Material Balance in Gasification
- Lecture 38 - Additional Topics - IV Industrial Furnaces
- Lecture 39 - Energy Balance in Industrial Furnaces
- Lecture 40 - Thoughts on Application of Energy Balance

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Optoelectronic Materials and Devices

Subject Co-ordinator - Prof. Deepak Gupta, Prof. Monica Katiyar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Conductivity of materials, Drude's theory and its failures
- Lecture 2 - Free electron theory
- Lecture 3 - Free electron theory
- Lecture 4 - Crystal structure, Reciprocal lattice I
- Lecture 5 - Reciprocal lattice II, Brillouin zone and Bragg's diffraction condition
- Lecture 6 - Electrons in a crystal, Bloch's electron
- Lecture 7 - Free electron band diagrams in an empty lattice
- Lecture 8 - Effect of periodic potential, Origin of band-gap through Kronig-Penny model
- Lecture 9 - Electron dynamics
- Lecture 10 - Conduction in relation to band diagrams
- Lecture 11 - Semiconductor E-k diagrams and their material properties
- Lecture 12 - Equilibrium carrier statistics in semiconductors
- Lecture 13 - Equilibrium carrier statistics in semiconductors
- Lecture 14 - Equilibrium carrier statistics in semiconductors
- Lecture 15 - Doping in semiconductors
- Lecture 16 - Equilibrium carrier statistics in semiconductors
- Lecture 17 - Equilibrium carrier statistics in semiconductors
- Lecture 18 - Semiconductor junctions in band-diagrams
- Lecture 19 - Linear dielectric behavior
- Lecture 20 - Non-linear dielectric behavior
- Lecture 21 - Carrier recombination-generation - I
- Lecture 22 - Carrier recombination-generation - II
- Lecture 23 - R-G statistics via R-G centers
- Lecture 24 - Optoelectronic materials and bandgap engineering
- Lecture 25 - Optical properties of materials
- Lecture 26 - Optical properties of single interfaces
- Lecture 27 - Optical Properties of two interfaces
- Lecture 28 - Drift
- Lecture 29 - Diffusion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Continuity Equation
- Lecture 31 - Resistor and diode (p-n junction)
- Lecture 32 - Fundamentals of p-n junction
- Lecture 33 - Fundamentals of p-n junction (Continued...)
- Lecture 34 - Solar cells
- Lecture 35 - Microelectronics processing
- Lecture 36 - MOS capacitor
- Lecture 37 - Transistor
- Lecture 38 - Organic Electronics
- Lecture 39 - Organic Light Emitting Diodes
- Lecture 40 - Organic Solar Cells and Organics Thin Film Transistors

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Steel Making

Subject Co-ordinator - Prof. Satish Ch. Koria, Prof. Dipak Mazumdar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Structure of Materials

Subject Co-ordinator - Dr. Anandh Subramaniam

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview
- Lecture 2 - Geometry of Crystals
- Lecture 3 - Geometry of Crystals
- Lecture 4 - Geometry of Crystals
- Lecture 5 - Geometry of Crystals
- Lecture 6 - Geometry of Crystals
- Lecture 7 - Geometry of Crystals
- Lecture 8 - Geometry of Crystals
- Lecture 9 - Geometry of Crystals
- Lecture 10 - Geometry of Crystals
- Lecture 11 - Geometry of Crystals
- Lecture 12 - Geometry of Crystals
- Lecture 13 - Miller Indices
- Lecture 14 - Miller Indices (Continued...) and Crystal Structures
- Lecture 15 - Crystal Structures
- Lecture 16 - Crystal Structures
- Lecture 17 - Crystal Structures
- Lecture 18 - Crystal Structures
- Lecture 19 - Crystal Structures
- Lecture 20 - Crystal Structures
- Lecture 21 - Crystal Structures (Continued...) and Defects in Crystals
- Lecture 22 - Defects in Crystals
- Lecture 23 - Defects in Crystals
- Lecture 24 - Defects in Crystals
- Lecture 25 - Defects in Crystals
- Lecture 26 - Defects in Crystals
- Lecture 27 - Defects in Crystals
- Lecture 28 - Defects in Crystals
- Lecture 29 - Defects in Crystals

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diffusion in Solids
- Lecture 31 - Diffusion in Solids
- Lecture 32 - Phase Diagrams
- Lecture 33 - Phase Diagrams
- Lecture 34 - Phase Diagrams
- Lecture 35 - Phase Diagrams
- Lecture 36 - Phase Diagrams
- Lecture 37 - Phase Transformations
- Lecture 38 - Phase Transformations
- Lecture 39 - Phase Transformations
- Lecture 40 - Phase Transformations
- Lecture 41 - Phase Transformations
- Lecture 42 - Phase Transformations
- Lecture 43 - Phase Transformations
- Lecture 44 - Phase Transformations
- Lecture 45 - Phase Transformations



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Environmental Degradation of Materials

Subject Co-ordinator - Dr. Kallol Mondal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction, Basic definition of corrosion

Lecture 2 - Forms of Degradation, Thermodynamics of corrosion

Lecture 3 - Thermodynamics of corrosion

Lecture 4 - Thermodynamics of corrosion

Lecture 5 - Thermodynamics of corrosion, Electrochemical series, Concentration cell

Lecture 6 - Reduction Potential series, Pourbaix diagram

Lecture 7 - Pourbaix diagram

Lecture 8 - Pourbaix diagram

Lecture 9 - Pourbaix diagram, Kinetics of corrosion

Lecture 10 - Kinetics of corrosion, Rate expression, Solved problems

Lecture 11 - Solved problems on the corrosion rate, Exchange current density

Lecture 12 - Exchange current density, Polarization, Activation Polarization, Tafel Equation

Lecture 13 - Activation Polarization, Concentration Polarization

Lecture 14 - Concentration Polarization, Mixed Potential Theory

Lecture 15 - Mixed Potential Theory, Explanation of corrosion events on the basis of Mixed potential theory,

Lecture 16 - Explanation of corrosion events on the basis of Mixed potential theory, Effect of impurity, Effect

Lecture 17 - Explanation of corrosion events on the basis of Mixed potential theory, Effect of area factor, C

Lecture 18 - Passivation and Mixed potential theory

Lecture 19 - Passivation and Mixed potential theory

Lecture 20 - Different corrosion protection mechanisms, electrochemical ways of protection, cathodic protection

Lecture 21 - Cathodic and anodic protection

Lecture 22 - Anodic protection, Forms of corrosion, Factors of corrosion

Lecture 23 - Forms of corrosion, Uniform Corrosion, Galvanic corrosion

Lecture 24 - Galvanic corrosion

Lecture 25 - Crevice corrosion

Lecture 26 - Crevice corrosion, Pitting corrosion

Lecture 27 - Pitting corrosion, Intergranular corrosion

Lecture 28 - Intergranular corrosion, Dealloying

Lecture 29 - Dealloying, Erosion corrosion

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- Lecture 30 - Erosion corrosion, Cavitation
- Lecture 31 - Cavitation, Fretting corrosion, corrosion cracking
- Lecture 32 - Stress corrosion cracking
- Lecture 33 - Stress corrosion cracking
- Lecture 34 - Biologically influenced corrosion, liquid metal attack
- Lecture 35 - Corrosion protection, change of materials, effect of design of component
- Lecture 36 - Corrosion protection, change of environment, Inhibitors, coatings
- Lecture 37 - Oxidation and hot corrosion, pitting Bedworth ratio, thermodynamics of oxidation
- Lecture 38 - Thermodynamics of oxidation, Ellingham diagram, oxidation kinetics and laws
- Lecture 39 - Oxide structure and Oxidation
- Lecture 40 - Hot corrosion, corrosion testing and failure analysis, linear polarization
- Lecture 41 - Degradation of composites, polymers and ceramics, corrosion and society

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Phase Diagrams in Materials Science and Engineering

Subject Co-ordinator - Dr. Krishanu Biswas

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Heterogeneous equilibrium and Free energy Formalism
- Lecture 3 - Concept of Chemical Potential
- Lecture 4 - Phase Rule-I
- Lecture 5 - Phase Rule-II and Single Component Equilibria
- Lecture 6 - Single Component Phase Diagram
- Lecture 7 - Binary Phase Diagram - Isomorphous Diagram
- Lecture 8 - Binary Isomorphous System
- Lecture 9 - Solidification of Isomorphous Alloys
- Lecture 10 - Free Energy of Binary Isomorphous Phase Diagram
- Lecture 11 - Phase Diagram of Binary Eutectic Systems Edit Lesson
- Lecture 12 - Solidification of eutectic, hypo-eutectic and hyper-eutectic alloys & their morphologies - I
- Lecture 13 - Solidification of eutectic, hypo-eutectic and hyper-eutectic alloys & their morphologies - II
- Lecture 14 - Phase diagrams of binary eutectic two terminal solid solution
- Lecture 15 - Phase diagrams of binary peritectic System - I
- Lecture 16 - Phase diagrams of binary peritectic System - II
- Lecture 17 - Phase diagrams of binary peritectic System with intermediate phases
- Lecture 18 - Intermediate Phases
- Lecture 19 - Introduction to Monotectic Phase Diagram
- Lecture 20 - Microstructural Evolution of Monotectic Phase Diagram
- Lecture 21 - Free Energy Composition diagrams for Monotectic systems and Syntactic phase diagram
- Lecture 22 - Quasichemical theory - I
- Lecture 23 - Quasichemical theory - II
- Lecture 24 - Quasichemical theory Free energy formalism
- Lecture 25 - Solid state reaction
- Lecture 26 - Introduction to Iron-Carbon phase diagram
- Lecture 27 - Eutectoid transformation in Iron-Carbon phase diagram
- Lecture 28 - Austenite to pearlite transformation in Iron-Carbon phase diagram
- Lecture 29 - Hypo-eutectoid steels

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pearlite Transformation
- Lecture 31 - Martensite Transformation - I
- Lecture 32 - Martensite Transformation - II
- Lecture 33 - Tempering of Martensite
- Lecture 34 - Bainite Transformation
- Lecture 35 - TTT curves for Steel
- Lecture 36 - Cast Iron - I
- Lecture 37 - Cast Iron - II
- Lecture 38 - Ductile Iron and Nodular Iron
- Lecture 39 - Malleable Iron
- Lecture 40 - Alloyed Cast Iron
- Lecture 41 - Phase Diagram for different Solid State Reaction
- Lecture 42 - Phase Diagram of Ceramic
- Lecture 43 - Ternary Phase Diagram - I
- Lecture 44 - Ternary Phase Diagram - II
- Lecture 45 - Ternary Phase Diagram and Tie Line Construction - I
- Lecture 46 - Ternary Phase Diagram and Tie Line Construction - II
- Lecture 47 - Ternary Phase Diagram and Tie Line Construction - III
- Lecture 48 - Ternary Isomorphous Phase Diagram
- Lecture 49 - Ternary Three Phase Equilibria
- Lecture 50 - Three Phase Equilibria in Ternary Systems - I
- Lecture 51 - Three Phase Equilibria in Ternary Systems - II
- Lecture 52 - Solidification Behaviour of Ternary Alloy
- Lecture 53 - Three Phase Equilibria
- Lecture 54 - Ternary Four Phase Equilibria - I
- Lecture 55 - Ternary Four Phase Equilibria - II
- Lecture 56 - Solidification Behaviour of Ternary Eutectic Alloys
- Lecture 57 - Phase Diagram of Ternary Eutectic with Terminal Solid Solution
- Lecture 58 - Ternary Peritectic Reaction
- Lecture 59 - Quasi-peritectic Reaction
- Lecture 60 - Case Studies on Ternary Phase Diagrams - I
- Lecture 61 - Case Studies on Ternary Phase Diagrams - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Fundamentals of Material Processing - I

Subject Co-ordinator - Prof. Shashank Shekhar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Solidification (Casting)
- Lecture 3 - Solidification (Welding)
- Lecture 4 - Thermodynamics of Solidification
- Lecture 5 - Kinetics of Solidification (Homogeneous)
- Lecture 6 - Kinetics of Solidification (Heterogeneous)
- Lecture 7 - Heat Flow
- Lecture 8 - Heat Flow (Continued...)
- Lecture 9 - Heat Flow (Insulating Mold Condition)
- Lecture 10 - Heat Flow (Insulating Mold Condition) (Continued...)
- Lecture 11 - Heat Flow (Interface Resistance Controlled Solidification)
- Lecture 12 - Heat Flow (Effect of Superheat)
- Lecture 13 - Heat Flow (Solidification of Alloys)
- Lecture 14 - Composition Variation
- Lecture 15 - Composition Variation (Continued...)
- Lecture 16 - Complete and Limited Liquid Diffusion
- Lecture 17 - Mixed Mode Solidification
- Lecture 18 - Mixed Mode Solidification and Zone Refining
- Lecture 19 - Zone Refining (Continued...)
- Lecture 20 - Cellular Solidification of Single Phase Alloy
- Lecture 21 - Cellular Solidification of Single Phase Alloy (Continued...)
- Lecture 22 - Cellular Solidification of Single Phase Alloy (Continued...)
- Lecture 23 - Plane Front Solidification of Multiphase Alloy
- Lecture 24 - Plane Front Solidification of Multiphase Alloy (Continued...)
- Lecture 25 - Fluid Flow Considerations
- Lecture 26 - Introduction to Powder Processing
- Lecture 27 - Introduction to Powder Processing (Continued...)
- Lecture 28 - Powder characterization
- Lecture 29 - Powder Characterization Techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Powder Characterization using Surface Area
- Lecture 31 - Powder Characterization using Gas Permeability Method
- Lecture 32 - Powder Manufacturing
- Lecture 33 - Powder Manufacturing (Continued...)
- Lecture 34 - Powder Manufacturing (Continued...)
- Lecture 35 - Powder Consolidation
- Lecture 36 - Powder Consolidation (Continued...)
- Lecture 37 - Particle Packing
- Lecture 38 - Powder Compaction
- Lecture 39 - Powder Compaction (Continued...)
- Lecture 40 - Sintering Theory

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Heat Treatment and Surface Hardening - I

Subject Co-ordinator - Dr. Kallol Mondal, Prof. Sandeep Sangal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Heat Treatment and Importance of Material Tetrahedron
- Lecture 2 - Case studies in reference to Material tetrahedron T/t information and processing
- Lecture 3 - Few more case studies in reference to processing with T/t modification
- Lecture 4 - Critical Definition and Phase Transformation Thermodynamics and Driving Force
- Lecture 5 - Thermodynamics of Phase Transformation Driving force of Phase Transformation
- Lecture 6 - Thermodynamics of Phase Transformation and Driving Force for Phase Transformation
- Lecture 7 - Finding Value of Driving Force ( $\Delta G$ ) and Single Component (liquid-solid)
- Lecture 8 - Finding Value of Driving Force ( $\Delta G$ ) and Nucleation Single Component (liquid-solid)
- Lecture 9 - Nucleation Treatment Single Component (Solid-Liquid) - I
- Lecture 10 - Nucleation Treatment Single Component (Solid-Liquid) - II
- Lecture 11 - Solved Problem on Nucleation rate and How to determine the value of  $\Delta s_l$  Physical Concept & Inter
- Lecture 12 - How to determine the value of  $\Delta s_l$  (Physical Concept and Interfacial Energy)
- Lecture 13 - Interfacial Energy - I
- Lecture 14 - Interfacial Energy - II
- Lecture 15 - Heterogeneous Nucleation - I
- Lecture 16 - Heterogeneous Nucleation - II
- Lecture 17 - Solid - Solid Transformation and Nucleation rate - I
- Lecture 18 - Solid - Solid Transformation and Nucleation rate - II
- Lecture 19 - Phase Diagram and G vs X plot - I
- Lecture 20 - Phase Diagram and G vs X plot - II
- Lecture 21 - Phase Diagram and G vs X plot - III
- Lecture 22 - Introduction to Kinetics of Phase Transformation
- Lecture 23 - Variation of  $\Delta G^*$  and  $r^*$  with Undercooling
- Lecture 24 - Nucleation rate - I
- Lecture 25 - Nucleation Rate - II
- Lecture 26 - Critical Undercooling
- Lecture 27 - Maximum nucleation rate for homogeneous nucleation
- Lecture 28 - Maximum nucleation rate for heterogeneous nucleation
- Lecture 29 - Nucleation kinetics in solid state

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- Lecture 30 - Interface controlled growth
- Lecture 31 - Diffusion controlled growth
- Lecture 32 - Avrami Kinetics - I
- Lecture 33 - Avrami Kinetics - II
- Lecture 34 - Avrami Kinetics - III
- Lecture 35 - Time-Temperature-Transformation (TTT) diagram
- Lecture 36 - Diffusion in Solids - I
- Lecture 37 - Diffusion in Solids - II
- Lecture 38 - Diffusion in Solids - III
- Lecture 39 - Diffusion in Solids - IV
- Lecture 40 - Applications of heat treatment



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Fundamentals of Material Processing - Part 2

Subject Co-ordinator - Prof. Shashank Shekhar, Prof. Jitesh J Thakkar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Metal Working
- Lecture 2 - Continuum Mechanics
- Lecture 3 - Stress Invariants
- Lecture 4 - Strain Tensors and Mohr circle for strains
- Lecture 5 - Yield Stress Criterion
- Lecture 6 - Effective Stress and Strain
- Lecture 7 - Work Hardening and Flow Behaviour
- Lecture 8 - Effect of Strain Rate
- Lecture 9 - Combined Effect of Strain, Strain Rate and Temperature
- Lecture 10 - Effect of Temperature
- Lecture 11 - Cold, Warm and Hot Working
- Lecture 12 - Mechanics of Metal Working
- Lecture 13 - Wire Drawing
- Lecture 14 - Wire Drawing (Continued...)
- Lecture 15 - Hodographs
- Lecture 16 - Upper-Bound Analysis
- Lecture 17 - Plane Strain Indentation
- Lecture 18 - Strain Calculation Models and Friction
- Lecture 19 - Types of Friction
- Lecture 20 - Effect of Friction in Rolling
- Lecture 21 - Vacuum Technology
- Lecture 22 - Vacuum Technology (Continued...)
- Lecture 23 - Thermal Evaporation
- Lecture 24 - Thermal Evaporation (Continued...)
- Lecture 25 - Thermal Evaporation (Continued...)
- Lecture 26 - Plasma Physics
- Lecture 27 - Plasma Physics (Continued...)
- Lecture 28 - Sputtering
- Lecture 29 - Sputtering (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Sputtering (Continued...)
- Lecture 31 - Chemical Vapor Deposition
- Lecture 32 - Chemical Vapor Deposition (Continued...)
- Lecture 33 - Chemical Vapor Deposition (Continued...)
- Lecture 34 - Chemical Vapor Deposition (Continued...)
- Lecture 35 - Epitaxy, Molecular Beam Epitaxy and Atomic Layer Deposition
- Lecture 36 - Adsorption and Nucleation
- Lecture 37 - Thin Film Growth
- Lecture 38 - Kinetics of Thin Film Growth
- Lecture 39 - Thin Film Morphology- Zone Structure Model
- Lecture 40 - Thin Film Characterization
- Lecture 41 - Thin Film Characterization

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Nature and Properties of Materials - An Introduction

Subject Co-ordinator - Dr. Ashish Garg

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Material Evolution
- Lecture 2 - Bonding in Materials
- Lecture 3 - Correlation between bond and physical properties
- Lecture 4 - Crystal Structure
- Lecture 5 - Unit Cell (Primitive and Non-primitive)
- Lecture 6 - Crystal Systems and Bravais Lattices
- Lecture 7 - Bravais Lattice and Symmetry in Crystals
- Lecture 8 - Symmetry in Crystals
- Lecture 9 - Symmetry and Correlation with the Bravais Lattice
- Lecture 10 - Miller Indices (Planes and Directions)
- Lecture 11 - Miller Indices - Part 2
- Lecture 12 - Miller Indices - Part 3
- Lecture 13 - Miller Indices and Weiss Zone Law
- Lecture 14 - Structure of Metals and Alloys
- Lecture 15 - Structure of Metals, Packing, Co-ordination and Interstices
- Lecture 16 - Interstices, Solid Solutions and Alloys
- Lecture 17 - Solid Solutions
- Lecture 18 - Solid Solutions
- Lecture 19 - Covalent Solids
- Lecture 20 - Covalent Solids (Continued...) and Ionic Solids
- Lecture 21 - Ionic Solids
- Lecture 22 - Ionic solids (Continued...)
- Lecture 23 - ionic Solids (Continued...)
- Lecture 24 - Ionic Solids (Continued...)
- Lecture 25 - Ionic Solids (Ceramics)
- Lecture 26 - HCP based Structure
- Lecture 27 - Structure of Non-crystalline Solids (glasses)
- Lecture 28 - Structure of Non-Crystalline Solids
- Lecture 29 - Structure of Non-Crystalline Solids (Polymers)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Structure of Polymers
- Lecture 31 - Structure of Polymers (Continued...)
- Lecture 32 - Structure Determination (X-ray Diffraction)
- Lecture 33 - X-ray Diffraction
- Lecture 34 - X-ray Diffraction (Continued...)
- Lecture 35 - X-ray Diffraction (Continued...)
- Lecture 36 - X-ray Diffraction (Continued...)
- Lecture 37 - X-ray Diffraction (Continued...)
- Lecture 38 - Defects in Solids (Point Defects)
- Lecture 39 - Point Defect Concentration
- Lecture 40 - 2-D Defects

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Defects in Crystalline Solids - Part I

Subject Co-ordinator - Prof. Shashank Shekhar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Defects
- Lecture 2 - Equilibrium Points Defects
- Lecture 3 - Energy of Vacancy Formation
- Lecture 4 - Vacancy Concentration Measurement Techniques
- Lecture 5 - Self-interstitial Defects+Frenkel Defects
- Lecture 6 - Schottky Defects+Extrinsic Defects
- Lecture 7 - Interstitials in Iron
- Lecture 8 - Defects Reaction+Kroger-Vink Notation
- Lecture 9 - Defects Reaction and its Thermodynamics
- Lecture 10 - Equilibrium Concentration using Defects Reaction
- Lecture 11 - Examples on defect reaction
- Lecture 12 - Diffusion (Interstitial Diffusion)
- Lecture 13 - Non-steady state diffusion
- Lecture 14 - Self-diffusion + Examples
- Lecture 15 - Diffusion in substitutional alloys+Diffusion along defects
- Lecture 16 - History of Dislocations
- Lecture 17 - Volterra Model + Structure of Dislocations + Burger vectors
- Lecture 18 - Characteristics of Dislocations
- Lecture 19 - Mixed Dislocations + Dislocation Loops
- Lecture 20 - Elastic Continuum Model + Strain field for screw dislocations
- Lecture 21 - Stress and Strain Fields
- Lecture 22 - Stress State around Edge Dislocations+Elastic Energy of Dislocations
- Lecture 23 - Glide Forces on Dislocations+Line Tension on Dislocations
- Lecture 24 - Climb Forces on Dislocations+Interaction Between Dislocations
- Lecture 25 - Image Forces on Dislocations
- Lecture 26 - Resistance to Dislocation Motion+Peierl Nebarro Valley
- Lecture 27 - Slip System+Examples
- Lecture 28 - Dislocations and Slips+Examples
- Lecture 29 - Critical resolved Shear Stress+Examples (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Glide+Kinks
- Lecture 31 - Cross-slip+Climb
- Lecture 32 - Climb+Jogs
- Lecture 33 - Examples on Jogs+Dislocation Intersection
- Lecture 34 - Dislocation Intersection and step characteristics+Superjogs
- Lecture 35 - Strain and strain-rate due to dislocation motion+Velocity of dislocations+Observation of dislocation
- Lecture 36 - Observation of dislocation (Continued...) + Dislocation Dynamics
- Lecture 37 - Dislocations in FCC+Partial dislocations
- Lecture 38 - Partial dislocations (Continued...) +Stacking Fault
- Lecture 39 - Thompson's Tetrahedron+Examples
- Lecture 40 - Dislocations in BCC+Asymmetry of Slip

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Corrosion - Part I

Subject Co-ordinator - Dr. Kallol Mondal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to corrosion - I
- Lecture 2 - Introduction to corrosion - II
- Lecture 3 - Types and forms of corrosion
- Lecture 4 - Uniform and Galvanic corrosion
- Lecture 5 - Crevice and Pitting corrosion
- Lecture 6 - Forms of corrosion
- Lecture 7 - Electrochemical Nature of Corrosion and its Thermodynamics
- Lecture 8 - Thermodynamics aspects of corrosion - I
- Lecture 9 - Thermodynamics aspects of corrosion - II
- Lecture 10 - Thermodynamics aspects of corrosion - III
- Lecture 11 - Relation Between Free Energy and Equilibrium Constant
- Lecture 12 - Derivation of Nernst Equation
- Lecture 13 - Standard Reduction Potential Series for Pure Metals
- Lecture 14 - Reduction Potentials in Acidic and Neutral Solutions
- Lecture 15 - Nernst equation in terms of pH
- Lecture 16 - Limitations of Standard Reduction Potential Series of Pure Metals
- Lecture 17 - Concentration Cell Formation and Galvanic Series
- Lecture 18 - Examples of Concentration cell and Spontaneity of Corrosion Process
- Lecture 19 - Spontaneity of Corrosion Process and Introduction to Pourbaix Diagram
- Lecture 20 - Construction of Pourbaix Diagram
- Lecture 21 - Construction of Pourbaix diagram for Ni-H<sub>2</sub>O system - I
- Lecture 22 - Construction of Pourbaix diagram for Ni-H<sub>2</sub>O system - II
- Lecture 23 - Construction of Pourbaix diagram for Ni-H<sub>2</sub>O system - III
- Lecture 24 - Pourbaix diagram of Ni-H<sub>2</sub>O and Al-H<sub>2</sub>O
- Lecture 25 - Inferences from Pourbaix diagram of Fe-H<sub>2</sub>O and Al-H<sub>2</sub>O
- Lecture 26 - Estimation of Corrosion Rate - I
- Lecture 27 - Estimation of Corrosion Rate - II
- Lecture 28 - Estimation of Corrosion Rate - III
- Lecture 29 - Exchange Current Density

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Exchange Current Density and Standard Hydrogen Electrode
- Lecture 31 - Electrical Double Layer and Polarization
- Lecture 32 - Correlation between Current Density and Overvoltage
- Lecture 33 - Introduction to Butler-Volmer Equation
- Lecture 34 - Derivation of Tafel Equation
- Lecture 35 - Tafel Plot and Activation Polarization
- Lecture 36 - Activation polarization, concentration polarization and total polarization
- Lecture 37 - Summary of concentration polarization (CP) and introduction to mixed potential theory - I
- Lecture 38 - Mixed potential theory - II
- Lecture 39 - Understanding of mixed potential theory through the case studies and events of corrosion - I
- Lecture 40 - Understanding of mixed potential theory through the case studies and events of corrosion - II
- Lecture 41 - Understanding of mixed potential theory through the case studies and events of corrosion - III



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Solar Photovoltaics: Principles, Technologies and

Subject Co-ordinator - Dr. Ashish Garg

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Solar Energy
- Lecture 2 - Solar Radiation
- Lecture 3 - Atmospheric Effects on Solar Radiation
- Lecture 4 - Effect of Location on Time
- Lecture 5 - Sun-Earth Angular Relations
- Lecture 6 - Solar Radiation Measurements
- Lecture 7 - Introduction to Band Theory
- Lecture 8 - Semiconductor Basics - I
- Lecture 9 - Semiconductor Basics - II
- Lecture 10 - Electrical Properties of Semiconductors
- Lecture 11 - Carrier Transport
- Lecture 12 - Carrier Transport, Generation and Recombination
- Lecture 13 - Recombination-Generation statistics
- Lecture 14 - Recombination-Generation statistics (Continued...)
- Lecture 15 - Recombination-Generation statistics (Continued...)
- Lecture 16 - P-N Junction basics
- Lecture 17 - P-N Junction Characteristics
- Lecture 18 - P-N Junction
- Lecture 19 - P-N Junction Analysis (Dark)
- Lecture 20 - P-N Junction Analysis (Dark)
- Lecture 21 - P-N Junction Analysis (Light)
- Lecture 22 - P-N Junction Analysis (Light)
- Lecture 23 - P-N Junction Analysis (Light)
- Lecture 24 - P-N Junction Analysis (Light)
- Lecture 25 - Solar Cell Device Parameters
- Lecture 26 - Solar Cell Device Parameters
- Lecture 27 - Solar PV Technologies
- Lecture 28 - Generation-I Technologies (Mono Silicon Solar Cells)
- Lecture 29 - Generation-I Technologies (Mono Silicon Solar Cells)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Generation-I Technologies (Poly Silicon Solar Cells)
- Lecture 31 - Manufacturing of Si
- Lecture 32 - Generation I Technologies
- Lecture 33 - Generation II Technologies
- Lecture 34 - Generation II Technologies
- Lecture 35 - Generation II Technologies
- Lecture 36 - Generation II Technologies
- Lecture 37 - Generation II Technologies
- Lecture 38 - Generation III Technologies
- Lecture 39 - Generation III Technologies
- Lecture 40 - Generation III Technologies
- Lecture 41 - Generation III Technologies

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Defects in Crystalline Solids - Part II

Subject Co-ordinator - Prof. Shashank Shekhar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Dislocation structure in FCC
- Lecture 2 - Partial dislocations in FCC
- Lecture 3 - Thompsons Tetrahedron
- Lecture 4 - Dislocation lock in FCC
- Lecture 5 - Other defects in FCC (Twins and Frank Partial)
- Lecture 6 - Dislocation structure in BCC
- Lecture 7 - Soft core and Hard core for Screw dislocation in BCC
- Lecture 8 - Dislocation structure in HCP
- Lecture 9 - Burger vector and partial dislocation in HCP
- Lecture 10 - Dislocation structure in ionic crystal
- Lecture 11 - Dislocation structure in superlattices
- Lecture 12 - Stacking fault and Kear-Wilksdorf lock in superlattices
- Lecture 13 - Dislocation interaction & Strain hardening
- Lecture 14 - Origin and Nucleation of dislocations
- Lecture 15 - Multiplication of dislocations
- Lecture 16 - Interaction of point defects and dislocation - Solid Solution Strengthening
- Lecture 17 - Cottrell atmosphere and Yield-point phenomenon

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Corrosion - Part II

Subject Co-ordinator - Dr. Kallol Mondal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Recap of Electrochemical Polarization
- Lecture 2 - Recap of Electrochemical Polarization - Activation and Concentration Polarization
- Lecture 3 - Electrochemical Polarization
- Lecture 4 - Activation and Concentration Polarization
- Lecture 5 - Concentration Polarization and Mixed Potential Theory
- Lecture 6 - Explanation of Corrosion Processes on the basis of Mixed Potential Theory - Introduction
- Lecture 7 - Explanation of Corrosion Processes on the basis of Mixed Potential Theory - Part 1
- Lecture 8 - Explanation of Corrosion Processes on the basis of Mixed Potential Theory - Part 2
- Lecture 9 - Explanation of Corrosion Processes on the basis of Mixed Potential Theory - Part 2 (Continued...)
- Lecture 10 - Explanation of Corrosion Processes on the basis of Mixed Potential Theory - Part 3
- Lecture 11 - Effect of Exchange Current Density on Corrosion Rate of an Active Metal
- Lecture 12 - Area Effect of the Cathodic and Anodic Component - I
- Lecture 13 - Area Effect of the Cathodic and Anodic Component - II
- Lecture 14 - Explanation of Corrosion Processes on the Basis of Mixed Potential Theory
- Lecture 15 - Galvanic Coupling between Two Active Metals
- Lecture 16 - Theory of Sacrificial Anode for the Protection of Steel Objects
- Lecture 17 - Effect of two Active Metals on Fe-corrosion when they are Galvanically Coupled
- Lecture 18 - Corrosion of Metals when Cathodic Protection is Concentration Controlled
- Lecture 19 - Effect of Velocity on the Corrosion Rate of an Active Metal
- Lecture 20 - Concentration Polarization and Activation Polarization
- Lecture 21 - Numerical Problems and Passivation
- Lecture 22 - Theory of Passivation - I
- Lecture 23 - Theory of Passivation - II
- Lecture 24 - Interaction between Passivation and Pourbaix Diagram - I
- Lecture 25 - Interaction between Passivation and Pourbaix Diagram - II
- Lecture 26 - Passivity
- Lecture 27 - Interaction of Cathodic Polarization with an Active-Passive Metal
- Lecture 28 - Interaction of Anodic Polarization with an Active-Passive Metal
- Lecture 29 - Passivation and Mixed Potential Theory

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Passivation and Mixed Potential Theory
- Lecture 31 - Effect of Galvanic Coupling between an Active-Passive Metal and a Noble Metal
- Lecture 32 - Anodic Protection of an Active-Passive Metal and an Introduction of Linear Polarization
- Lecture 33 - Linear Polarization and Understanding Relative Corrosion Resistance of a Metal
- Lecture 34 - Oxidation of Metals and Alloys
- Lecture 35 - Different Stages of Oxidation and Pilling Bedworth Ratio
- Lecture 36 - Pilling Bedworth Ratio of Different Metal Oxides
- Lecture 37 - Thermodynamics of Oxidation
- Lecture 38 - Construction of Ellingham Diagram - I
- Lecture 39 - Construction of Ellingham Diagram - II
- Lecture 40 - Kinetics of Oxidation
- Lecture 41 - Oxide Structure and Oxidation Mechanism

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Fundamentals and Applications of Dielectric Ceramics

Subject Co-ordinator - Dr. Ashish Garg

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Outline of the Course
- Lecture 2 - Basics of Crystal Structure
- Lecture 3 - Basics of Crystallography and Bonding
- Lecture 4 - Arrangement of Atoms in Crystal Lattice
- Lecture 5 - Structure Formation
- Lecture 6 - Pauling's Rule and Crystal Structure of Ceramics
- Lecture 7 - Ceramic Materials
- Lecture 8 - Defect Chemistry
- Lecture 9 - Defect Chemistry
- Lecture 10 - Concentration and Effect of Intrinsic Impurities
- Lecture 11 - Intrinsic and Extrinsic Defects
- Lecture 12 - Defect Concentration
- Lecture 13 - Intrinsic Ionization in Metal Oxides
- Lecture 14 - Brouwer's Diagram
- Lecture 15 - Introduction to Dielectrics
- Lecture 16 - Dielectric Displacement and Polarization Mechanism
- Lecture 17 - Polarization Mechanisms
- Lecture 18 - Dielectric Polarizability - 1
- Lecture 19 - Dielectric Polarizability - 2
- Lecture 20 - Frequency Dependence of Dielectrics
- Lecture 21 - Losses in Dielectric Materials
- Lecture 22 - Frequency Dependence of Dielectric Constant
- Lecture 23 - Dipolar Relaxation
- Lecture 24 - Debye Equations for Dipolar Relaxation
- Lecture 25 - Impedance Spectroscopy
- Lecture 26 - Impedance Spectroscopy and Dielectric Breakdown
- Lecture 27 - Basics of Non-linear Dielectrics
- Lecture 28 - Piezoelectric Effect
- Lecture 29 - Pyroelectric Effect and Electrostriction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Thermodynamics of Piezoelectric and Pyroelectric Materials
- Lecture 31 - Basics of Ferroelectric Materials
- Lecture 32 - Ferroelectric Phase Transitions
- Lecture 33 - Thermodynamics of Phase Transition in Ferroelectrics
- Lecture 34 - Second Order Phase Transition in Ferroelectric Materials
- Lecture 35 - First Order Phase Transition in Ferroelectric Materials
- Lecture 36 - Domain Walls in Ferroelectric Materials
- Lecture 37 - Domain Structure and Properties of Ferroelectric Materials
- Lecture 38 - Phase Diagram and Measurements of Ferroelectric Materials
- Lecture 39 - Principal of Measurements and Applications of Piezoelectric and Pyroelectric Materials
- Lecture 40 - Applications of Piezoelectric and Pyroelectric Materials

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Properties of Materials (Nature and Properties of

Subject Co-ordinator - Dr. Ashish Garg

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the Course
- Lecture 2 - Basic Material Properties - Stress and Strain Tensor
- Lecture 3 - Normal and Shear Stress and Transformation of Axes
- Lecture 4 - Transformation of Axes and Principle Stresses
- Lecture 5 - True and Engineering Stress and Strain
- Lecture 6 - Illustration to True and Engineering Stress and Strain
- Lecture 7 - Tensor Notation of Strain
- Lecture 8 - Introduction to Elasticity and Elastic Properties
- Lecture 9 - Theory of Elasticity
- Lecture 10 - Atomic Basis of Elasticity
- Lecture 11 - Elasticity of Different Materials, Design of Composites
- Lecture 12 - Composites, Anelastic Behaviour
- Lecture 13 - Stress-Strain Curve and Anelasticity
- Lecture 14 - Mechanism of Anelasticity
- Lecture 15 - Relaxation Time and Damping Capacity
- Lecture 16 - Plastic Deformation of Materials
- Lecture 17 - True and Engineering Stress-Strain Curves
- Lecture 18 - Necking Phenomenon During Tension Test
- Lecture 19 - Microscopic Mechanism of Plastic Deformation
- Lecture 20 - Introduction to Slip
- Lecture 21 - Slip Systems
- Lecture 22 - Resolved Shear Stress
- Lecture 23 - Critical Resolved Shear Stress
- Lecture 24 - Theoretical Strength and Role of Dislocations
- Lecture 25 - Dislocations and Slip - I
- Lecture 26 - Dislocations and Slip - II
- Lecture 27 - Dislocations and Peirells Nabarro Stress
- Lecture 28 - Dislocation Generation
- Lecture 29 - Dislocations and Strengthening

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strain Hardening
- Lecture 31 - Grain Boundary Strengthening
- Lecture 32 - Solid Solution Strengthening
- Lecture 33 - Precipitation Hardening
- Lecture 34 - Electrical Conduction in Metals
- Lecture 35 - Free Electron Theory
- Lecture 36 - Fermi-Dirac Statistics and Electronic conductivity of Metals
- Lecture 37 - Fundamental of Semiconductors
- Lecture 38 - Band Theory
- Lecture 39 - Intrinsic Semiconductors
- Lecture 40 - Extrinsic Semiconductors

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Diffusion in Multicomponent Solids

Subject Co-ordinator - Prof. Kaustubh Kulkarni

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the Course and Thermodynamics Refresher

Lecture 2 - The Second law of Thermodynamics

Lecture 3 - Application of Second law and Illustration of Intermixing as Irreversible Process

Lecture 4 - Equilibrium, Stability and Phase Diagrams in Single Component Systems

Lecture 5 - Third Law of Thermodynamics and Numerical Examples

Lecture 6 - Thermodynamic Activity and Gibbs Free Energy of Mixing

Lecture 7 - Entropy of mixing of Multicomponent Ideal Solution

Lecture 8 - Regular Solution Model: Application to Ternary System

Lecture 9 - Gibbs Free Energy-Composition Curves, Phase Diagrams and Gibbs Phase rule

Lecture 10 - Exercise: Solution Thermodynamics

Lecture 11 - Driving force for Diffusion, Chemical Potentials and Concentrations

Lecture 12 - Diffusion flux and Frames of Reference

Lecture 13 - Fick's Law

Lecture 14 - Exercise: Deriving Sigma Cosine for any Cubic Lattice

Lecture 15 - Fick's Law for Multicomponent Diffusion

Lecture 16 - Diffusion Equation and Solution to Steady State Diffusion

Lecture 17 - Conversion of Set of Interdiffusion Coefficients from One Dependent Compared to Another

Lecture 18 - Refresher on Laplace Transform

Lecture 19 - Error Function and Its Laplace transform

Lecture 20 - Instantaneous Planar Source: Solution to Diffusion Equation and Its Applications

Lecture 21 - Solution to Diffusion Equation for Semi-Infinite Slab and Its Application in Carburizing of Steel

Lecture 22 - Solution to Diffusion Equation for Binary Diffusion Couple

Lecture 23 - Solution to Diffusion Equation for Multicomponent Diffusion Couple

Lecture 24 - Nature of Concentration Profiles in Binary and Multicomponent Diffusion Couples

Lecture 25 - Numerical Problems

Lecture 26 - Homogenization of Multicomponent alloys

Lecture 27 - Solution to Diffusion Equation: Periodic Boundary Conditions

Lecture 28 - Energetics of Vacancy Formation

Lecture 29 - Experimental Determination of Enthalpy of Vacancy Formation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Mechanisms of Diffusion in Metals and Alloys
- Lecture 31 - Point Defects in Intermetallics and Ionic Compounds
- Lecture 32 - Diffusion Mechanisms in Intermetallics
- Lecture 33 - Theory of Random Walk: Mean Squared Displacement
- Lecture 34 - Physical Significance of Diffusivity: Einstein-Smoluchowski Equation
- Lecture 35 - Derivation of Correlation Factors in Cubic Crystals by Vacancy Mechanism
- Lecture 36 - Correlation Factors for Substitutional Diffusion by Vacancy Mechanism in FCC Crystal
- Lecture 37 - Correlation Effects in BCC and Diamond Cubic for Vacancy Mechanism
- Lecture 38 - Practice Problems
- Lecture 39 - Deriving Relation Between Diffusion Flux and Chemical Potential Gradients
- Lecture 40 - Atomic Mobility, Diffusivity and Diffusion Under External Driving Force
- Lecture 41 - Non-Ideality as Driving Force
- Lecture 42 - Theory of diffusion
- Lecture 43 - Experimental Determination of Interdiffusion Coefficients: Boltzmann Matano Analysis
- Lecture 44 - Analysis of Interdiffusion Fluxes in Multicomponent Diffusion Couples
- Lecture 45 - Various Techniques for Experimental Determination of Multicomponent Interdiffusion Coefficients
- Lecture 46 - Experimental Determination of Interdiffusion Coefficients: Examples from Literature
- Lecture 47 - Intrinsic Diffusion and Kirkendall Effect
- Lecture 48 - Experimental Determination of Intrinsic Diffusion Coefficients
- Lecture 49 - A Brief Introduction to Ternary Phase Diagram
- Lecture 50 - Multiphase Diffusion: Diffusion Paths and Diffusion Structures
- Lecture 51 - Interdiffusion Analysis of Multiphase Diffusion Couples

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Corrosion Failures and Analysis

Subject Co-ordinator - Prof. Kallol Mondal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An introduction to corrosion failure and analysis
- Lecture 2 - Various forms of corrosion
- Lecture 3 - Discussion of various factors affecting corrosion
- Lecture 4 - Forms of corrosion: Uniform corrosion - Part 1
- Lecture 5 - Forms of corrosion: Uniform corrosion - Part 2
- Lecture 6 - Galvanic corrosion - I
- Lecture 7 - Galvanic corrosion - II
- Lecture 8 - Galvanic corrosion - III
- Lecture 9 - Galvanic corrosion - IV
- Lecture 10 - Importance of galvanic series
- Lecture 11 - Factors associated with galvanic corrosion: Case study 1
- Lecture 12 - Factors associated with galvanic corrosion: Case study 2
- Lecture 13 - Factors associated with galvanic corrosion: Case study 3
- Lecture 14 - Preventive measures and advantages of galvanic corrosion
- Lecture 15 - Dealloying/Selective leaching
- Lecture 16 - Dealloying or selective leaching: Mechanism
- Lecture 17 - Dealloying or selective leaching: Applications and protection methods
- Lecture 18 - Graphitic corrosion and protection from dezincification
- Lecture 19 - Intergranular Corrosion
- Lecture 20 - Intergranular corrosion in case of 304, 321 and 347 stainless steel
- Lecture 21 - Intergranular Corrosion: Sensitization and Weld Decay
- Lecture 22 - Intergranular Corrosion: Control of Sensitization - Weld Decay
- Lecture 23 - Intergranular Corrosion: Knife Line Attack and Prevention Methods
- Lecture 24 - Crevice Corrosion: Introduction
- Lecture 25 - Crevice Corrosion: Mechanism
- Lecture 26 - Crevice corrosion: Mechanism and Various stages
- Lecture 27 - Crevice corrosion: Case studies and Protection methods
- Lecture 28 - Pitting corrosion: Introduction and Case studies
- Lecture 29 - Various conditions favouring pitting corrosion - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Various conditions favouring pitting corrosion - II
- Lecture 31 - Various conditions favouring pitting corrosion - III
- Lecture 32 - Pitting Corrosion: Mechanism and Protection
- Lecture 33 - Erosion Corrosion: Introduction
- Lecture 34 - Erosion Corrosion: Characteristics
- Lecture 35 - Erosion Corrosion: Protection methods and cavitation corrosion
- Lecture 36 - Cavitation corrosion and its case studies
- Lecture 37 - Cavitation corrosion, Fretting corrosion and their preventive measures
- Lecture 38 - Environmental cracking or stress assisted corrosion failures
- Lecture 39 - Stress corrosion cracking: Mechanism - I
- Lecture 40 - Stress corrosion cracking: Mechanism - II
- Lecture 41 - Stress corrosion cracking: Mechanism - III
- Lecture 42 - Stress corrosion cracking: Corrosion fatigue and protection methods

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Nanomaterials and their Properties

Subject Co-ordinator - Prof. Krishanu Biswas

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Nanomaterials: An Overview - Part I
- Lecture 2 - Nanomaterials: An Overview - Part II
- Lecture 3 - Nanomaterials: Hierarchical Nanostructures - I
- Lecture 4 - Nanomaterials: Hierarchical Nanostructures - II
- Lecture 5 - Nanomaterials: Surfaces and Interfaces - I
- Lecture 6 - Nanomaterials: Surfaces and Interfaces - I (Continued...)
- Lecture 7 - Nanomaterials: Surfaces - I
- Lecture 8 - Nanomaterials: Magic Numbers
- Lecture 9 - Thermodynamics of Nanomaterials
- Lecture 10 - Surfaces and Interfaces - II
- Lecture 11 - Thermodynamics of Nanomaterials
- Lecture 12 - Surfaces and Interfaces - II (Continued...)
- Lecture 13 - Nanophase Diagrams
- Lecture 14 - Effect of Size on Phase Diagrams
- Lecture 15 - Synthesis of Nanomaterials
- Lecture 16 - Synthesis Routes of Nanomaterials - II
- Lecture 17 - Mechanical Properties of Nanomaterials - I
- Lecture 18 - Mechanical Properties of Nanomaterials - II
- Lecture 19 - Thermal Properties of Nanomaterials - I
- Lecture 20 - Thermal Properties of Nanomaterials - II
- Lecture 21 - Thermal Properties of Nanomaterials - III
- Lecture 22 - Thermal Properties of Nanomaterials - III (Continued...)
- Lecture 23 - Electrical Property of Nanomaterials
- Lecture 24 - Magnetic Properties of Nanomaterials - I
- Lecture 25 - Magnetic Properties of Nanomaterials - II
- Lecture 26 - Optical Properties of Nanomaterials - I
- Lecture 27 - Optical Properties of Nanomaterials - II
- Lecture 28 - Special Cases: Carbon-Based Nanomaterials
- Lecture 29 - Special Cases: Polymer-Based Nanomaterials

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Mechanical Behaviour of Materials - Part I

Subject Co-ordinator - Prof. Shashank Shekhar, Prof. Sudhanshu Shekhar Singh

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Origin of Elasticity
- Lecture 3 - Stress as a Tensor
- Lecture 4 - Principal Stress
- Lecture 5 - Mohr's Circle
- Lecture 6 - Stress-Strain Relation
- Lecture 7 - Viscoelasticity
- Lecture 8 - Tensile Testing
- Lecture 9 - Universal Testing Machine
- Lecture 10 - Flow Stress
- Lecture 11 - Yield Criteria: Basics
- Lecture 12 - Yield Criteria: Tresca, Von-Mises
- Lecture 13 - Effective Stress\_Effective Strain
- Lecture 14 - Plastic Instability
- Lecture 15 - Effect of Strain-rate and Temperature
- Lecture 16 - Dislocations: Discovery
- Lecture 17 - Dislocations: Fundamentals
- Lecture 18 - Dislocations: Characteristics
- Lecture 19 - Stress and Strain Fields of Dislocations
- Lecture 20 - Energy of Dislocations
- Lecture 21 - Dislocation Motion Glide
- Lecture 22 - Cross-slip of Dislocations
- Lecture 23 - Climb motion of Dislocations
- Lecture 24 - Steps in Dislocations
- Lecture 25 - Slip Systems
- Lecture 26 - More on Slip Systems
- Lecture 27 - Critical Resolved Shear Stress
- Lecture 28 - Dislocation Interactions
- Lecture 29 - Image Forces

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Partial Dislocations
- Lecture 31 - Strengthening Mechanisms
- Lecture 32 - Precipitation Strengthening: Basic Criteria
- Lecture 33 - Precipitation Strengthening: Precipitate Characteristics
- Lecture 34 - Precipitation Strengthening: Mechanisms
- Lecture 35 - Effect of Temperature: Dispersion Strengthening
- Lecture 36 - Solid Solution Strengthening: Basics
- Lecture 37 - Solid Solution Strengthening: Interaction with Dislocations
- Lecture 38 - Solid Solution Strengthening: Yield Point Phenomenon
- Lecture 39 - Grain Boundary Strengthening
- Lecture 40 - Strain Hardening: Single Xtal and Poly Crystal Deformation, Tylor Hardening
- Lecture 41 - Strain Hardening: Dislocation Multiplication, Intersection and Locks
- Lecture 42 - Summary of Strengthening Mechanisms
- Lecture 43 - Hardness Testing
- Lecture 44 - Impact Testing
- Lecture 45 - Mechanical Behaviour of Composites



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Mechanical Behaviour of Materials - Part II

Subject Co-ordinator - Prof. Sudhanshu Shekhar Singh, Prof. Shashank Shekhar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Theoretical Strength
- Lecture 2 - Stress Based Approach (Inglis)
- Lecture 3 - Energy Based Approach (Griffith)
- Lecture 4 - Mode of Deformation and Stress Distribution Ahead of Crack Tip
- Lecture 5 - Stress Triaxiality
- Lecture 6 - Plastic Zone Size
- Lecture 7 - Plastic Zone Size and Shape (Continued...)
- Lecture 8 - Stress Intensity Factors for Different Geometries
- Lecture 9 - Fracture Toughness
- Lecture 10 - Fracture Toughness Measurement
- Lecture 11 - Fracture Mechanisms
- Lecture 12 - Ductile Fracture Mechanisms
- Lecture 13 - Ductile Fracture Mechanisms\_Tunneling
- Lecture 14 - Cleavage Fracture
- Lecture 15 - Fracture Mechanisms (Images)
- Lecture 16 - Fatigue (Stress Parameters)
- Lecture 17 - Fatigue Testing (S-N curve)
- Lecture 18 - Low and High Cycle Fatigue
- Lecture 19 - Fatigue Crack Initiation
- Lecture 20 - Fatigue Crack Propagation
- Lecture 21 - Fatigue Striations, Beachmarks and Images
- Lecture 22 - Deformation of Composites
- Lecture 23 - Deformation of Composites (Continued...)
- Lecture 24 - Toughening of Ceramics
- Lecture 25 - Fracture in Polymers
- Lecture 26 - Creep Fundamentals
- Lecture 27 - Creep Models

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Electronic Properties of the Materials: Computatio

Subject Co-ordinator - Prof. Somnath Bhowmick

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
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Lecture 22  
Lecture 23  
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Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Corrosion Protection Methods

Subject Co-ordinator - Prof. Kallol Mondal

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
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Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
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Lecture 37  
Lecture 38  
Lecture 39  
Lecture 40 (Part 1)  
Lecture 41 (Part 2)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Advanced ceramics for strategic applications

Subject Co-ordinator - Prof. H.S. Maiti

Co-ordinating Institute - Central Glass and Ceramic Research Institute

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Introduction (Continued...)
- Lecture 3 - Crystal Structure
- Lecture 4 - Crystal Structure (Continued...)
- Lecture 5 - Crystal Structure (Continued...)
- Lecture 6 - Crystal Structure (Continued...)
- Lecture 7 - Defects in crystalline solids
- Lecture 8 - Defects in crystalline solids (Continued...)
- Lecture 9 - Dislocation
- Lecture 10 - Two and Three Dimensional Defects
- Lecture 11 - Electrical Conduction in ceramics
- Lecture 12 - Electrical Conduction in Ceramics (Continued...)
- Lecture 13 - Electrical Conduction in Ceramics (Continued...)
- Lecture 14 - Electrical Conduction in Ceramics (Continued...)
- Lecture 15 - Electrical Conduction in Ceramics (Continued...)
- Lecture 16 - Electrical Conduction in Ceramics (Continued...)
- Lecture 17 - Electrical Phenomenon in Insulators
- Lecture 18 - Electrical Phenomenon in Insulators (Continued...)
- Lecture 19 - Ferroelectric , Piezoelectric and Pyroelectric Ceramics
- Lecture 20 - Ferroelectric , Piezoelectric and Pyroelectric Ceramics (Continued...)
- Lecture 21 - Ferroelectric , Piezoelectric and Pyroelectric Ceramics (Continued...)
- Lecture 22 - Ferroelectric , Piezoelectric and Pyroelectric Ceramics (Continued...)
- Lecture 23 - Relaxor Ferroelectric
- Lecture 24 - Superconductivity
- Lecture 25 - Superconductivity (Continued...)
- Lecture 26 - Ceramic Gas Sensor
- Lecture 27 - Ceramic Gas Sensor (Continued...)
- Lecture 28 - Solid Oxide Fuel Cell
- Lecture 29 - Solid Oxide Fuel Cell (Continued...)

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- Lecture 30 - Solid Oxide Fuel Cell (Continued...)
- Lecture 31 - Hydrogen Generation through MIEC Reactor
- Lecture 32 - Lithium Ion Battery
- Lecture 33 - Lithium Ion Battery (Continued...)
- Lecture 34 - Magnetic Ceramics
- Lecture 35 - Magnetic Ceramics (Continued...)
- Lecture 36 - Magnetic Ceramics (Continued...)
- Lecture 37 - Magnetic Ceramics (Continued...)
- Lecture 38 - Sintering of Ceramics
- Lecture 39 - Sintering of Ceramics (Continued...)
- Lecture 40 - Sintering of Ceramics (Continued...)
- Lecture 41 - Sintering of Ceramics (Continued...)
- Lecture 42 - Mechanical Properties of Ceramic Materials
- Lecture 43 - Mechanical Properties of Ceramic Materials (Continued...)
- Lecture 44 - Mechanical Properties of Ceramic Materials (Continued...)
- Lecture 45 - Mechanical Properties of Ceramic Materials (Continued...)
- Lecture 46 - Structural Ceramics Materials
- Lecture 47 - Bioceramics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Non-ferrous Extractive Metallurgy

Subject Co-ordinator - Prof. H.S. Ray, Mr. L. Pugazhenthay

Co-ordinating Institute - IIT - Kharagpur | India Lead Zine Development Association

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Brief History of Non-ferrous Metal
- Lecture 2 - Brief History of Non-ferrous Metal (Continued...)
- Lecture 3 - Sources of Non-ferrous Metal
- Lecture 4 - Mineral Beneficiation Techniques
- Lecture 5 - General Methods of Metal Extraction
- Lecture 6 - Principles of Carbon Reduction
- Lecture 7 - Principles of Hydrometallurgy
- Lecture 8 - Principles of Electrometallurgy
- Lecture 9 - Electrometallurgy (Continued...) and Temkin Model for Fused Salts
- Lecture 10 - Refining of Metals - Chemical Methods
- Lecture 11 - Refining of Metals - Physical Methods
- Lecture 12 - Concluding part of Module - 4
- Lecture 13 - Concluding part of Module - 4 (Continued...)
- Lecture 14 - Module - 5 Extraction of Metals from Oxides, Extraction of Magnesium
- Lecture 15 - Extraction Aluminium
- Lecture 16 - Extraction Aluminium (Continued...1)
- Lecture 17 - Extraction Aluminium (Continued...2)
- Lecture 18 - Extraction Aluminium (Continued...3)
- Lecture 19 - Extraction of Tin
- Lecture 20 - Extraction of Ferro Alloys
- Lecture 21 - Module - 6 Extraction of Metals from Sulphides Extraction of Copper
- Lecture 22 - Extraction of Copper (Continued...)
- Lecture 23 - Hydrometallurgy of Copper
- Lecture 24 - Extraction of Lead
- Lecture 25 - Extraction of Zinc-Imperial Smelting Process
- Lecture 26 - Module - 7 Extraction of metals from halides, Extraction of reactor metals
- Lecture 27 - Extraction of reactor metals (Continued...1)
- Lecture 28 - Extraction of reactor metals (Continued...2)
- Lecture 29 - Extraction of Titanium

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Extraction of Precious Metals
- Lecture 31 - Production of Secondary Metals and Treatment of Wastes
- Lecture 32 - Energy and Environment Related Issues in Nonferrous Metals Production
- Lecture 33 - Energy and Environment Related Issues in Nonferrous Metals Production (Continued...1)
- Lecture 34 - Energy and Environment Related Issues in Nonferrous Metals Production (Continued...2)
- Lecture 35 - Energy and Environment Related Issues in Nonferrous Metals Production (Continued...3)
- Lecture 36 - Energy and Environment Related Issues in Nonferrous Metals Production (Continued...4)
- Lecture 37 - Energy and Environment Related Issues in Nonferrous Metals Production (Continued...5)
- Lecture 38 - Energy and Environment Related Issues in Nonferrous Metals Production (Continued...6)
- Lecture 39 - Nonferrous Metals in India - Unleashing its true potential
- Lecture 40 - Nonferrous Metals in India - Unleashing its true potential (Continued...)
- Lecture 41 - Review and Summary
- Lecture 42 - Review and Summary (Continued...1)
- Lecture 43 - Review and Summary (Continued...2)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Principles of Physical Metallurgy

Subject Co-ordinator - Prof. R.N. Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Atomic Bond and Crystal Structure
- Lecture 3 - Atomic Bond and Crystal Structure (Continued...1)
- Lecture 4 - Atomic Bond and Crystal Structure (Continued...2)
- Lecture 5 - Experimental Tools & Techniques
- Lecture 6 - Experimental Tools & Techniques (Continued...)
- Lecture 7 - Solidification of Pure Metal
- Lecture 8 - Plastic Deformation of Pure Metal
- Lecture 9 - Plastic Deformation of Pure Metal (Continued...)
- Lecture 10 - Crystal Defects in Metals
- Lecture 11 - Crystal Defects in Metals (Continued...1)
- Lecture 12 - Crystal Defects in Metals (Continued...2)
- Lecture 13 - Crystal Defects in Metals (Continued...3)
- Lecture 14 - Crystal Defects in Metals (Continued...4)
- Lecture 15 - Diffusion in Solids
- Lecture 16 - Diffusion in Solids (Continued...)
- Lecture 17 - Numerical Examples in Diffusion
- Lecture 18 - Solidification of Binary Alloys
- Lecture 19 - Solidification of Binary Alloys (Continued...1)
- Lecture 20 - Solidification of Binary Alloys (Continued...2)
- Lecture 21 - Solidification of Binary Alloys (Continued...3)
- Lecture 22 - Solidification of Binary Alloys (Continued...4)
- Lecture 23 - Iron-Carbon Phase Diagram
- Lecture 24 - Iron-Carbon Phase Diagram (Continued...)
- Lecture 25 - Ternary Phase Diagram
- Lecture 26 - Common Binary Alloys
- Lecture 27 - Metal Working
- Lecture 28 - Metal Working
- Lecture 29 - Precipitation for Solid Solution

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- Lecture 30 - Precipitation for Solid Solution (Continued...)
- Lecture 31 - Heat Treatment of Steel
- Lecture 32 - Heat Treatment of Steel (Continued...1)
- Lecture 33 - Heat Treatment of Steel (Continued...2)
- Lecture 34 - Heat Treatment of Steel (Continued...3)
- Lecture 35 - Heat Treatment of Steel (Continued...4)
- Lecture 36 - Heat Treatment of Steel (Continued...5)
- Lecture 37 - Surface Hardening
- Lecture 38 - Structural Steel
- Lecture 39 - Structural Steel (Continued...)
- Lecture 40 - Ultra High Strength Steel
- Lecture 41 - Preferred Orientation
- Lecture 42 - Metal Joining

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Processing of Semiconducting Materials

Subject Co-ordinator - Dr. Pallab Banerji

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Electronics Materials  
Lecture 2 - Electrical Conductivity of Materials  
Lecture 3 - Direct and Indirect Band Semiconductors  
Lecture 4 - Doping in Semiconductors  
Lecture 5 - Semiconductor Statistics  
Lecture 6 - Importance of Doping  
Lecture 7 - Diffusion and Ion Implantation - I  
Lecture 8 - Diffusion and Ion Implantation - II  
Lecture 9 - Diffusion and Ion Implantation - III  
Lecture 10 - Elemental Semiconductors  
Lecture 11 - Compound Semiconductors  
Lecture 12 - Bulk Crystal Growth - I  
Lecture 13 - Bulk Crystal Growth - II  
Lecture 14 - Ga As Crystal Growth  
Lecture 15 - Defects in Crystals - I  
Lecture 16 - Defects in Crystals - II  
Lecture 17 - Band Gap Engineering - I  
Lecture 18 - Band Gap Engineering - II  
Lecture 19 - Chemical Vapour Deposition - I  
Lecture 20 - Chemical Vapour Deposition - II  
Lecture 21 - MOCVD  
Lecture 22 - Molecular Beam Epitaxy - I  
Lecture 23 - Molecular Beam Epitaxy - II  
Lecture 24 - p - n Junction  
Lecture 25 - Carrier Transport in P - N Junction  
Lecture 26 - Characterization - I  
Lecture 27 - Characterization - II  
Lecture 28 - Optical Characterization - I  
Lecture 29 - Metal-Semiconductor Contact - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Metal-Semiconductor Contact - II
- Lecture 31 - Applications of Metal-Semiconductor Contact
- Lecture 32 - Oxidation - I
- Lecture 33 - Oxidation - II
- Lecture 34 - Different Types of Semiconductor - I
- Lecture 35 - Oxidation - I
- Lecture 36 - Oxidation - II
- Lecture 37 - Dielectric Films
- Lecture 38 - Low - K and High - K materials
- Lecture 39 - Metallization
- Lecture 40 - Materials for Photovoltaics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Science and Technology of Polymers

Subject Co-ordinator - Prof. B. Adhikari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Concepts on Polymers
- Lecture 2 - Basic Concepts on Polymers (Continued...)
- Lecture 3 - Basic Concepts on Polymers (Continued...)
- Lecture 4 - Polymer Raw Materials
- Lecture 5 - Principles of Polymer Synthesis
- Lecture 6 - Principles of Polymer Synthesis (Continued...)
- Lecture 7 - Principles of Polymer Synthesis (Continued...)
- Lecture 8 - Principles of Polymer Synthesis (Continued...)
- Lecture 9 - Principles of Polymer Synthesis (Continued...)
- Lecture 10 - Principles of Polymer Synthesis (Continued...)
- Lecture 11 - Structure and Properties of Polymers (Continued...)
- Lecture 12 - Structure and Properties of Polymers (Continued...)
- Lecture 13 - Structure and Properties of Polymers (Continued...)
- Lecture 14 - Structure and Properties of Polymers (Continued...)
- Lecture 15 - Polymerization Techniques
- Lecture 16 - Polymerization Techniques (Continued...)
- Lecture 17 - Polymerization Techniques (Continued...)
- Lecture 18 - Polymer Products
- Lecture 19 - Polymer Products (Continued...)
- Lecture 20 - Rubber Products
- Lecture 21 - Rubber Products (Continued...)
- Lecture 22 - Conducting Polymers
- Lecture 23 - Conducting Polymers (Continued...)
- Lecture 24 - Liquid Crystalline Polymers
- Lecture 25 - Stimuli Responsive Polymer and its application
- Lecture 26 - Stimuli Responsive Polymer and its application (Continued...)
- Lecture 27 - Polymeric Nanomaterials and Devices (Continued...)
- Lecture 28 - Polymeric Nanomaterials and Devices (Continued...)
- Lecture 29 - Polymeric Nanomaterials and Devices (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Environmental Degradation of Polymers
- Lecture 31 - Environmental Degradation of Polymers (Continued...)
- Lecture 32 - Polymer Composites
- Lecture 33 - Polymer Composites (Continued...)
- Lecture 34 - Polymer Composites (Continued...)
- Lecture 35 - Multicomponent Polymeric Materials
- Lecture 36 - Multicomponent Polymeric Materials (Continued...)
- Lecture 37 - Multicomponent Polymeric Materials (Continued...)
- Lecture 38 - Viscoelasticity
- Lecture 39 - Engineering and Speciality Polymers
- Lecture 40 - Engineering and Speciality Polymers (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Advanced Materials and Processes

Subject Co-ordinator - Prof. B.S. Murty

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Structure of Materials - Part I  
Lecture 2 - Structure of Materials - Part II  
Lecture 3 - Nano Crystalline Materials - Part I  
Lecture 4 - Nano Crystalline Materials - Part II  
Lecture 5 - Nano Crystalline Materials - Part III  
Lecture 6 - Nano Crystalline Materials - Part IV  
Lecture 7 - Amorphous Materials - Part I  
Lecture 8 - Amorphous Materials - Part II  
Lecture 9 - Amorphous Materials - Part III  
Lecture 10 - Amorphous Materials - Part IV  
Lecture 11 - Amorphous Materials - Part V  
Lecture 12 - Quasicrystals - Part I  
Lecture 13 - Quasicrystals - Part II  
Lecture 14 - Nano Quasicrystals - Part I  
Lecture 15 - Nano Quasicrystals - Part II  
Lecture 16 - Rapid Solidification Processing  
Lecture 17 - Mechanical Alloying  
Lecture 18 - Advanced AI Alloys - Part I  
Lecture 19 - Advanced AI Alloys - Part II  
Lecture 20 - Advanced AI Alloys - Part III  
Lecture 21 - Advanced AI Alloys - Part IV and Ti Alloys  
Lecture 22 - Shape Memory Alloys  
Lecture 23 - Strengthening Mechanisms - Part I  
Lecture 24 - Strengthening Mechanisms - Part II  
Lecture 25 - Superalloys  
Lecture 26 - In-Situ Composites - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Principles of Polymer Synthesis

Subject Co-ordinator - Prof. Rajat K Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Historical development of polymer science
- Lecture 2 - Molecular Weight Determination Of Polymers
- Lecture 3 - Molecular Weight Determination Of Polymers (Continued...)
- Lecture 4 - Molecular Weight Determination of Polymers (Continued...)
- Lecture 5 - Molecular Weight Determination of Polymers (Continued...)
- Lecture 6 - Principles of step growth polymerization
- Lecture 7 - Principles of step growth polymerization (Continued...)
- Lecture 8 - Principles of step growth polymerization (Continued...)
- Lecture 9 - Principles of step growth polymerization (Continued...)
- Lecture 10 - Principles of step growth polymerization (Continued...)
- Lecture 11 - Principles of radical chain polymerization
- Lecture 12 - Principles of radical chain polymerization (Continued...)
- Lecture 13 - Principles of radical chain polymerization (Continued...)
- Lecture 14 - Principles of radical chain polymerization (Continued...)
- Lecture 15 - Principles of radical chain polymerization (Continued...)
- Lecture 16 - Principles of radical chain polymerization (Continued...)
- Lecture 17 - Principles of Chain Copolymerization
- Lecture 18 - Principles of Chain Copolymerization (Continued...)
- Lecture 19 - Principles of Chain Copolymerization (Continued...)
- Lecture 20 - Principles of Living Chain polymerization
- Lecture 21 - Principles of Living Chain polymerization (Continued...)
- Lecture 22 - Design of Chemical Reactors
- Lecture 23 - Design of Chemical Reactors (Continued...)
- Lecture 24 - Design of Chemical Reactors (Continued...)
- Lecture 25 - Design of Chemical Reactors (Continued...)
- Lecture 26 - Design of Chemical Reactors (Continued...)
- Lecture 27 - Design of Chemical Reactors (Continued...)
- Lecture 28 - Design of Chemical Reactors (Continued...)
- Lecture 29 - Design of Chemical Reactors (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design of Chemical Reactors (Continued...)
- Lecture 31 - Design of Chemical Reactors (Continued...)
- Lecture 32 - Synthesis of industrial polymers
- Lecture 33 - Synthesis of industrial polymers (Continued...)
- Lecture 34 - Synthesis of industrial polymers (Continued...)
- Lecture 35 - Synthesis of industrial polymers (Continued...)
- Lecture 36 - Synthesis of industrial polymers (Continued...)
- Lecture 37 - Synthesis of industrial polymers (Continued...)
- Lecture 38 - Synthesis of industrial polymers (Continued...)
- Lecture 39 - Synthesis of industrial polymers (Continued...)
- Lecture 40 - Synthesis of industrial polymers (Continued...)
- Lecture 41 - Synthesis of industrial polymers (Continued...)
- Lecture 42 - Synthesis of industrial polymers (Continued...)
- Lecture 43 - Synthesis of industrial polymers (Continued...)
- Lecture 44 - Synthesis of industrial polymers (Continued...)
- Lecture 45 - Synthesis of industrial polymers (Continued...)
- Lecture 46 - Synthesis of industrial polymers (Continued...)
- Lecture 47 - Synthesis of industrial polymers (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Advanced Materials and Processes

Subject Co-ordinator - Prof. Jayanta Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction (Continued...)  
Lecture 3 - Introduction (Continued...)  
Lecture 4 - Introduction (Continued...)  
Lecture 5 - Introduction (Continued...)  
Lecture 6 - Bulk Metallic Glass, Glassy and Amorphous Materials  
Lecture 7 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 8 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 9 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 10 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 11 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 12 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 13 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 14 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 15 - Bulk Metallic Glass, Glassy and Amorphous Materials (Continued...)  
Lecture 16 - Shape Memory Alloys  
Lecture 17 - Shape Memory Alloys (Continued...)  
Lecture 18 - Shape Memory Alloys (Continued...)  
Lecture 19 - Shape Memory Alloys (Continued...)  
Lecture 20 - Shape Memory Alloys (Continued...)  
Lecture 21 - Shape Memory Alloys  
Lecture 22 - Shape Memory Alloys  
Lecture 23 - Shape Memory Alloys  
Lecture 24 - Shape Memory Alloys  
Lecture 25 - Shape Memory Alloys  
Lecture 26 - Introduction of High Temperature Materials  
Lecture 27 - Introduction of High Temperature Materials (Continued...)  
Lecture 28 - Introduction of High Temperature Materials (Continued...)  
Lecture 29 - Introduction of High Temperature Materials (Continued...)

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- Lecture 30 - Introduction of High Temperature Materials (Continued...)
- Lecture 31 - Superalloys
- Lecture 32 - Superalloys (Continued...)
- Lecture 33 - Superalloys (Continued...)
- Lecture 34 - Superalloys (Continued...)
- Lecture 35 - Superalloys (Continued...)
- Lecture 36 - Nanomaterials
- Lecture 37 - Nanomaterials
- Lecture 38 - Nanomaterials
- Lecture 39 - Nanomaterials
- Lecture 40 - Nanomaterials
- Lecture 41 - Nanomaterials
- Lecture 42 - Nanomaterials
- Lecture 43 - Nanomaterials
- Lecture 44 - Nanomaterials
- Lecture 45 - Nanomaterials
- Lecture 46 - Soft and Hard Magnetic Materials
- Lecture 47 - Soft and Hard Magnetic Materials (Continued...)
- Lecture 48 - Soft and Hard Magnetic Materials (Continued...)
- Lecture 49 - Soft and Hard Magnetic Materials (Continued...)
- Lecture 50 - Soft and Hard Magnetic Materials (Continued...)
- Lecture 51 - Advanced Processes
- Lecture 52 - Advanced Processes (Continued...)
- Lecture 53 - Advanced Processes (Continued...)
- Lecture 54 - Advanced Processes (Continued...)
- Lecture 55 - Advanced Processes (Continued...)
- Lecture 56 - Advanced Functional Alloys
- Lecture 57 - Advanced Functional Alloys (Continued...)
- Lecture 58 - Advanced Functional Alloys (Continued...)
- Lecture 59 - Advanced Functional Alloys (Continued...)
- Lecture 60 - Advanced Functional Alloys (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Surface Engineering for Corrosion and Wear Resista

Subject Co-ordinator - Prof. Jyotsna Dutta Majumder, Prof. I. Manna

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Structure of Solids

Lecture 2 - Microstructure of Solids

Lecture 3 - Defects in Crystalline Solids

Lecture 4 - Surface and Surface Energy

Lecture 5 - Surface Properties-due to mechanical activation

Lecture 6 - Surface dependent physical and chemical property

Lecture 7 - Surface Dependent Properties and Surface initiated Degradation

Lecture 8 - Fatigue

Lecture 9 - Wear Part - I

Lecture 10 - Wear Part - II

Lecture 11 - Wear Part - III

Lecture 12 - Corrosion - I

Lecture 13 - Corrosion - II

Lecture 14 - Corrosion - III

Lecture 15 - Corrosion - IV

Lecture 16 - Corrosion - V

Lecture 17 - Classification of Surface engineering

Lecture 18 - Strengthening of metals

Lecture 19 - Strengthening of Non-Metals

Lecture 20 - Diffusive transformation in Steel

Lecture 21 - Non-Diffusive transformation in Steel

Lecture 22 - Shot Peening

Lecture 23 - Shot Peening and Rolling

Lecture 24 - Flame Hardening and Induction Hardening

Lecture 25 - Case Carburizing

Lecture 26 - Liquid Carburizing and Gas Carburizing

Lecture 27 - Gas Nitriding

Lecture 28 - Liquid and Salt Bath Nitriding

Lecture 29 - Plasma Nitriding and Ion Implantation

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heat treatment after carburizing and Nitriding
- Lecture 31 - Diffusion Coating Principle
- Lecture 32 - Diffusion Coating Processes
- Lecture 33 - Thick Coating by Cladding
- Lecture 34 - High Temperature Degradation
- Lecture 35 - Corrosion Prevention
- Lecture 36 - Chemical Conversion Coating
- Lecture 37 - Electroconversion Coating
- Lecture 38 - Electro and Electroless Deposition Process
- Lecture 39 - Hot Dipping - I
- Lecture 40 - Hot Dipping - II
- Lecture 41 - Thermal Spray Deposition - I
- Lecture 42 - Thermal Spray Deposition - II
- Lecture 43 - Thermal Spray Deposition - III
- Lecture 44 - Thermal Spray Deposition - IV
- Lecture 45 - Physical Vapor Deposition (PVD)
- Lecture 46 - Sputtering
- Lecture 47 - Chemical Vapor Deposition (CVD)
- Lecture 48 - Composite Coating
- Lecture 49 - Ion Implantation - I
- Lecture 50 - Ion Implantation - II
- Lecture 51 - Electron Beam Welding
- Lecture 52 - Electron Beam Surface engineering
- Lecture 53 - Laser Materials Processing
- Lecture 54 - Laser Assisted Materials Processing
- Lecture 55 - Laser Surface Engineering
- Lecture 56 - Laser Surface Engineering with Laser surface hardening and laser surface melting
- Lecture 57 - Laser Surface Alloying
- Lecture 58 - Laser Surface Cladding
- Lecture 59 - Surface Damage - Case Studies
- Lecture 60 - Overview and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Ironmaking and Steelmaking

Subject Co-ordinator - Prof. Gour Gopal Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Various Routes of steelmaking
- Lecture 3 - The Iron Blast Furnace
- Lecture 4 - Thermodynamics of BF ironmaking
- Lecture 5 - Thermodynamics of BF Ironmaking (Continued...)
- Lecture 6 - Overall Heat and Material Balance in Blast Furnace
- Lecture 7 - RIST Diagram based on overall heat and material balance
- Lecture 8 - RIST Diagram based on heat and material balance in the Wustite Reserve Zone
- Lecture 9 - Kinetics of gas solid reaction
- Lecture 10 - Kinetics of gas solid reaction
- Lecture 11 - Aerodynamics in Blast Furnace - Part 1
- Lecture 12 - Aerodynamics in Blast Furnace - Part 2
- Lecture 13 - Aerodynamics in Blast Furnace - Part 3
- Lecture 14 - Coke rate and Fuel efficiency in Blast Furnace
- Lecture 15 - oxygen enrichment of blast
- Lecture 16 - Blast Furnace and it's Raw Material
- Lecture 17 - Sintering of Iron Ore
- Lecture 18 - Pelletization of Iron Ore
- Lecture 19 - Coking Process
- Lecture 20 - Testing of Burden Material
- Lecture 21 - Burden Distribution
- Lecture 22 - Blast Furnace products and their utilization
- Lecture 23 - Blast Furnace Productivity
- Lecture 24 - Modeling of Blast Furnace
- Lecture 25 - New Potential Technologies for Blast Furnace
- Lecture 26 - History of Steelmaking
- Lecture 27 - Properties of slag
- Lecture 28 - The Reaction Equilibria Unlisted
- Lecture 29 - Dephosphorization of liquid steel

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Kinetics of slag metal reaction
- Lecture 31 - LD steelmaking
- Lecture 32 - LD Steel making
- Lecture 33 - Evolution of impurities in steel and slag constituents during LD processing
- Lecture 34 - Hybrid Processes
- Lecture 35 - Electric steel making
- Lecture 36 - Secondary Steel making
- Lecture 37 - Secondary Steel making
- Lecture 38 - Secondary Steel making
- Lecture 39 - Homogenization and Gas stirred ladle
- Lecture 40 - Ladle de-sulphurization, alloying, stainless steel making
- Lecture 41 - Inclusion and its control
- Lecture 42 - Injection Metallurgy
- Lecture 43 - Cored wire injection-Modeling, melting sequence, effect of operating parameters
- Lecture 44 - IM
- Lecture 45 - IM
- Lecture 46 - Casting fundamentals- Heat Transfer
- Lecture 47 - Casting fundamentals- segregation
- Lecture 48 - Morphology of solidification structure and Ingot casting
- Lecture 49 - Continuous casting
- Lecture 50 - Downstream processing and near net shape casting
- Lecture 51 - Introduction to Direct Reduction (DR) and smelting Reduction (SR) Processes
- Lecture 52 - Introduction to Direct Reduction (DR) and smelting Reduction (SR) Processes (Continued...)
- Lecture 53 - Coal Based DR Processes
- Lecture 54 - Coal Based DR Processes (Continued...)
- Lecture 55 - Gas based DR Processes
- Lecture 56 - Gas based DR Processes (Continued...)
- Lecture 57 - Smelting Reduction (SR) Processes
- Lecture 58 - Smelting Reduction (SR) Processes (Continued...)
- Lecture 59 - Ironmaking and Steelmaking in India
- Lecture 60 - Ironmaking and Steelmaking in India (Continued...)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Non-Metallic Materials

Subject Co-ordinator - Prof. Subhasish Basu Majumder

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Classification and applications of non-metallic materials

Lecture 2 - Understanding on polymer structures

Lecture 3 - Characteristics of polymers and advanced polymeric materials

Lecture 4 - Processing of polymers

Lecture 5 - Polymer composites and issues related to recycling

Lecture 6 - Defects in crystalline materials: point, line, planar and three dimensional defects

Lecture 7 - Non- stoichiometry in non-metallic materials

Lecture 8 - Laws of thermodynamics, reaction kinetics - Part 1

Lecture 9 - Laws of thermodynamics, reaction kinetics - Part 2

Lecture 10 - Phase diagram and microstructure evolution in non-metallic materials

Lecture 11 - Carbonaceous materials

Lecture 12 - Fundamental of diffusion, Fick's laws, their solution and applications - Part 1

Lecture 13 - Fundamental of diffusion, Fick's laws, their solution and applications - Part 2

Lecture 14 - Phase transformation of non-metallic materials

Lecture 15 - Introduction to glass and amorphous solids

Lecture 16 - Understanding on conventional glass and amorphous solids

Lecture 17 - Glass-ceramics and specialty glasses

Lecture 18 - Mechanical properties of non-metallic materials, stress-strain response, elastic, and plastic deformation

Lecture 19 - Brittle and ductile materials, introduction to fracture mechanics, strength of brittle materials

Lecture 20 - Strengthening of materials, fatigue, and creep

Lecture 21 - Composite materials: Particle-reinforced composites, and fiber reinforced composites

Lecture 22 - Structural Composite

Lecture 23 - Dielectric and piezoelectric behavior

Lecture 24 - Ferroelectric Behaviour of Non-Metallic Materials and Ferroelectric thin film for Non-Volatile Memory

Lecture 25 - Magnetic Properties : Origin of Magnetism, Para, Dia, Ferro, and Ferrimagnetism

Lecture 26 - Ceramic Magnets and their Applications

Lecture 27 - Thermal Properties : Specific Heat, Heat Conduction, Thermal Diffusivity, Thermal expansion

Lecture 28 - Thermoelectric Effect and Magnetocaloric Effect

Lecture 29 - Optical properties: Refractive index, absorption and transmission of electromagnetic radiation,

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- Lecture 30 - Introduction to electrochemistry, Galvanic cells, Cell potentials and Gibbs Energy, Concentration
- Lecture 31 - Electrochemical storage, rechargeable batteries
- Lecture 32 - Introduction to electrochemical methods; cyclic voltammetry and other related techniques
- Lecture 33 - Fuel Cell and Energy harvesting
- Lecture 34 - Preparation of ceramic powders: auto-combustion, sol-gel synthesis, microwave assisted hydrothermal
- Lecture 35 - Introduction to sintering, sintering mechanism
- Lecture 36 - Solid-state sintering and microstructure development
- Lecture 37 - Solid-state sintering and microstructure development (Continued...)
- Lecture 38 - Liquid phase sintering and microstructure development, speciality sintering, reactive sintering
- Lecture 39 - Processing of glass and amorphous/non-crystalline solids
- Lecture 40 - Fundamental of thin film growth, growth mechanism and kinetics
- Lecture 41 - Thin film growth techniques, thermal evaporation, CVD, sputtering, CSD
- Lecture 42 - Fundamentals and processing of conducting and semiconducting ceramic devices
- Lecture 43 - Processing of ceramics devices
- Lecture 44 - Organic electronic materials: conducting polymers, semi-conducting organic materials, applications
- Lecture 45 - Thermal analyses
- Lecture 46 - Introduction of spectroscopic technique : UV-VIS spectroscopy
- Lecture 47 - Infra-red and Raman spectroscopy
- Lecture 48 - Optical and scanning electron microscopy
- Lecture 49 - X-ray photoelectron spectroscopy
- Lecture 50 - Measurement of mechanical properties, fracture toughness, MOR, hardness
- Lecture 51 - Ferroelectric thin film: synthesis and characterization
- Lecture 52 - Thermal analysis techniques: Differential scanning calorimetry and thermogravimetry
- Lecture 53 - Measurement of optical properties
- Lecture 54 - Novel ferroic composites: Synthesis and measurement
- Lecture 55 - Fundamentals of corrosion, corrosion of materials
- Lecture 56 - Oxidation, corrosion of ceramic materials, degradation of polymers: swelling and dissolution, biodegradation
- Lecture 57 - Ceramics in biology and medicine
- Lecture 58 - Design of Ceramics
- Lecture 59 - Finishing of Ceramics
- Lecture 60 - Fly-ash based glazed wall tiles: A case study

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Scanning Electron-Ion-Probe Microscopy in Material

Subject Co-ordinator - Prof. Debabrata Pradhan

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Microscopy
- Lecture 2 - Scanning Electron Microscopy
- Lecture 3 - SEM and Its Capabilities
- Lecture 4 - Main Components of SEM - Electron Guns
- Lecture 5 - Main Components of SEM - Electron Guns and Electromagnetic Lenses
- Lecture 6 - Electron Probe Diameter Verses Electron Probe Current
- Lecture 7 - Electron Beam - Specimen Interaction
- Lecture 8 - Detectors
- Lecture 9 - BSE Detector and Sample Preparation for SEM
- Lecture 10 - Parameters Need to be Considered to obtain a Good SEM Image
- Lecture 11 - How to Get a Good SEM Image
- Lecture 12 - Additional Capabilities of SEM
- Lecture 13 - Additional Capabilities of SEM (Continued...)
- Lecture 14 - Additional Capabilities of SEM (Continued...)
- Lecture 15 - Scanning Ion Microscopy - An Introduction
- Lecture 16 - Ions Versus Electrons as Source for Microscopy
- Lecture 17 - Ions Source in HIM
- Lecture 18 - GFIS Properties and Ion Optical Column
- Lecture 19 - Ion Optical Column
- Lecture 20 - Ion-Solid Interactions and Signal Generation
- Lecture 21 - Signal Generation and Contrast Mechanism
- Lecture 22 - Contrast Mechanism and Imaging Modes
- Lecture 23 - Scanning Transmission Ion Microscopy and Microanalysis with HIM
- Lecture 24 - Creation and Modification of Materials by HIM
- Lecture 25 - Introduction to Scanning Probe Microscopy
- Lecture 26 - STM Instrumentation
- Lecture 27 - Main Components of STM
- Lecture 28 - Main Components of STM (Continued...)
- Lecture 29 - Main Components of STM (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Working Principle of STM
- Lecture 31 - Operating Modes
- Lecture 32 - Scanning Tunneling Spectroscopy
- Lecture 33 - SPM - Atomic Force Microscopy (AFM)
- Lecture 34 - Force Between Tip and Sample in AFM
- Lecture 35 - Atomic Force Microscope - Parts
- Lecture 36 - Modes of AFM Operation
- Lecture 37 - Modes of AFM Operation (Continued...)
- Lecture 38 - AFM Imaging
- Lecture 39 - Phase Imaging, Noises and Resolution
- Lecture 40 - Surface Properties Measurements using Other Forces
- Lecture 41 - Surface Properties Measurements using AFM
- Lecture 42 - Manipulation of Atoms, Molecules and Industrial Applications
- Lecture 43 - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Techniques of Material Characterization

Subject Co-ordinator - Prof. Shibayan Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course and basic principles of image formation
- Lecture 2 - Image formation, resolution, magnification, depth of field and depth of focus
- Lecture 3 - Aberrations in microscopy: General concepts
- Lecture 4 - Introduction, types and image formation in Optical microscopy
- Lecture 5 - Components of optical microscope
- Lecture 6 - Bright field and Dark field modes
- Lecture 7 - Phase contrast optical microscopy
- Lecture 8 - Polarized light microscopy
- Lecture 9 - Differential interference contrast
- Lecture 10 - Fluorescence microscopy
- Lecture 11 - Basic components of electron microscope
- Lecture 12 - Basic components of electron microscope (Continued...)
- Lecture 13 - Basic components of electron microscope (Continued...)
- Lecture 14 - Electron-material interaction
- Lecture 15 - Electron-material interaction (Continued...)
- Lecture 16 - Electron-material interaction (Continued...) and Image formation and contrast generation
- Lecture 17 - Modes of TEM (BF and DF)
- Lecture 18 - Modes of TEM
- Lecture 19 - Modes of TEM (Continued...) and Electron diffraction in TEM
- Lecture 20 - Electron diffraction in TEM
- Lecture 21 - Electron diffraction in TEM (Continued...)
- Lecture 22 - Electron diffraction in TEM (Continued...)
- Lecture 23 - Electron diffraction in TEM (Continued...)
- Lecture 24 - Electron diffraction in TEM (Continued...)
- Lecture 25 - Application of Electron diffraction
- Lecture 26 - Signal generation in SEM
- Lecture 27 - Signal generation in SEM (Continued...)
- Lecture 28 - Signal generation in SEM (Continued...)
- Lecture 29 - Signal generation in SEM (Continued...)

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- Lecture 30 - Signal generation in SEM (Continued...)
- Lecture 31 - Basic components of SEM
- Lecture 32 - Basic components of SEM (Continued...)
- Lecture 33 - Optics of SEM
- Lecture 34 - Optics of SEM (Continued...)
- Lecture 35 - Optics of SEM (Continued...) and analytical detectors
- Lecture 36 - Analytical detectors in SEM
- Lecture 37 - Analytical (WDS) detector and contrast formation in SEM
- Lecture 38 - Imaging in SEM
- Lecture 39 - Imaging in SEM (Continued...)
- Lecture 40 - Imaging in SEM (Continued...)
- Lecture 41 - Imaging in SEM and X-ray diffraction
- Lecture 42 - Continuous and characteristics X-ray spectrum
- Lecture 43 - Characteristics X-ray radiation
- Lecture 44 - Characteristics X-ray radiation (Continued...) and X-ray absorption
- Lecture 45 - X-ray absorption (Continued...)
- Lecture 46 - X-ray absorption and filters
- Lecture 47 - Intensity of diffracted beam
- Lecture 48 - Intensity of diffracted beam (Continued...)
- Lecture 49 - Intensity of diffracted beam (Continued...)
- Lecture 50 - Intensity of diffracted beam (Continued...)
- Lecture 51 - Intensity of diffracted beam (Continued...)
- Lecture 52 - Intensity of diffracted beam (Continued...)
- Lecture 53 - Intensity of diffracted beam (Continued...)
- Lecture 54 - Intensity of diffracted beam (Continued...)
- Lecture 55 - Intensity of diffracted beam (Continued...)
- Lecture 56 - Intensity of diffracted beam (Continued...) and X-ray diffraction profile and analysis
- Lecture 57 - X-ray diffraction profile and analysis
- Lecture 58 - X-ray diffraction profile and analysis (Continued...)
- Lecture 59 - X-ray diffraction profile and analysis (Continued...)
- Lecture 60 - Electron backscatter diffraction (EBSD)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Electrochemical Energy Storage

Subject Co-ordinator - Prof. Subhasish Basu Majumder

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamentals of electrochemistry, definition of primary and secondary batteries
- Lecture 2 - Primary batteries and Secondary batteries
- Lecture 3 - Supercapacitors
- Lecture 4 - Concepts of thermodynamics pertinent to electrochemical cells
- Lecture 5 - Kinetics of electrochemical cells and structural characteristics of electrodes
- Lecture 6 - Introduction to EMF, redox potential, Faraday law and Nernst's law
- Lecture 7 - Terminology related to secondary battery : half-cell, full-cell, redox couple, positive
- Lecture 8 - Measurements: Cyclic voltammetry, nominal voltage, capacity, rate performance
- Lecture 9 - Impedance spectroscopy measurement and analyses
- Lecture 10 - Measurement of rechargeable cell: Case study
- Lecture 11 - History and categories of lithium batteries
- Lecture 12 - Operational mechanisms for lithium batteries: Intercalation materials, alloys
- Lecture 13 - Differences of voltage profiles between intercalation materials, alloys, and conversion
- Lecture 14 - Properties of electrode materials (Case study: alloy as anode)
- Lecture 15 - Properties of electrode materials (conversion type oxide as case study)
- Lecture 16 - Positive electrodes: Lithiated transition metal oxides, lithiated iron oxyphosphates etc
- Lecture 17 - Negative electrodes: Carbonaceous materials, lithium titanium oxides etc
- Lecture 18 - Electrolyte :Liquid Electrolyte, Polymer Electrolyte
- Lecture 19 - Current Collector, Conductive Agents, Separator and Other Accessories
- Lecture 20 - Novel materials for lithium ion rechargeable cells
- Lecture 21 - Principle of Operation of Commercial Cells : viz. C - NMC, C - NCA etc
- Lecture 22 - Principle of operation of commercial cells
- Lecture 23 - Major characteristics of commercial Li ion cells: Cell performance, degradation phenomena
- Lecture 24 - Fabrication of Li ion cell: Cylindrical configuration
- Lecture 25 - Fabrication of Li ion cell: Pouch and prismatic cell
- Lecture 26 - Positive electrodes: Layered oxide, polyanionic compounds (phosphates, sulphates etc)
- Lecture 27 - Negative electrodes: Carbonaceous materials, alloy based and other materials
- Lecture 28 - Electrolytes: Roles and requirements, organic electrolyte, ionic liquid electrolyte
- Lecture 29 - Performance of Na ion rechargeable cell

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Future perspective of Na ion cells
- Lecture 31 - Introduction to battery module, BMS, thermal management and pack design
- Lecture 32 - Degradation and safety issues of Li ion rechargeable cells
- Lecture 33 - Introduction to battery management system: BMS topologies, hardware, concept of active
- Lecture 34 - Introduction to thermal management: Active thermal management system, passive thermal
- Lecture 35 - Packaging of battery pack and battery testing: Material selection, sealing of enclosure
- Lecture 36 - Classification of supercapacitors: EDLC and pseudocapacitative type
- Lecture 37 - Pseudocapacitor
- Lecture 38 - Asymmetric supercapacitor and BATCAP: Battery supercapacitor hybrid electrochemical
- Lecture 39 - Electrolytes for supercapacitors: Aqueous/organic liquid electrolytes/ionic liquid
- Lecture 40 - Current collectors, separators etc. and their effect on performance
- Lecture 41 - Operational principles of aqueous and Li - O<sub>2</sub> batteries
- Lecture 42 - Electrolytes for Li - O<sub>2</sub> batteries
- Lecture 43 - Limitations of Li - Air batteries
- Lecture 44 - State of the art Li - Air batteries : Carbonaceous materials
- Lecture 45 - State of the art Li - Air batteries: Case study
- Lecture 46 - The element sulfur, principle of operation
- Lecture 47 - Advantages and disadvantages of Li - S batteries, positive electrodes
- Lecture 48 - Electrolyte and negative electrode for Li - S battery
- Lecture 49 - State of the art Li - S batteries : Case study - I
- Lecture 50 - State of the art Li - S batteries : Case study - II
- Lecture 51 - Global Geographic Distribution of Raw Lithium Resources
- Lecture 52 - Nature and geological origin of all potential lithium resources
- Lecture 53 - State of the art extraction techniques and known production reserves
- Lecture 54 - Recycling of lithium and other battery constituents from used battery
- Lecture 55 - Recycling of lithium and other battery constituents from used battery (Continued...)
- Lecture 56 - Lead Acid Batteries: Operational principles, main characteristics and applications
- Lecture 57 - Lead Acid Batteries: Operational principles, main characteristics and applications (Continued...)
- Lecture 58 - Ni-Cd and Ni-MeH Batteries: Operational principles, main characteristics and applications
- Lecture 59 - Redox flow battery vanadium redox battery, operational principle, and main characteristics
- Lecture 60 - Other Redox Flow Battery Technologies



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Texture in Materials

Subject Co-ordinator - Prof. Somjeet Biswas

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Texture and Anisotropy

Lecture 3 - Processing - Texture - Anisotropic Properties

Lecture 4 - Crystal Structure and Stereographic Projections

Lecture 5 - Utilization of Stereographic Projections

Lecture 6 - Diffraction and Bragg's Law

Lecture 7 - Structure Factor and Diffraction Extinction Criteria

Lecture 8 - Structure factor and diffraction extinction criteria (Continued...)

Lecture 9 - Pole figures

Lecture 10 - Pole figures (Continued...)

Lecture 11 - Inverse Pole Figures

Lecture 12 - Three Dimensional Texture Analysis

Lecture 13 - Euler Angles and ODFs

Lecture 14 - Euler Angles and ODFs (Continued...)

Lecture 15 - Euler Angles and ODFs (Continued...)

Lecture 16 - Euler Angles and ODFs (Continued...)

Lecture 17 - Symmetry Effects on Orientation Matrix

Lecture 18 - Euler Space and Orientation Matrices

Lecture 19 - Texture Fibre, Periodicity in Euler Space, Incomplete Pole Figures

Lecture 20 - Crystal Structures and Symmetry

Lecture 21 - Size of Euler Space in Relation to Crystal and Sample Symmetry

Lecture 22 - Macrotecture and Microtexture Measurements

Lecture 23 - Penetration Depth of X-ray, Neutron, e-1 and Basics of X-ray Generation

Lecture 24 - Characteristic X-ray, Absorption and Filters

Lecture 25 - Principles of pole figure measurements by X-ray diffraction

Lecture 26 - Texture Goniometer Components

Lecture 27 - Limitations and Errors in X-ray Texture Measurement and Corrections

Lecture 28 - Basics of Electron Microscopy - I

Lecture 29 - Basics of Electron Microscopy - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Kikuchi Diffraction Pattern - I
- Lecture 31 - Kikuchi Diffraction Pattern - II
- Lecture 32 - Quantitative Evaluation of Kikuchi Diffraction Pattern - I
- Lecture 33 - Quantitative evaluation of Kikuchi Diffraction Pattern - II
- Lecture 34 - Quantitative evaluation of Kikuchi Diffraction Pattern - III
- Lecture 35 - Analysis using the TSL-OIM software
- Lecture 36 - Analysis using the AZtec Crystal software
- Lecture 37 - Analysis using the ATEX software
- Lecture 38 - Introduction to solidification texture
- Lecture 39 - Solidification texture in Alloys
- Lecture 40 - Solidification texture in FCC, BCC, and HCP structures
- Lecture 41 - Phase Transformation Texture and Bain Strain
- Lecture 42 - Orientation Relationships between FCC and BCC / BCT
- Lecture 43 - Various Orientation Relationships and Variants
- Lecture 44 - Basic Mechanics of Polycrystal Plasticity
- Lecture 45 - Basic Mechanics of Polycrystal Plasticity (Continued...)
- Lecture 46 - A Metallurgist Point of View
- Lecture 47 - A Metallurgist Point of View (Continued...)
- Lecture 48 - Texture in FCC polycrystals
- Lecture 49 - Texture in BCC polycrystals - I
- Lecture 50 - Texture in BCC polycrystals - II
- Lecture 51 - Texture in HCP polycrystals - I
- Lecture 52 - Texture in HCP polycrystals - II
- Lecture 53 - Texture in HCP polycrystals - III
- Lecture 54 - Static recrystallization
- Lecture 55 - Dynamic recrystallization and recrystallization texture
- Lecture 56 - Dynamic recrystallization and grain refinement during hot large strain shear

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC: Bulk Material Transport and Handling Systems

Subject Co-ordinator - Prof. Khanindra Pathak

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Classification of Mining and Bulk Solid Handling Systems
- Lecture 2 - Properties of bulk material vis-a-vis different bulk handling operations
- Lecture 3 - Fundamentals of BMH and Transport: Capacity and Productivity Concepts
- Lecture 4 - Bulk material handling in Processing plants: Crushing and Screening Flow Charts
- Lecture 5 - Introduction to Bulk Material Transport and Autonomous Vehicles
- Lecture 6 - Constructional Components: Trends of Developments
- Lecture 7 - Belt Conveyor Construction: Belting for Bulk Material Conveyor
- Lecture 8 - Idlers and Belt Cleaners
- Lecture 9 - Feeding and Discharging Devices
- Lecture 10 - Safety and Troubleshooting
- Lecture 11 - Size Selection and Power Calculation
- Lecture 12 - Principle of operations and applicability
- Lecture 13 - Basic Design Calculations
- Lecture 14 - Introduction to Pneumatic Conveying systems
- Lecture 15 - Design Calculations for Pneumatic Conveying
- Lecture 16 - Exercise with Basic Design Calculations
- Lecture 17 - Stackers and Reclaimers: Classification and Selection Criteria
- Lecture 18 - Stackers and Reclaimers: Comparison of Different Types
- Lecture 19 - Principles of Blending and Reclaiming
- Lecture 20 - Case studies of stacker and reclaimers application
- Lecture 21 - System Layout
- Lecture 22 - Introduction to Bin Bunker and Silo
- Lecture 23 - Introduction to Bunker
- Lecture 24 - Introduction to Silo
- Lecture 25 - Silo Failures and Maintenance
- Lecture 26 - Basics of Silo Design
- Lecture 27 - Feeder Selection and Design
- Lecture 28 - Crushers: Classification and selection
- Lecture 29 - Secondary Crushers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Screen: Classification and Selection
- Lecture 31 - Monitoring and Maintenance of Processing Plant Equipment
- Lecture 32 - Concentration and Separation
- Lecture 33 - Fine Size Classification: Desliming and Cycloning
- Lecture 34 - Froth Flotation Techniques, Magnetic Separation, Jigs and Thickeners
- Lecture 35 - Jigs and Thickeners
- Lecture 36 - Coal Washery Equipment and Practices
- Lecture 37 - Classification and Selection
- Lecture 38 - Crusher Selection and Application
- Lecture 39 - Off-Highway trucks and Haul Roads - 1
- Lecture 40 - Off-Highway trucks and Haul Roads - 2
- Lecture 41 - Recent Developments in Truck Transportation
- Lecture 42 - RopeCon Transportation
- Lecture 43 - Aerial Ropeways: Introduction
- Lecture 44 - Aerial Ropeways Calculation
- Lecture 45 - Pipe Conveyor Belt: Enclosed Material Transport
- Lecture 46 - Underground Mine Transport System
- Lecture 47 - Rope Haulage for Underground Mine Transport
- Lecture 48 - Main and Tail and Endless Rope Haulage
- Lecture 49 - Pit Top and Pit Bottom Layout
- Lecture 50 - Haulage calculation
- Lecture 51 - Locomotive
- Lecture 52 - Low Profile Dumper
- Lecture 53 - Load Haul Dumper
- Lecture 54 - Introduction to Cage and Skip Winding
- Lecture 55 - Winding Calculations
- Lecture 56 - Safety Aspects in Bulk Solid Handling and Transportation
- Lecture 57 - Safety Aspects in Bulk Solid Handling and Transportation
- Lecture 58 - Basic Introduction of Automatic Control
- Lecture 59 - Automating Bulk Solids Processes
- Lecture 60 - Online Monitoring

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Environmental Degradation and Surface Engineering

Subject Co-ordinator - Prof. Indranil Manna, Prof. Jyotsna Dutta Majumdar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Materials and Environment
- Lecture 2 - Genesis of Materials Degradation
- Lecture 3 - Classification of degradation and Parameters Influencing it - Part I
- Lecture 4 - Parameters Influencing Degradation - Part II
- Lecture 5 - Engineering Solution to Combat Environmental Degradation of Materials
- Lecture 6 - Aqueous corrosion-thermodynamics of Wet Corrosion
- Lecture 7 - Aqueous corrosion-Classification - Part I
- Lecture 8 - Aqueous corrosion-Classification - Part II
- Lecture 9 - Classification of Aqueous corrosion - Part III
- Lecture 10 - Classification of Aqueous corrosion - Part IV
- Lecture 11 - Friction and Wear-Part - I
- Lecture 12 - Friction and Wear-Part - II
- Lecture 13 - Wear- Classification of wear - Part I
- Lecture 14 - Wear- Classification of wear - Part II
- Lecture 15 - Fatigue â Surface Dependent Property
- Lecture 16 - Failure Analysis - Part I
- Lecture 17 - Failure Analysis - Part II
- Lecture 18 - Characteristics of Failure - Part I
- Lecture 19 - Characteristics of Failure - Part II
- Lecture 20 - Characteristics of Failure - Part III
- Lecture 21 - Prevention
- Lecture 22 - Prevention of Chemical/Electrochemical Degradation
- Lecture 23 - Prevention of Chemical/Electrochemical Degradation (Continued...)
- Lecture 24 - Prevention of Chemical/Electrochemical Degradation (Continued...)
- Lecture 25 - Prevention of Mechanical Degradation
- Lecture 26 - Non Destructive Testing
- Lecture 27 - Mechanical and Electrochemical Testing - Part I
- Lecture 28 - Mechanical and Electrochemical Testing - Part II
- Lecture 29 - Mechanical and Electrochemical Testing - Part III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Characterization
- Lecture 31 - Surface/Interface
- Lecture 32 - Scope, Classification and Objectives of Surface Engineering
- Lecture 33 - Shot Peening
- Lecture 34 - Grinding and Polishing
- Lecture 35 - Ultrasonic Peening and Laser Shock Peening
- Lecture 36 - Conventional Surface Hardening (Flame and induction)
- Lecture 37 - Pack Carburizing
- Lecture 38 - Fluidized Bed Carburizing
- Lecture 39 - Fused bath and Gas Nitriding
- Lecture 40 - Plasma Nitriding
- Lecture 41 - Diffusion Based Coatings - Solid State
- Lecture 42 - Chemical Conversion Coatings
- Lecture 43 - Electrodeposition
- Lecture 44 - Electrophoretic and Electroless deposition
- Lecture 45 - Galvanizing and Hot Dipping
- Lecture 46 - Thick Coatings by Weld Overlay and Cladding
- Lecture 47 - Introduction to thin film deposition
- Lecture 48 - Physical Vapor Deposition including Sputtering
- Lecture 49 - Chemical Vapor Deposition (CVD) and Composite Coating
- Lecture 50 - Chemical Vapor Deposition (CVD) and Composite Coating
- Lecture 51 - Spray Coating Techniques II - Plasma Spray and Cold Spray
- Lecture 52 - Ion Implantation
- Lecture 53 - Electron Beam Assisted Surface Engineering
- Lecture 54 - Laser Material Processing
- Lecture 55 - Laser Surface Engineering
- Lecture 56 - Laser Assisted Additive Manufacturing, LAM
- Lecture 57 - Strengthening Mechanisms in Surface Engineering
- Lecture 58 - Microstructural Characterization after Surface Engineering
- Lecture 59 - Compositional Characterization after Surface Engineering
- Lecture 60 - Summary of surface engineering and Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Fracture, Fatigue and Failure of Materials

Subject Co-ordinator - Prof. Indrani Sen

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Modes of Fracture
- Lecture 2 - Theoretical Strengths and Defects
- Lecture 3 - Stress Concentration
- Lecture 4 - Griffith Criterion
- Lecture 5 - Griffith Criteria - Modification
- Lecture 6 - Stress Intensity Factor
- Lecture 7 - Fracture Toughness and Plane Stress-Plane Strain
- Lecture 8 - Plastic Zone Size
- Lecture 9 - Plane stress and plane strain fracture toughness
- Lecture 10 - Plane stress and plane strain fracture toughness (Continued...)
- Lecture 11 - Plane Strain Fracture Toughness Testing
- Lecture 12 - Plane Strain-Plane Stress Fracture Toughness Testing
- Lecture 13 - Plane Stress Fracture Toughness
- Lecture 14 - Plane Stress fracture toughness-J integral
- Lecture 15 - Experimental determination of JIC
- Lecture 16 - J-integral and JIC
- Lecture 17 - Impact Toughness
- Lecture 18 - Impact Toughness (Continued...)
- Lecture 19 - Impact Toughness (Continued...)
- Lecture 20 - Impact Toughness (Continued...)
- Lecture 21 - Impact Toughness (Continued...)
- Lecture 22 - Fracture Toughness
- Lecture 23 - Fracture Toughness (Continued...)
- Lecture 24 - Fracture Toughness (Continued...)
- Lecture 25 - Fracture Toughness (Continued...)
- Lecture 26 - Fracture Toughness (Continued...)
- Lecture 27 - Environment Assisted Fracture
- Lecture 28 - Environment Assisted Fracture (Continued...)
- Lecture 29 - Environment Assisted Fracture (Continued...)

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- Lecture 30 - Introduction to Fatigue
- Lecture 31 - Stress Controlled Fatigue
- Lecture 32 - Stress Controlled Fatigue (Continued...)
- Lecture 33 - Stress Controlled Fatigue (Continued...)
- Lecture 34 - Stress Controlled Fatigue (Continued...)
- Lecture 35 - Strain Controlled Fatigue (Continued...)
- Lecture 36 - Strain Controlled Fatigue (Continued...)
- Lecture 37 - Strain Controlled Fatigue (Continued...)
- Lecture 38 - Strain Controlled Fatigue (Continued...)
- Lecture 39 - Fatigue Crack Nucleation
- Lecture 40 - Notch Effect
- Lecture 41 - Crack in Fatigue
- Lecture 42 - Fatigue Crack Propagation
- Lecture 43 - Fatigue Crack Propagation (Continued...)
- Lecture 44 - Fatigue Crack Propagation (Continued...)
- Lecture 45 - Fatigue Crack Propagation (Continued...)
- Lecture 46 - Fatigue Crack Propagation (Continued...)
- Lecture 47 - Fatigue Crack Propagation (Continued...)
- Lecture 48 - Fatigue in Materials
- Lecture 49 - Fatigue in Materials (Continued...)
- Lecture 50 - Effect of Temperature on Fatigue
- Lecture 51 - Failure Analysis
- Lecture 52 - Failure Analysis (Continued...)
- Lecture 53 - Failure Analysis (Continued...)
- Lecture 54 - Failure Analysis - Case study - Titanic
- Lecture 55 - Failure Analysis - Case Study - ALK
- Lecture 56 - Failure Analysis - Case study - Point Pleasant Bridge
- Lecture 57 - Failure Analysis - Case Study - Rail Crash
- Lecture 58 - Failure Analysis - Case Study - Comet
- Lecture 59 - Failure Analysis - Case Study - Columbia
- Lecture 60 - Failure Analysis - Summary



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Mine Closure and Sustainability Planning

Subject Co-ordinator - Prof. Khanindra Pathak

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to closure concept
- Lecture 2 - Mine Closure Objectives and Regulatory Aspects
- Lecture 3 - Mining Footprint and Regulatory Aspects
- Lecture 4 - Mine Closure Costs and Financing Approaches
- Lecture 5 - Decommissioning of Mines
- Lecture 6 - Demolition Techniques
- Lecture 7 - Post Closure Liabilities and Activities
- Lecture 8 - Post Closure Community Concerns and Sustainable Development Plans
- Lecture 9 - Closure oriented Resource Development-Post Mining Land Uses
- Lecture 10 - Post mining site monitoring
- Lecture 11 - Planning inputs, tools and techniques
- Lecture 12 - Tools and Techniques for Closure Plan Development and Procedures
- Lecture 13 - Closure Plan Development Procedures
- Lecture 14 - Monitoring, Review and Feedback of Closure Plan Implementation-Closure Criteria
- Lecture 15 - Failure Mode and Effect Analysis Framework for Mine Closure Planning
- Lecture 16 - Multiple Accounts Analysis (MAA) for Assessment of Closure Alternatives
- Lecture 17 - Provisioning of capital
- Lecture 18 - Closure costs and Rehabilitation Costs
- Lecture 19 - Finance and Accounting: Closure cost estimate
- Lecture 20 - Closure Economics and Audit
- Lecture 21 - Application of Remote Sensing for Mine Closure-Introduction
- Lecture 22 - Remote Sensing Sensors
- Lecture 23 - Remote Sensing media and sensors
- Lecture 24 - Image Processing and Data Interpretation
- Lecture 25 - GIS for Mine Closure: Mapping and Geo-Spatial Data Analysis
- Lecture 26 - Integration of phase operations
- Lecture 27 - Integration of Interdepartmental work and phase operations - Part 1
- Lecture 28 - Integration of Interdepartmental work and phase operations - Part 2
- Lecture 29 - Risk Analysis Techniques and Management

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- Lecture 30 - Post Mine Closure Waste to Wealth Conversion
- Lecture 31 - CSR and EMP Integration
- Lecture 32 - Introduction to Asset Management
- Lecture 33 - Principle of Asset Management and Decommissioning of Assets for Site Restoration
- Lecture 34 - Brownfield Redevelopment and Value Addition to Assets
- Lecture 35 - Landform Design and Post Mining Asset Creation
- Lecture 36 - Concept of Sustainable Development and Mining industry
- Lecture 37 - Sustainability Measurement and Reporting
- Lecture 38 - Sustainability Measurement and Reporting (Continued...)
- Lecture 39 - Sustainable Mineral Industry
- Lecture 40 - Policy and Legislative Framework of Sustainability for SDG and Mine Closure
- Lecture 41 - Communicating sustainability performance
- Lecture 42 - Framework of Sustainability reporting
- Lecture 43 - Sustainable accounting
- Lecture 44 - Case studies on Sustainability initiatives in Mining Industry
- Lecture 45 - Data Analytics for Sustainability management
- Lecture 46 - Cleaner Production Based Closure Management
- Lecture 47 - Regenerative environment design for sustainable Mine Closure
- Lecture 48 - Reusable resource identification in post closure mine site
- Lecture 49 - Optimization of Residual Value of Assets
- Lecture 50 - Post Mining Site for Community wealth
- Lecture 51 - Management of water resources
- Lecture 52 - Soil Treatment and Revegetation
- Lecture 53 - Bio-diversity: Post Land reclamation and plantation
- Lecture 54 - Physical and Chemical Stability issues
- Lecture 55 - Economic Utilization of Post Mining Structures and assets
- Lecture 56 - Techniques for closing underground workings
- Lecture 57 - Application of Industry 4.0 for Mine
- Lecture 58 - Best mining practices for Sustainable mining - Case studies
- Lecture 59 - Stability Monitoring and Enhancing tools
- Lecture 60 - VR and AR Technology for Post Mining Mine site Visualization and Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Fundamentals of Composite and Cellular Materials

Subject Co-ordinator - Dr. Siddhartha Roy, Dr. Tapas Laha

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Fundamental aspects of hybrid materials
- Lecture 2 - Materials selection basics for design with hybrid materials
- Lecture 3 - Classes of materials and material property charts
- Lecture 4 - Material property charts and concept of material indices
- Lecture 5 - Material property chart-indices and concept of hybridization
- Lecture 6 - Hybrid materials - Composite
- Lecture 7 - Cellular solids - Applications of metal foams
- Lecture 8 - Cellular solids - Applications of porous ceramics and polymer foams
- Lecture 9 - Basics of Composite Materials and Classification
- Lecture 10 - Composite Classification - Matrix and Reinforcement
- Lecture 11 - Fibers - Fundamentals, Glass fiber
- Lecture 12 - Fibers - Boron and Carbon Fibers
- Lecture 13 - Fibers - Aramid and Ceramic fibers, Alumina fiber
- Lecture 14 - Fibers - SiC fiber and Whiskers
- Lecture 15 - Metal matrix composites (MMCs) - Basic concept, Liquid state processing
- Lecture 16 - Metal matrix composites (MMCs) - Liquid and Solid state processing
- Lecture 17 - Ceramic Matrix Composites (CMCs) - Basic concept, Processing techniques
- Lecture 18 - Ceramic Matrix Composites (CMCs) - Processing techniques
- Lecture 19 - CMCs and PMCs - Processing and Application
- Lecture 20 - Fabrication of cellular ceramics
- Lecture 21 - Sintering of ceramics - Aspects and mechanisms
- Lecture 22 - Fabrication of cellular ceramics
- Lecture 23 - Processing of metal foams - Foaming techniques
- Lecture 24 - Processing of metal foams (Continued...)
- Lecture 25 - Processing of metal foams (Continued...)
- Lecture 26 - Polymer foams - Processing and properties
- Lecture 27 - Additive manufacturing - Definition and Prospects
- Lecture 28 - Cellular solids classification and Structure description
- Lecture 29 - Structure of cellular solids - Pore structure characterization

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- Lecture 30 - Interfacial phenomena - Basic concept, Adhesion and Wettability
- Lecture 31 - Interfacial phenomena - Factors affecting wettability
- Lecture 32 - Interfacial phenomena - Interfacial bonding
- Lecture 33 - Interfacial phenomena - Interfacial strength measurement
- Lecture 34 - Interfacial phenomena - Case study - Al-MWCNT nanocomposite
- Lecture 35 - Interfacial phenomena - Case studies: MMCs and CMCs
- Lecture 36 - Interfacial phenomena - Case studies: MMCs and CMCs (Continued...)
- Lecture 37 - Mechanics of Composites - Unidirectional Lamina
- Lecture 38 - Mechanics: Fiber-reinforced composites - Transverse Loading
- Lecture 39 - Mechanics: Fiber-reinforced composites - Problem Solving
- Lecture 40 - Mechanics: Fiber-reinforced composites - Discontinuous fibers
- Lecture 41 - Mechanics of Composites - Discontinuous fibers
- Lecture 42 - Dependence of properties on pore structure
- Lecture 43 - Mechanics of cellular solids
- Lecture 44 - Mechanics of cellular solids (Continued...)
- Lecture 45 - Deformation behavior of honeycomb and foams
- Lecture 46 - Deformation behaviour of Foams
- Lecture 47 - Deformation behaviour of Foams (Continued...)
- Lecture 48 - Deformation behaviour of Foams (Continued...)
- Lecture 49 - Thermal properties of foams
- Lecture 50 - Other important properties of foams (Continued...)
- Lecture 51 - Advanced composites - MMCs
- Lecture 52 - Advanced composites - MMCs (Continued...)
- Lecture 53 - Advanced composites - CMCs
- Lecture 54 - Advanced composites - Advanced Processing Techniques
- Lecture 55 - Advanced composites - Advanced Processing Techniques (Continued...)
- Lecture 56 - Advanced composites - Advanced Processing Techniques (Continued...)
- Lecture 57 - Advanced composites - Application oriented advanced composites
- Lecture 58 - Microstructure and properties of natural cellular solid - wood
- Lecture 59 - Advanced hybrid material - Functionally graded composite materials (FGMs)
- Lecture 60 - Advanced hybrid material - Functionally graded composite materials (FGMs) (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Principles of Extractive Metallurgy

Subject Co-ordinator - Prof. Tarun Kumar Kundu

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Classification and Uses of Metals
- Lecture 2 - Introduction, Classification and Uses of Metals (Continued...)
- Lecture 3 - Occurrence/Source of Metals
- Lecture 4 - Metal Extraction Process Overview
- Lecture 5 - Mineral Beneficiation: Overview and Mass Balances
- Lecture 6 - Crushing and Grinding (Comminution)
- Lecture 7 - Mineral Classification: Separation in Flowing Fluid
- Lecture 8 - Mineral Concentration by Froth Flotation
- Lecture 9 - Mineral Concentration by Froth Flotation
- Lecture 10 - Magnetic and Electric Separation/Concentration
- Lecture 11 - Sensor-based/Automatic Ore Sorting
- Lecture 12 - Solid-Liquid Separation
- Lecture 13 - Particle Size Estimation and Screening
- Lecture 14 - Fuels in Metallurgical Processes and Coal Characteristics
- Lecture 15 - Calorific Value and Caking Properties of Coal
- Lecture 16 - Coke: Making and Properties
- Lecture 17 - Combustion of Fuels
- Lecture 18 - Combustion: Mass and Heat Balance
- Lecture 19 - Combustion Heat Balance: Flame Temperature
- Lecture 20 - Combustion Heat Utilization in Furnace
- Lecture 21 - Heat Utilization in Furnace: Numerical Examples
- Lecture 22 - Classification of Furnaces
- Lecture 23 - Refractories for Furnace Linings
- Lecture 24 - Refractories: Testing and Production
- Lecture 25 - Agglomeration of Fines: Pelletization and Briquetting
- Lecture 26 - Agglomeration of Fines: Sintering
- Lecture 27 - Extraction of Metal from Sulfides: Roasting
- Lecture 28 - Roasting Reactors and Heat Balance
- Lecture 29 - Roasting: Predominance Area Diagram

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Roasting: Application of Predominance Area Diagram
- Lecture 31 - Reduction Smelting and Matte Smelting
- Lecture 32 - Metallurgical Slag
- Lecture 33 - Slag Viscosity, Surface Tention and Theories
- Lecture 34 - Slag: Masson and Molecular Theory, Numerical Examples
- Lecture 35 - Copper Extraction: Matte Smelting
- Lecture 36 - Copper Extraction: Flash Smelting
- Lecture 37 - Cu Extraction: Cyclone Flash Smelting and Numerical Examples
- Lecture 38 - Cu Extraction: Conversion
- Lecture 39 - Conversion of Nickel Sulphide and Numerical Examples
- Lecture 40 - TSL Smelting, Continuous Conversion and Direct Cu-Production
- Lecture 41 - Reduction Smelting: Lead Extraction
- Lecture 42 - Reduction Smelting: Zinc Extraction and ISP
- Lecture 43 - Extraction of Tin, Tungsten, Molybdenum and Numerical Examples
- Lecture 44 - Extraction of Nb, V, Ferroalloys and Titania (from Ilmenite)
- Lecture 45 - Silicothermy: Pyrometallurgical Magnesium Extraction
- Lecture 46 - Reduction Smelting: Iron Extraction in Blast Furnace
- Lecture 47 - Alternative Routes of Iron Extraction
- Lecture 48 - Halide Metallurgy: Extraction of Ti, Zr, Hf, U, Si Purification
- Lecture 49 - Purification of Bulk Metals: Chemical Refining
- Lecture 50 - Chemical Refining: Purification of Lead
- Lecture 51 - Chemical Refining of Zinc, Tin, Nickel, Ti (Zr, Hf, Th)
- Lecture 52 - Physical Refining: Vacuum De-gassing, Zone Melting and Distillation
- Lecture 53 - Hydrometallurgy: Unit Steps, Leaching Reagents and Methods
- Lecture 54 - Physiochemical Aspect of Leaching, Bacterial Leaching, S/L Separation
- Lecture 55 - Hydrometallurgy: Solution Purification and Metal Ion Reduction
- Lecture 56 - Hydrometallurgy: Cementation, Electrowinning, Au Extraction and Bayer Process
- Lecture 57 - Electrometallurgy: Electrowinning, Electrorefining, Current and Energy Efficiency
- Lecture 58 - Electrometallurgy: Extraction of Mg and Al
- Lecture 59 - Environmental Concern and Sustainable Metal Extraction
- Lecture 60 - New Development in Metal Extraction: Solvometallurgy, Bio-Metallurgy, Membrane Technology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Advanced Metallurgical Thermodynamics

Subject Co-ordinator - Prof. B.S. Murty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic definitions
- Lecture 2 - Free energy, Stability, equilibrium in a unary system
- Lecture 3 - Effect of Pressure on equilibrium transformations
- Lecture 4 - Free energy of solutions, free energy-composition diagrams
- Lecture 5 - Solution models, chemical potential
- Lecture 6 - Phase rule, free energy-composition diagrams and phase diagrams
- Lecture 7 - Evolution of phase diagrams
- Lecture 8 - Evolution of phase diagrams, miscibility gap
- Lecture 9 - To concept, partition less solidification
- Lecture 10 - To concept, partition less solidification (Continued...)
- Lecture 11 - Eutectic solidification, glass formation
- Lecture 12 - Kauzmann paradox, order of a transformation, glass forming ability
- Lecture 13 - Eutectic solidification, coupled growth, heterogeneous nucleation
- Lecture 14 - Peritectic solidification, metastable phase diagrams
- Lecture 15 - Errors in drawing phase diagrams, Fe-C vs. Fe-Fe<sub>3</sub>C phase diagram
- Lecture 16 - Free energy of undercooled liquid, shape of nucleus
- Lecture 17 - Solid state phase transformations - Precipitation
- Lecture 18 - Precipitation
- Lecture 19 - Precipitation - quasicrystals
- Lecture 20 - Precipitate coarsening, stability of a phase, spinodal decomposition
- Lecture 21 - Spinodal decomposition
- Lecture 22 - Eutectoid reaction
- Lecture 23 - Eutectoid reaction (Continued...)
- Lecture 24 - Bainitic transformation
- Lecture 25 - Kinetics of eutectoid transformations
- Lecture 26 - Martensitic Transformation
- Lecture 27 - Martensitic transformation, order-disorder transformation
- Lecture 28 - Miscibility gap in phase diagrams
- Lecture 29 - Phase diagram calculations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Thermodynamics of heterogeneous systems

Lecture 31 - Thermodynamics of heterogeneous systems (Continued...)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Materials Characterization

Subject Co-ordinator - Dr. S. Sankaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Properties of light, Image formation

Lecture 2 - Magnification and resolution

Lecture 3 - Depth of field, focus and field of view

Lecture 4 - Lens defects, filters and light microscopy introduction

Lecture 5 - Optical microscope demo., Bright field imaging, opaque specimen illumination

Lecture 6 - Opaque stop microscopy, Phase contrast microscopy

Lecture 7 - Dark field microscopy, Polarization microscopy

Lecture 8 - Differential interference contrast and fluorescence microscopy

Lecture 9 - Sample preparation techniques for optical microscopy

Lecture 10A - Tutorial problems (Continuation...)

Lecture 10 - Tutorial problems

Lecture 11 - Introduction to scanning electron Microscopy

Lecture 12 - Lens aberrations, Object resolution, Image quality

Lecture 13 - Interaction between electrons and sample, Imaging capabilities, Structural analysis, Elemental analysis

Lecture 14 - SEM and its mode of operation, Effect of aperture size, Working distance, condenser lens strength

Lecture 15 - SEM and its mode of operation- continuation, Relation between probe current and probe diameter,

Lecture 16 - Factors affecting Interaction volume, Demonstration of SEM

Lecture 17 - Image formation and interpretation

Lecture 18 - Image formation and interpretation continued, EDS, WDS

Lecture 19 - Special contrast mechanisms, Monte Carlo simulations of Interaction volume

Lecture 20 - Electron channeling contrast imaging (ECCI), Electron back scattered diffraction (EBSD)-Theory &

Lecture 21 - Tutorial Problems on SEM

Lecture 22 - Basics of X-ray emission from source, electron excitation and X-ray interaction with materials

Lecture 23 - Properties of X-rays

Lecture 24 - Bragg's Law Derivation

Lecture 25 - Diffraction relationship with reciprocal space

Lecture 26 - X-ray scattering

Lecture 27 - Factors affecting intensities of X-ray peaks

Lecture 28 - Factors affecting intensities of X-ray peaks- continuation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Effect of crystallite size and strain on intensity of X-rays
- Lecture 30 - Profile fit, Factors affecting peak broadening
- Lecture 31 - Indexing of diffraction pattern, Quantitative analysis
- Lecture 32 - Indexing, Quantitative analysis-continuation, Residual stress measurements
- Lecture 33 - XRD and Residual stress measurement- lab demonstration
- Lecture 34 - Introduction to Transmission Electron Microscopy (TEM)
- Lecture 35 - Fundamentals of Transmission Electron Microscopy (TEM)
- Lecture 36 - Basics of Diffraction-1
- Lecture 37 - Basics of Diffraction-2
- Lecture 38 - TEM imaging-1
- Lecture 39 - TEM imaging-2
- Lecture 40 - TEM instrument demonstration
- Lecture 41 - TEM sample preparation-1
- Lecture 42 - TEM sample preparation-2
- Lecture 43 - XRD Tutorial - 1
- Lecture 44 - XRD tutorial - 2
- Lecture 45 - TEM Tutorial - 1
- Lecture 46 - TEM Tutorial - 2
- Lecture 47 - Quantitative metallography - Tutorial 1
- Lecture 48 - Quantitative metallography - Tutorial 2
- Lecture 49 - Quantitative metallography - Tutorial 3
- Lecture 50 - Quantitative metallography - Tutorial 4
- Lecture 51 - Quantitative metallography - Tutorial 5
- Lecture 52 - Quantitative metallography - Tutorial 6
- Lecture 53 - Quantitative metallography - Tutorial 7

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Physics of Materials

Subject Co-ordinator - Dr. Prathap Haridoss

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Properties of Materials
- Lecture 3 - Thermal Expansion
- Lecture 4 - Measuring Electrical Conductivity
- Lecture 5 - Free Electron Gas
- Lecture 6 - The Ideal Gas
- Lecture 7 - Drude Model
- Lecture 8 - Drude Model
- Lecture 9 - Drude Model
- Lecture 10 - Drude Model
- Lecture 11 - Large Systems and Statistical Mechanics
- Lecture 12 - Maxwell Boltzmann Statistics
- Lecture 13 - Classical Particles and Quantum Particles
- Lecture 14 - History of Quantum Mechanics - 1
- Lecture 15 - History of Quantum Mechanics - 2
- Lecture 16 - Introduction to Drude Sommerfeld model
- Lecture 17 - Fermi-Dirac Statistics - Part 1
- Lecture 18 - Fermi-Dirac Statistics - Part 2
- Lecture 19 - Features of the Fermi Dirac Distribution Function
- Lecture 20 - Maxwell-Boltzmann Distribution Vs Fermi-Dirac Distribution
- Lecture 21 - Anisotropy and Periodic Potential in a Solid
- Lecture 22 - Confinement and Quantization - Part 1
- Lecture 23 - Confinement and Quantization - Part 2
- Lecture 24 - Density of States
- Lecture 25 - Fermi Energy, Fermi Surface, Fermi Temperature
- Lecture 26 - Electronic Contribution to Specific Heat at Constant Volume
- Lecture 27 - Reciprocal Space-1
- Lecture 28 - Reciprocal Space-2
- Lecture 29 - Reciprocal Space-3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Wigner Seitz Cell and Introduction to Brillouin Zones
- Lecture 31 - Brillouin Zones, Diffraction, and Allowed Energy Levels
- Lecture 32 - E Vs k, Brillouin Zones and the Origin of Bands
- Lecture 33 - Calculating Allowed Energy Bands and Forbidden Band Gaps
- Lecture 34 - Bands; Free Electron Approximation, Tight Binding Approximation
- Lecture 35 - Semiconductors
- Lecture 36 - Magnetic Properties
- Lecture 37 - Electron Compounds; Phonons, Optoelectronic Materials
- Lecture 38 - Superconductivity
- Lecture 39 - Bose-Einstein Statistics
- Lecture 40 - Physics of Nano Scale Materials; Course Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - Electronic materials, devices, and fabrication

Subject Co-ordinator - Prof. Parasuraman S

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Metals, semiconductors and insulators  
Lecture 2 - Introduction to semiconductors  
Lecture 3 - Density of states and Fermi-Dirac statistics  
Lecture 4 - Assignment 1 - Bonding, DOS, and Fermi statistics  
Lecture 5 - Intrinsic semiconductors  
Lecture 6 - Intrinsic semiconductors - conductivity  
Lecture 7 - Assignment 2 - Intrinsic semiconductors  
Lecture 8 - Extrinsic semiconductors  
Lecture 9 - Extrinsic semiconductors - Fermi level  
Lecture 10 - Extrinsic semiconductors - conductivity  
Lecture 11 - Assignment 3 - Extrinsic semiconductors  
Lecture 12 - Metal-semiconductor junctions  
Lecture 13 - Assignment 4 - Metal-semiconductor junctions  
Lecture 14 - pn junctions in equilibrium  
Lecture 15 - pn junctions under bias  
Lecture 16 - pn junction breakdown and heterojunctions  
Lecture 17 - Assignment 5 - pn junctions  
Lecture 18 - Transistors  
Lecture 19 - MOSFETs  
Lecture 20 - Assignment 6 - transistors  
Lecture 21 - Optoelectronic devices  
Lecture 22 - Optoelectronic devices  
Lecture 23 - Optoelectronic devices  
Lecture 24 - Optoelectronic devices  
Lecture 25 - Optoelectronic devices  
Lecture 26 - Assignment 7 - optical properties  
Lecture 27 - Assignment 8 - optoelectronic devices  
Lecture 28 - Semiconductor manufacturing  
Lecture 29 - Si wafer manufacturing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - IC device manufacturing
- Lecture 31 - Layering
- Lecture 32 - Doping
- Lecture 33 - Lithography
- Lecture 34 - Etching and deposition (growth)
- Lecture 35 - Metallization and polishing
- Lecture 36 - Process and device evaluation
- Lecture 37 - Productivity and process yield
- Lecture 38 - Clean room design and contamination control
- Lecture 39 - Devices and IC formation
- Lecture 40 - IC circuit logic and packaging

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Fundamentals of optical and scanning electron micro

Subject Co-ordinator - Dr. S. Sankaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Properties of light, Image formation

Lecture 2 - Magnification and resolution

Lecture 3 - Depth of field, focus and field of view

Lecture 4 - Lens defects, filters and light microscopy introduction

Lecture 5 - Optical microscope demo., Bright field imaging, opaque specimen illumination

Lecture 6 - Opaque stop microscopy, Phase contrast microscopy

Lecture 7 - Dark field microscopy, Polarization microscopy

Lecture 8 - Differential interference contrast and fluorescence microscopy

Lecture 9 - Sample preparation techniques for optical microscopy

Lecture 10 - Tutorial problems

Lecture 11 - Tutorial problems (Continued...)

Lecture 12 - Introduction to scanning electron Microscopy

Lecture 13 - Lens aberrations, Object resolution, Image quality

Lecture 14 - Interaction between electrons and sample, Imaging capabilities, Structural analysis, Elemental a

Lecture 15 - SEM and its mode of operation, Effect of aperture size, Working distance, condenser lens strength

Lecture 16 - SEM and its mode of operation- continuation, Relation between probe current and probe diameter,

Lecture 17 - Factors affecting Interaction volume, Demonstration of SEM

Lecture 18 - Image formation and interpretation

Lecture 19 - Image formation and interpretation continued, EDS, WDS

Lecture 20 - Special contrast mechanisms, Monte Carlo simulations of Interaction volume

Lecture 21 - Electron channeling contrast imaging (ECCI), Electron back scattered diffraction (EBSD)-Theory &

Lecture 22 - Tutorial Problems on SEM

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Fundamentals of electronic materials and devices

Subject Co-ordinator - Prof. Parasuraman S

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Electronic Materials
- Lecture 2 - Semiconductors - Introduction
- Lecture 3 - Electron statistics in a solid
- Lecture 4 - Worked numericals on week 1 lessons
- Lecture 5 - Intrinsic semiconductors
- Lecture 6 - Intrinsic semiconductors - conductivity
- Lecture 7 - Optional - worked assignment on intrinsic semiconductors
- Lecture 8 - Extrinsic semiconductors - Introduction
- Lecture 9 - Extrinsic semiconductors - Fermi level
- Lecture 10 - Extrinsic semiconductors - Mobility
- Lecture 11 - Worked assignment on extrinsic semiconductors
- Lecture 12 - Metal-semiconductor junctions
- Lecture 13 - pn junctions in equilibrium
- Lecture 14 - Optional - worked assignment on metal-semiconductor junctions
- Lecture 15 - pn junctions under bias
- Lecture 16 - Junction breakdown and heterojunctions
- Lecture 17 - Worked assignment on pn junctions
- Lecture 18 - Transistors - overview
- Lecture 19 - MOSFETs
- Lecture 20 - Worked assignment on transistors
- Lecture 21 - Optoelectronic devices - Introduction
- Lecture 22 - Light emitting diodes
- Lecture 23 - Solid state semiconductor lasers
- Lecture 24 - Optional - worked assignment on optical properties
- Lecture 25 - Photodetectors
- Lecture 26 - Solar cells
- Lecture 27 - Worked assignment on optoelectronic devices

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Introduction to Reciprocal Space and its use in Sc

Subject Co-ordinator - Dr. Prathap Haridoss

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Reciprocal space; Definition and Properties

Lecture 2 - Condition for Diffraction

Lecture 3 - Worked out examples

Lecture 4 - Ewald Sphere and lattices in reciprocal space

Lecture 5 - Wigner Sietz cells and Brillouin Zones

Lecture 6 - Worked out exmaples

Lecture 7 - Brillouin Zones, Diffraction and allowed energy levels

Lecture 8 - E Vs K, Brillouin zones and the Origin of Bands

Lecture 9 - Week 3 Worked out examples

Lecture 10 - Reciprocal space as Fourier transform of real lattice

Lecture 11 - Alternate notation of reciprocal space

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Analysis and Modeling of Welding

Subject Co-ordinator - Dr. G. Phanikumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to fusion welding processes

Lecture 2 - Introduction to fusion welding processes

Lecture 3 - Heat sources - Part 1/2

Lecture 4 - Heat sources - Part 2/2

Lecture 5 - Heat removal

Lecture 6 - Thermal Modelling - Part 1/2

Lecture 7 - Thermal Modelling - Part 2/2

Lecture 8 - Zones in a weldment

Lecture 9 - Analytical Solutions to Weld Thermal Field

Lecture 10 - Conduction to Keyhole mode

Lecture 11 - Fluid flow modelling - Part 1/2

Lecture 12 - Fluid flow modelling - Part 2/2

Lecture 13 - Solute transfer modelling - Part 1/2

Lecture 14 - Solute transfer modelling - Part 2/2

Lecture 15 - Solute segregation profile - Part 1/2

Lecture 16 - Solute segregation profile - Part 2/2

Lecture 17 - Microstructure Formation in Fusion Welds

Lecture 18 - Numerical Solutions to Thermal Field and Fluid Flow in Welding - Part 1

Lecture 19 - Numerical Solutions to Thermal Field and Fluid Flow in Welding - Part 2

Lecture 20 - Dissimilar Welding

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Fundamentals of X-ray Diffraction and Transmission

Subject Co-ordinator - Dr. S. Sankaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basics of X-ray emission from source, electron excitation and X-ray interaction with materials in
- Lecture 2 - Properties of X-rays
- Lecture 3 - Bragg's law derivation
- Lecture 4 - Diffraction relationship with reciprocal space
- Lecture 5 - X-ray scattering
- Lecture 6 - Factors affecting intensities of X-ray peaks
- Lecture 7 - Factors affecting intensities of X-ray peaks (Continued...)
- Lecture 8 - Effect of crystallite size and strain on intensity of X-rays
- Lecture 9 - Profile fit, Factors affecting peak brodening
- Lecture 10 - Indexing of diffraction pattern, Quantitative analysis
- Lecture 11 - Indexing and Quantitative analysis-continuation, Residual stress measurements
- Lecture 12 - XRD and Residual stress measurement - lab demonstration
- Lecture 13 - XRD Tutorial - 1
- Lecture 14 - XRD tutorial - 2
- Lecture 15 - Introduction to Transmission Electron Microscopy (TEM)
- Lecture 16 - Fundamentals of Transmission Electron Microscopy (TEM)
- Lecture 17 - Fundamentals of X-ray diffraction and Transmission electron microscopy
- Lecture 18 - Basics of Diffraction - 2
- Lecture 19 - TEM Imaging - 1
- Lecture 20 - TEM Imaging - 2
- Lecture 21 - TEM instrument demonstration
- Lecture 22 - TEM sample preparation - 1
- Lecture 23 - TEM sample preparation - 2
- Lecture 24 - TEM Tutorial - 1
- Lecture 25 - TEM Tutorial - 2
- Lecture 26 - TEM Tutorial - 3
- Lecture 27 - TEM Tutorial - 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Theory and Practice of Non Destructive Testing

Subject Co-ordinator - Dr. Ranjit Bauri

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Visual optical method  
Lecture 2 - Dye Penetrant Testing - 1  
Lecture 3 - Dye Penetrant Testing - 2  
Lecture 4 - Dye Penetrant Testing - 3  
Lecture 5 - Dye Penetrant Testing - 4  
Lecture 6 - Magnetic particle testing - 1  
Lecture 7 - Magnetic particle testing - 2  
Lecture 8 - Magnetic particle testing - 3  
Lecture 9 - Magnetic particle testing - 4  
Lecture 10 - Magnetic particle testing - 5  
Lecture 11 - Eddy current testing - 1  
Lecture 12 - Eddy current testing - 2  
Lecture 13 - Eddy current testing - 3  
Lecture 14 - Eddy current testing - 4  
Lecture 15 - Eddy current testing - 5  
Lecture 16 - Ultrasonic testing - 1  
Lecture 17 - Ultrasonic testing - 2  
Lecture 18 - Ultrasonic testing - 3  
Lecture 19 - Ultrasonic testing - 4  
Lecture 20 - Ultrasonic testing - 5  
Lecture 21 - Ultrasonic testing - 6  
Lecture 22 - Ultrasonic testing - 7  
Lecture 23 - Ultrasonic testing - 8  
Lecture 24 - Ultrasonic testing - 9  
Lecture 25 - Ultrasonic testing - 10  
Lecture 26 - Acoustic Emission Testing - 1  
Lecture 27 - Acoustic Emission Testing - 2  
Lecture 28 - Acoustic Emission Testing - 3  
Lecture 29 - Acoustic Emission Testing - 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Acoustic Emission Testing - 5
- Lecture 31 - Radiography - 1
- Lecture 32 - Radiography - 2
- Lecture 33 - Radiography - 3
- Lecture 34 - Radiography - 4
- Lecture 35 - Radiography - 5
- Lecture 36 - Radiography - 6
- Lecture 37 - Radiography - 7
- Lecture 38 - Radiography - 8
- Lecture 39 - Radiography - 9
- Lecture 40 - Radiography - 10

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Defects in Materials

Subject Co-ordinator - Prof. Sundararaman M

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to defects in materials  
Lecture 2 - 1-D Lattice  
Lecture 3 - 2-D Lattice  
Lecture 4 - 3-D Lattice - a  
Lecture 5 - 3-D Lattice - b  
Lecture 6 - 3-D Lattice - c  
Lecture 7 - 3-D Crystals  
Lecture 8 - Types of Point Defects  
Lecture 9 - Vacancy Concentration Determination - 1  
Lecture 10 - Vacancy Concentration Determination - 2  
Lecture 11 - Point Defect Interstitial  
Lecture 12 - Transformation of co-ordinates  
Lecture 13 - Tensor - 1  
Lecture 14 - Tensor - 2  
Lecture 15 - Strain  
Lecture 16 - Stress  
Lecture 17 - Description of Dislocation - 1  
Lecture 18 - Description of Dislocation - 2  
Lecture 19 - Stress field around Dislocation  
Lecture 20 - Self Energy of Dislocation  
Lecture 21 - Force on Dislocation  
Lecture 22 - Forces Between Dislocation  
Lecture 23 - Chemical Force on Dislocation  
Lecture 24 - Perfect Dislocation in FCC Structures  
Lecture 25 - Intrinsic Stacking Faults in FCC  
Lecture 26 - Extrinsic Faults and Thompson Tetrahedron in FCC  
Lecture 27 - Dislocations in BCC and HCP  
Lecture 28 - Dislocations in Ordered Alloys and Dislocation Dislocation Interaction  
Lecture 29 - Twinning - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Twinning - 2
- Lecture 31 - Martensitic Transformation - 1
- Lecture 32 - Martensitic Transformation - 2
- Lecture 33 - Interfaces - 1
- Lecture 34 - Interfaces - 2
- Lecture 35 - Defect Interaction and Strength

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Elementary Stereology for Quantitative Metallography

Subject Co-ordinator - Dr. S. Sankaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Method of Stereology

Lecture 2 - Volume Fraction and Particle Size - Part 1

Lecture 3 - Volume Fraction and Particle Size - Part 2

Lecture 4 - Geometric Probability - Part 1

Lecture 5 - Geometric Probability - Part 2

Lecture 6 - Probability Distributions

Lecture 7 - Volume Fraction and Particle Size - Part 3

Lecture 8 - Volume Fraction and Particle Size - Part 4

Lecture 9 - Geometrical Probability - I

Lecture 10 - Geometrical Probability - II

Lecture 11 - Basic Stereological Parameters - Part 1

Lecture 12 - Basic Stereological Parameters - Part 2

Lecture 13 - Counting of grains and particles - Part 1

Lecture 14 - Description of Polycrystalline Microstructures derived measures

Lecture 15 - Counting of grains and particles - Part 2

Lecture 16 - Counting of Grains and Particles - Part 3

Lecture 17 - Counting of Grains and Particles - Part 4

Lecture 18 - Other Applications of the Disector

Lecture 19 - Stereology of Anisotropic Microstructures

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Welding of Advanced High Strength Steels for Autom

Subject Co-ordinator - Prof. Murugaiyan Amirthalingam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the course, Introduction to physical metallurgy of steels

Lecture 2 - Martensitic transformation, Introduction to modern automotive steels

Lecture 3 - Introduction to modern automotive steels

Lecture 4 - Introduction to advanced high strength steels

Lecture 5 - Introduction to Dual Phase Steel and TRIP Steel Heat Treatments

Lecture 6 - Thermal and Mechanical Processing of TRIP and Hot Forming Steels

Lecture 7 - Introduction to Welding Processes in Automotive Industries

Lecture 8 - Principles of Resistance Spot Welding (RSW)

Lecture 9 - Process Characteristics of Resistance Spot Welding - Part I

Lecture 10 - Process Characteristics of Resistance Spot Welding - Part II

Lecture 11 - Introduction to Laser Beam Welding - Part I

Lecture 12 - Introduction to Laser Beam Welding - Part II

Lecture 13 - Principles of Gas Metal Arc Welding - Part I

Lecture 14 - Principles of Gas Metal Arc Welding - Part II

Lecture 15 - Welding Metallurgy of Advanced High Strength Steels - Part I

Lecture 16 - Microstructural Evolution During Welding of Advanced High Strength Steels

Lecture 17 - Elemental Behaviour During Welding of Advanced High Strength Steels

Lecture 18 - Quantification of Microstructural Constituents in Automotive Steel Welds - Part I

Lecture 19 - Quantification of Microstructural Constituents in Automotive Steel Welds - Part II and Mechanical

Lecture 20 - Methodologies to Improve the Weldability of Advanced High Strength Steels

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Welding Processes

Subject Co-ordinator - Prof. Murugaiyan Amirthalingam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Classification of welding processes and definition of welding arc
- Lecture 3 - Physics of welding arc - Part 1
- Lecture 4 - Physics of welding arc - Part 2
- Lecture 5 - Physics of welding arc - Part 3
- Lecture 6 - Physics of welding arc - Part 4
- Lecture 7 - Fundamentals of ionisation in welding arc
- Lecture 8 - Electrical conductivity of welding arc
- Lecture 9 - Electrical resistivity of welding arc
- Lecture 10 - Heat transfer inside the arc
- Lecture 11 - Arc ignition mechanisms Part - I
- Lecture 12 - Arc ignition mechanisms Part - II
- Lecture 13 - Principles of Gas Tungsten Arc Welding
- Lecture 14 - Shielding gases for arc welding
- Lecture 15 - Selection of shielding gases for engineering alloys
- Lecture 16 - Arc welding power sources - Part 1
- Lecture 17 - Arc welding power sources - Part 2
- Lecture 18 - Arc welding power sources - Part 3
- Lecture 19 - Variations in GTAW process
- Lecture 20 - Square wave, variable polarity, GTAW with filler, hot wire GTAW
- Lecture 21 - Dual gas GTAW and Plasma Welding processes
- Lecture 22 - Multi cathode GTAW and Activated GTAW
- Lecture 23 - Buried GTAW and Rate controlling parameters of GTAW
- Lecture 24 - Introduction to consumable welding processes
- Lecture 25 - Melting rate of consumable wires
- Lecture 26 - Physics of droplet transfer in consumable welding
- Lecture 27 - Modes of droplet transfer - Part 1
- Lecture 28 - Modes of droplet transfer - Part 2
- Lecture 29 - Modes of droplet transfer - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Shielded Metal Arc Welding
- Lecture 31 - Flux cored arc welding - Introduction
- Lecture 32 - Electrode fluxes and process characteristics of flux cored arc welding
- Lecture 33 - Flux cored arc welding - Process characteristics
- Lecture 34 - Advances in gas metal arc welding - Pulsed GMAW
- Lecture 35 - Advances in gas metal arc welding - Controlled dip short circuiting processes
- Lecture 36 - Submerged arc welding
- Lecture 37 - Resistance welding - Fundamentals
- Lecture 38 - Resistance spot welding - Part 1
- Lecture 39 - Resistance spot welding - Part 2
- Lecture 40 - Resistance spot welding - Part 3
- Lecture 41 - Resistance spot welding - Part 4
- Lecture 42 - Variants in resistance welding - Part 1
- Lecture 43 - Variants in resistance welding - Part 2
- Lecture 44 - Laser welding process - Introduction - Part 1
- Lecture 45 - Laser welding process - Part 2
- Lecture 46 - Laser welding process - Part 3
- Lecture 47 - Laser welding process - Part 4
- Lecture 48 - Electron beam welding process
- Lecture 49 - Other welding processes - Electroslag welding
- Lecture 50 - Magnetically Impelled Arc Butt (MIAB) welding
- Lecture 51 - Aluminothermic (thermit) welding
- Lecture 52 - Introduction to solid state welding processes - Friction welding
- Lecture 53 - Friction stir welding - Part 1
- Lecture 54 - Friction stir welding - Part 2
- Lecture 55 - Other solid state welding processes
- Lecture 56 - Joining processes for Plastics - Part 1
- Lecture 57 - Joining processes for Plastics - Part 2
- Lecture 58 - Adhesive bonding of plastics
- Lecture 59 - Welding nomenclatures

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Creep Deformation of Materials

Subject Co-ordinator - Prof. Srikant Gollapudi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Importance of studying creep
- Lecture 2 - Basics of plastic deformation and characteristics of dislocations - Part 1
- Lecture 3 - Basics of plastic deformation and characteristics of dislocations - Part 2
- Lecture 4 - Basics of plastic deformation and characteristics of dislocations - Part 3
- Lecture 5 - Creep and different factors that influence creep deformation - Part 1
- Lecture 6 - Creep and different factors that influence creep deformation - Part 2
- Lecture 7 - Creep and different factors that influence creep deformation - Part 3
- Lecture 8 - Creep and different factors that influence creep deformation - Part 4
- Lecture 9 - Creep and different factors that influence creep deformation - Part 5
- Lecture 10 - Creep and different factors that influence creep deformation - Part 6
- Lecture 11 - Mechanisms of Creep - Part 1
- Lecture 12 - Mechanisms of Creep - Part 2
- Lecture 13 - Mechanisms of Creep - Part 3
- Lecture 14 - Mechanisms of Creep - Part 4
- Lecture 15 - Mechanisms of Creep - Part 5
- Lecture 16 - Transitions in Creep Mechanisms and Creep Constitutive Equation
- Lecture 17 - Deformation Mechanism Maps - Part 1
- Lecture 18 - Deformation Mechanism Maps - Part 2
- Lecture 19 - Modeling the Useful Creep Life of Materials/Components - Part 1
- Lecture 20 - Modeling the Useful Creep Life of Materials/Components - Part 2
- Lecture 21 - Modeling the Useful Creep Life of Materials/Components - Part 3
- Lecture 22 - Creep Testing Methods - Part 1
- Lecture 23 - Creep Testing Methods - Part 2
- Lecture 24 - Improving Creep Resistance of Materials

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Nanotechnology, Science and Applications

Subject Co-ordinator - Dr. Prathap Haridoss

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Nanotechnology Science and Applications - Introduction

Lecture 2 - Nanotechnology

Lecture 3 - Discussion on Feynman's talk on Nanotechnology - Part I

Lecture 4 - Discussion on Feynman's talk on Nanotechnology - Part II

Lecture 5 - Impact of the nanoscale on thermodynamic considerations

Lecture 6 - Phase Diagrams and Stable Phases

Lecture 7 - Calorimetry

Lecture 8 - Zirconia - ZrO<sub>2</sub>

Lecture 9 - Experimentally Investigating the Hall-Petch relationship

Lecture 10 - Impact of the Nanoscale on the Hall-Petch Relationship

Lecture 11 - Impact of the nanoscale on Mechanical properties

Lecture 12 - Superplasticity and the Nanoscale

Lecture 13 - Superplasticity and the Nanoscale

Lecture 14 - Severe Plastic Deformation and the nanoscale

Lecture 15 - An approach to prepare bulk nanostructures

Lecture 16 - Nanosized Ferroelectrics

Lecture 17 - Impact of the nanoscale on optical properties

Lecture 18 - Experimental approach to study impact of the nanoscale on optical properties

Lecture 19 - Impact of the nanoscale on optical properties

Lecture 20 - Nanocomposites

Lecture 21 - Effect of Nanoscale on Magnetic Properties

Lecture 22 - Effect of Nanostructure on Damping Properties

Lecture 23 - Carbon

Lecture 24 - Carbon Nanotubes

Lecture 25 - Graphene, a 2D nanomaterials

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC: Powder Metallurgy

Subject Co-ordinator - Dr. Ranjit Bauri

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Powder Metallurgy
- Lecture 2 - Powder Fabrication Methods
- Lecture 3 - Powder Fabrication Methods
- Lecture 4 - Powder Fabrication Methods
- Lecture 5 - Powder Fabrication Methods
- Lecture 6 - Gas atomization
- Lecture 7 - Water Atomization
- Lecture 8 - Centrifugal Atomization
- Lecture 9 - Comparison of Atomization techniques
- Lecture 10 - Nucleation and Growth
- Lecture 11 - Thermodynamics and Kinetic of Solidification
- Lecture 12 - Microstructure Control
- Lecture 13 - Microstructure control
- Lecture 14 - Dendritic growth in pure metals
- Lecture 15 - Dendritic growth in alloys
- Lecture 16 - Crystalline and Amorphous structures
- Lecture 17 - Crystalline vs Amorphous
- Lecture 18 - T-T-T diagram
- Lecture 19 - Effect of particle size on microstructure
- Lecture 20 - Powder Characterization
- Lecture 21 - Basis for particle size measurement
- Lecture 22 - Measurement of particle size and size distribution
- Lecture 23 - Particle size distribution
- Lecture 24 - Dynamic Light Scattering - 1
- Lecture 25 - Dynamic Light Scattering - 2
- Lecture 26 - Particle size measurement - Other methods
- Lecture 27 - Surface Area Analysis - 1
- Lecture 28 - Surface Area Analysis - 2
- Lecture 29 - BET Surface Area Analysis

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interparticle friction
- Lecture 31 - Powder packing
- Lecture 32 - Powder mixing and blending
- Lecture 33 - Powder Lubrication and Coating
- Lecture 34 - Powder compaction - 1
- Lecture 35 - Powder compaction - 2
- Lecture 36 - Powder compaction - 3
- Lecture 37 - Cold Isostatic Pressing and; Powder Injection Molding
- Lecture 38 - Powder Injection Molding - 2
- Lecture 39 - Slurry Techniques
- Lecture 40 - Tape casting
- Lecture 41 - Sintering - 1
- Lecture 42 - Sintering - 2
- Lecture 43 - Sintering - 3
- Lecture 44 - Sintering - 4
- Lecture 45 - Sintering - 5
- Lecture 46 - Sintering - 6
- Lecture 47 - Sintering - 7
- Lecture 48 - Sintering - 8
- Lecture 49 - Sintering - 9
- Lecture 50 - Sintering - 10
- Lecture 51 - Liquid Phase Sintering - 1
- Lecture 52 - Liquid Phase Sintering - 2
- Lecture 53 - Liquid Phase Sintering - 3
- Lecture 54 - Liquid Phase Sintering - 4
- Lecture 55 - Liquid Phase Sintering - 5
- Lecture 56 - Full Density Processing - 1
- Lecture 57 - Full Density Processing - 2
- Lecture 58 - Full Density Processing - 3
- Lecture 59 - Full Density Processing - 4
- Lecture 60 - Spark Plasma Sintering (SPS)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Carbon Materials and Manufacturing

Subject Co-ordinator - Prof. Swati Sharma

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Materials and Manufacturing
- Lecture 2 - Mathematical Representation of Material Properties
- Lecture 3 - Story of Carbon: Carbon on Earth and in Outer Space
- Lecture 4 - Story of Carbon: Carbon in Technology
- Lecture 5 - Isotopes of carbon
- Lecture 6 - Hybridization in Carbon Atoms
- Lecture 7 -  $sp^3$ ,  $sp^2$  and  $sp$  Hybridization: Diamond, Graphite and Carbyne
- Lecture 8 -  $sp(2+n)$  Hybridization: Curved Carbon
- Lecture 9 - Allotropes of Carbon and Their Classification
- Lecture 10 - Carbon Allotrope Conversion
- Lecture 11 - Phase Diagram of Carbon
- Lecture 12 - Introduction to Engineering Carbons
- Lecture 13 - Graphite Crystal Structure
- Lecture 14 - Rhombohedral Graphite and Stacking Faults
- Lecture 15 - Graphite Ore Processing
- Lecture 16 - Synthetic Graphite Production from Needle Coke
- Lecture 17 - Kish Graphite and PVC-Derived Graphite
- Lecture 18 - Highly Oriented Pyrolytic Graphite
- Lecture 19 - Pyrolysis of Gaseous Hydrocarbons
- Lecture 20 - Polymer-derived Carbon: Coking and Charring Mechanism
- Lecture 21 - Kinetics of Graphitization
- Lecture 22 - Microstructure of Non-Graphitizing Carbon
- Lecture 23 - Glass-Like Carbon: Introduction and Properties
- Lecture 24 - Glass-Like Carbon: Industrial Manufacturing
- Lecture 25 - Microfabrication with Glass-Like Carbon
- Lecture 26 - Carbon Materials and Manufacturing
- Lecture 27 - X-Ray and Nano-Imprint Lithography
- Lecture 28 - Activated Carbon: Introduction and Properties
- Lecture 29 - Activated Carbon: Industrial Manufacturing

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Carbon Black: Introduction and Properties
- Lecture 31 - Carbon Black: Industrial Manufacturing
- Lecture 32 - Carbon Fiber: Introduction and Properties
- Lecture 33 - Melt Spinning of Petroleum Pitches
- Lecture 34 - Electrospinning and Viscoelasticity
- Lecture 35 - Carbonization of Polyacrylonitrile (PAN) Fibers
- Lecture 36 - Mechanical Property Testing Methods for Carbon Fibers
- Lecture 37 - Defects in Carbon Fibers
- Lecture 38 - Introduction to Carbon Fiber Reinforced Plastic (CFRP)
- Lecture 39 - Machining of Carbon Fiber Reinforced Plastic
- Lecture 40 - Carbon/Carbon Composite
- Lecture 41 - Carbon/Metal and Carbon/Concrete Composites: Manufacture and Properties
- Lecture 42 - Graphene: Introduction and Crystal Structure
- Lecture 43 - Graphene: History and Nomenclature
- Lecture 44 - Chemical Vapor Deposition of Graphene - I
- Lecture 45 - Chemical Vapor Deposition of Graphene - II
- Lecture 46 - Defects in Graphene and the (n,m) Notations
- Lecture 47 - Carbon Nanotube: Introduction and Properties
- Lecture 48 - Vapor Phase Growth of Carbon Nanotube
- Lecture 49 - Vapor Deposited Diamond
- Lecture 50 - Diamond Like Carbon
- Lecture 51 - X-Ray Diffraction Analysis of Carbon Materials
- Lecture 52 - Raman Spectroscopy of Carbon Materials
- Lecture 53 - Transmission Electron Microscopy of Carbon Materials
- Lecture 54 - Surface Area Analysis of Carbon Materials
- Lecture 55 - Numerical Problems: Carbon Manufacturing and Characterization
- Lecture 56 - Large Scale Industrial Applications of Carbon Materials
- Lecture 57 - Micro and Nano Scale Applications of Carbon Materials: Rigid and flexible carbon devices
- Lecture 58 - Supply Chain of Industrial Carbons
- Lecture 59 - Summary of NPTTEL Course on Carbon Materials and Manufacturing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Mechanical Behavior of Materials

Subject Co-ordinator - Prof. S. Sankaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Chemical Bonding in Materials
- Lecture 3 - Strength of materials - A Short Overview - Part I
- Lecture 4 - Strength of materials - A Short Overview - Part II
- Lecture 5 - Strength of materials - A Short Overview - Part III
- Lecture 6 - Strength of materials - A Short Overview - Part IV
- Lecture 7 - Strength of materials - A Short Overview - Part V
- Lecture 8 - Elastic Stress- Strain Relations - Part I
- Lecture 9 - Elastic Stress- Strain Relations - Part II
- Lecture 10 - Elastic properties - Part I
- Lecture 11 - Elastic properties - Part II
- Lecture 12 - Anelasticity
- Lecture 13 - Introduction to Dislocations - I
- Lecture 14 - Introduction to Dislocations - II
- Lecture 15 - Introduction to Dislocations - III
- Lecture 16 - Introduction to Dislocations - IV
- Lecture 17 - Introduction to Dislocations - V
- Lecture 18 - Introduction to Dislocations - VI
- Lecture 19 - Introduction to Dislocations - VII
- Lecture 20 - Introduction to Dislocations - VIII
- Lecture 21 - Introduction to Dislocations - IX
- Lecture 22 - Introduction to Plastic deformation - I
- Lecture 23 - Introduction to Plastic deformation - II
- Lecture 24 - Introduction to Plastic Deformation - III
- Lecture 25 - Introduction to Plastic Deformation - IV
- Lecture 26 - Introduction to Plastic Deformation - V
- Lecture 27 - Introduction to Plastic Deformation - VI
- Lecture 28 - Strengthening Mechanisms in Crystalline Materials - I
- Lecture 29 - Strengthening Mechanisms in Crystalline Materials - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strengthening Mechanisms in Crystalline Materials - III
- Lecture 31 - Strengthening Mechanisms in Crystalline Materials - IV
- Lecture 32 - Strengthening Mechanisms in Crystalline Materials - V
- Lecture 33 - Mechanical Testing - I
- Lecture 34 - Mechanical Testing - II
- Lecture 35 - Mechanical Testing - III
- Lecture 36 - Mechanical Testing - IV
- Lecture 37 - Mechanical Testing - V
- Lecture 38 - Mechanical Testing - VI
- Lecture 39 - Mechanical Testing - VII
- Lecture 40 - Mechanical Testing - VIII
- Lecture 41 - Mechanical Testing - IX
- Lecture 42 - Mechanical Testing - X
- Lecture 43 - Creep - I
- Lecture 44 - Creep - II
- Lecture 45 - Creep - III
- Lecture 46 - Creep - IV
- Lecture 47 - Creep - V
- Lecture 48 - Creep - VI
- Lecture 49 - Fracture Mechanics - I
- Lecture 50 - Fracture Mechanics - II
- Lecture 51 - Fracture Mechanics - III
- Lecture 52 - Fracture Mechanics - IV
- Lecture 53 - Fracture Mechanics - V
- Lecture 54 - Fracture Mechanics - VI
- Lecture 55 - Fracture Mechanics - VII
- Lecture 56 - Fracture Mechanics - VIII
- Lecture 57 - Fracture Mechanics - IX
- Lecture 58 - Fracture Mechanics - X
- Lecture 59 - Fracture Mechanics - XI
- Lecture 60 - Fatigue - I
- Lecture 61 - Fatigue - II
- Lecture 62 - Fatigue - III
- Lecture 63 - Fatigue - IV
- Lecture 64 - Fatigue - V

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Aluminium based Alloys and Metal Matrix Composites

Subject Co-ordinator - Prof. Ranjit Bauri

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Pure Aluminium  
Lecture 2 - Extraction of Aluminium  
Lecture 3 - Alloy Designations  
Lecture 4 - Cast Aluminium Alloys  
Lecture 5 - Hypo and Hyper eutectic alloys  
Lecture 6 - Modifying Al-Si alloys and Decoding Alloy Designation  
Lecture 7 - Solid Solution Hardening - 1  
Lecture 8 - Solid Solution Hardening - 2  
Lecture 9 - Yield point phenomena and Strain aging  
Lecture 10 - Cottrell-Bilby theory of strain aging  
Lecture 11 - Portevinâ Le Chatelier (PLC) effect  
Lecture 12 - Dynamic Strain Aging (DSA)  
Lecture 13 - Features of Serrated Flow - 1  
Lecture 14 - Features of Serrated Flow - 2  
Lecture 15 - Precipitation hardening - 1  
Lecture 16 - Precipitation hardening - 2  
Lecture 17 - Precipitation hardening - 3  
Lecture 18 - Precipitation hardening - 4  
Lecture 19 - Precipitation hardening - 5  
Lecture 20 - Precipitation hardening - 6  
Lecture 21 - 7XXX and 8XXX Series Alloys  
Lecture 22 - Strain Hardening - 1  
Lecture 23 - Strain Hardening - 2  
Lecture 24 - Recovery and Recrystallization  
Lecture 25 - Recrystallization Mechanism  
Lecture 26 - Recrystallization: Nucleation and Growth  
Lecture 27 - Dynamic Recrystallization  
Lecture 28 - Discontinuous and Continuous Dynamic Recrystallization  
Lecture 29 - Continuous Dynamic Recrystallization

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Geometric Dynamic Recrystallization (GDRX)
- Lecture 31 - Grain boundary strengthening
- Lecture 32 - Grain refinement methods
- Lecture 33 - Homogeneous vs Heterogeneous Nucleation
- Lecture 34 - Grain refinement by Melt inoculation
- Lecture 35 - Mechanisms of grain refinement by melt inoculation - 1
- Lecture 36 - Mechanisms of grain refinement by melt inoculation - 2
- Lecture 37 - Melt inoculation: Fading and Poisoning
- Lecture 38 - Grain refinement by melt vibration
- Lecture 39 - Severe Plastic Deformation (SPD)
- Lecture 40 - Dynamic recrystallization in SPD
- Lecture 41 - Metal Matrix Composites
- Lecture 42 - Processing of Metal Matrix Composites
- Lecture 43 - Two-phase process, Insitu composites
- Lecture 44 - Particle wetting and Bonding
- Lecture 45 - Particle Distribution in MMCs - 1
- Lecture 46 - Particle Distribution in MMCs - 2
- Lecture 47 - Rule of Mixture - 1
- Lecture 48 - Rule of Mixture - 2
- Lecture 49 - Strengthening Mechanism in MMCs - 1
- Lecture 50 - Strengthening Mechanism in MMCs - 2
- Lecture 51 - Fracture Behavior of Fiber Reinforced Composites
- Lecture 52 - Ductile Fracture of Metals
- Lecture 53 - Fracture Behavior of Discontinuously Reinforced Composites
- Lecture 54 - Fatigue
- Lecture 55 - Fatigue Crack propagation and Growth
- Lecture 56 - Fatigue Behavior of MMCs - 1
- Lecture 57 - Fatigue Behavior of MMCs - 2
- Lecture 58 - Fatigue Behavior of MMCs - 3
- Lecture 59 - Fatigue Behavior of MMCs - 4
- Lecture 60 - Fatigue Behavior of MMCs - 5

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Welding Science and Technology (In Tamil)

Subject Co-ordinator - Prof. Murugaiyan Amirthalingam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and learning objectives
- Lecture 2 - Definition of welding and necessity for welding
- Lecture 3 - Classification of welding processes
- Lecture 4 - Introduction to welding arc
- Lecture 5 - Types of gas discharges
- Lecture 6 - Characteristics of a welding arc
- Lecture 7 - Role of polarity in a welding arc
- Lecture 8 - Anode and cathode fall zones
- Lecture 9 - Arc column - Part I
- Lecture 10 - Arc column - Part II
- Lecture 11 - Arc column - Part III
- Lecture 12 - Characteristics of arc welding processes
- Lecture 13 - Introduction to arc ignition and gas tungsten arc welding
- Lecture 14 - Gas tungsten arc welding - I
- Lecture 15 - Shielding gases used for arc welding
- Lecture 16 - Plasma welding
- Lecture 17 - Consumable welding processes - I
- Lecture 18 - Consumable welding processes - II
- Lecture 19 - Fundamentals of resistance welding
- Lecture 20 - Resistance spot welding - Part I
- Lecture 21 - Resistance spot welding - Part II
- Lecture 22 - Other resistance welding processes
- Lecture 23 - High energy beam welding processes - Laser beam welding
- Lecture 24 - High energy beam welding processes - Electron beam welding
- Lecture 25 - Other welding processes - Part I
- Lecture 26 - Other welding processes - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Thermodynamics and Kinetics of Materials

Subject Co-ordinator - Prof. Saswata Bhattacharya

Co-ordinating Institute - IIT - Hyderabad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Concepts
- Lecture 2 - Energy, Heat and Work I - Part 1
- Lecture 3 - Energy, Heat and Work II - Part 2
- Lecture 4 - Heat capacity and Enthalpy
- Lecture 5 - Heat capacity relations in materials
- Lecture 6 - Introduction to the Second law of Thermodynamics
- Lecture 7 - Clausius inequality and entropy of transformation
- Lecture 8 - First and Second Laws Combined
- Lecture 9 - Third Law, Absolute Zero, and Other Energy Functions
- Lecture 10 - Axiomatic Approach and Thermodynamic Equilibrium in Simple Systems
- Lecture 11 - Formulations of Equilibrium in Thermodynamic Systems
- Lecture 12 - Fundamental relations and alternative formulations of equilibrium criterion
- Lecture 13 - Maxwell relations and their application
- Lecture 14 - Concepts of Statistical Thermodynamics - 1
- Lecture 15 - Concepts of Statistical Thermodynamics - 2
- Lecture 16 - Thermodynamic Equilibrium in Statistical Thermodynamics
- Lecture 17 - Phase equilibria and phase transition in unary systems - 1
- Lecture 18 - Phase equilibria and phase transition in unary systems - 2
- Lecture 19 - Phase equilibria and phase transition in unary systems - 3
- Lecture 20 - Applications of Clausius-Clapeyron Equation
- Lecture 21 - Thermodynamics of solutions - 1
- Lecture 22 - Thermodynamics of solutions - 2
- Lecture 23 - Multicomponent solutions and mixing process
- Lecture 24 - Thermodynamic properties due to mixing
- Lecture 25 - Ideal and Real Solutions
- Lecture 26 - Regular solutions and thermodynamic properties of mixing
- Lecture 27 - Colligative Properties
- Lecture 28 - Quasichemical Approach and regular solutions
- Lecture 29 - Quasichemical solution model for ordered phases - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quasichemical solution model for ordered phases - II
- Lecture 31 - Phase equilibria in multiphase, multicomponent, non-reacting systems
- Lecture 32 - Binary phase diagrams and lever rule
- Lecture 33 - Binary alloy phase diagrams and invariant points
- Lecture 34 - Binary alloy phase diagrams - intermediate phases and miscibility gap
- Lecture 35 - Thermodynamics of phase diagrams - G-x curves
- Lecture 36 - Thermodynamic Stability and Numerical Modeling
- Lecture 37 - Thermodynamics of reacting systems
- Lecture 38 - Elements of thermodynamics of interfaces and thermodynamics of irreversible processes



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Surface Engineering of Nanomaterials

Subject Co-ordinator - Prof. Kaushik Pal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Tribology and Its Classification

Lecture 2 - Friction Tribology

Lecture 3 - Wear and Corrosion

Lecture 4 - Lubrication

Lecture 5 - Effect of Tribology on Surface of Nanomaterials

Lecture 6 - Conventional Surface Engineering

Lecture 7 - Types of Surface Modifications

Lecture 8 - Physical Modifications

Lecture 9 - Chemical Modifications

Lecture 10 - Applications of Surface Engineering towards Nanomaterials

Lecture 11 - Deposition and Surface Modification Methods

Lecture 12 - Physical Vapour Deposition (PVD)

Lecture 13 - Chemical Vapour Deposition (CVD)

Lecture 14 - Advanced Surface Modification Practices

Lecture 15 - Advantages of Deposition for Surface Modification

Lecture 16 - Synthesis, Processing and Characterization of Nano-structured Coatings

Lecture 17 - Functional Coatings

Lecture 18 - Advanced Coating Practices

Lecture 19 - Characterization of Nano-coatings

Lecture 20 - Applications of Nano-coatings

Lecture 21 - Need of Advanced Methods for Surface and Coating Testings

Lecture 22 - Size Dependency in Nanostructures of Nanocoatings

Lecture 23 - Size Effect in Electrochemical Properties of Nanostructured Coatings

Lecture 24 - Size Effect in Mechanical Properties of Nanostructured Coatings

Lecture 25 - Size Effect in Physical and Other Properties of Nanostructured Coatings

Lecture 26 - Thin Films for Surface Engineering of Nanomaterials

Lecture 27 - Sputtering Techniques

Lecture 28 - Evaporation Processes

Lecture 29 - Thin Film Deposition through Gas Phase Techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Liquid Phase Techniques
- Lecture 31 - Microencapsulation Processes
- Lecture 32 - Microencapsulation
- Lecture 33 - Plating of Nanocomposite Coatings - I
- Lecture 34 - Plating of Nanocomposite Coatings - II
- Lecture 35 - Advantages of Microencapsulation over Other Conventional Methods
- Lecture 36 - Current Trends in Surface Modification of Nanomaterials - Part-1
- Lecture 37 - Current Trends in Surface Modification of Nanomaterials - Part-2
- Lecture 38 - Current Trends in Surface Modification of Nanomaterials - Part-3
- Lecture 39 - Modified Nanomaterials
- Lecture 40 - Main Problems in Synthesis of Modified Nanomaterials

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Material Science and Engineering

Subject Co-ordinator - Dr. Vivek Pancholi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Atomic structure and bonding
- Lecture 3 - Crystal systems and structures
- Lecture 4 - X-ray diffraction
- Lecture 5 - Crystal planes and directions
- Lecture 6 - Optical microscope
- Lecture 7 - Optical aberration
- Lecture 8 - Metallography
- Lecture 9 - Microstructure
- Lecture 10 - Quantitative metallography
- Lecture 11 - Crystallographic defects
- Lecture 12 - Diffusion
- Lecture 13 - Phase diagram - 1
- Lecture 14 - Phase diagram - 2
- Lecture 15 - Eutectic phase diagram
- Lecture 16 - Equilibrium and non-equilibrium cooling
- Lecture 17 - Equilibrium cooling of eutectic system
- Lecture 18 - Solidification structure
- Lecture 19 - Iron-carbon phase diagram
- Lecture 20 - Nucleation and growth
- Lecture 21 - TTT and CCT curves
- Lecture 22 - Heat treatment
- Lecture 23 - Precipitation
- Lecture 24 - Elastic behaviour
- Lecture 25 - Tensile test
- Lecture 26 - Engineering and true stress and strain
- Lecture 27 - Plastic deformation - 1
- Lecture 28 - Plastic deformation - 2
- Lecture 29 - Strengthening mechanism - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Strengthening mechanism - 2
- Lecture 31 - Strengthening mechanism - 3
- Lecture 32 - Strengthening mechanism - 4
- Lecture 33 - Fracture
- Lecture 34 - Fracture
- Lecture 35 - Fatigue
- Lecture 36 - Creep
- Lecture 37 - NDT
- Lecture 38 - Ceramics, polymers, composites
- Lecture 39 - Electrical and magnetic properties
- Lecture 40 - Alloy designation and properties

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Structural Analysis of Nanomaterials

Subject Co-ordinator - Prof. Kaushik Pal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Structure of Materials

Lecture 3 - Imperfections in Structure of Materials

Lecture 4 - Phase Diagram

Lecture 5 - Transformation of Phases

Lecture 6 - Basic Properties

Lecture 7 - Basic Properties

Lecture 8 - Basic Properties

Lecture 9 - Basic Properties

Lecture 10 - Selection of Nanomaterials based on Applications

Lecture 11 - Introduction to X-Ray Diffraction

Lecture 12 - Diffraction Methods and Directions of XRD

Lecture 13 - Determination of Crystal Structures by XRD Patterns

Lecture 14 - Precise Parameter Measurements

Lecture 15 - Orientation of Single Crystals

Lecture 16 - Qualitative Analysis by Diffraction

Lecture 17 - Quantitative Analysis by Diffraction

Lecture 18 - Microscopic Structural Analysis of Nanomaterials - I

Lecture 19 - Microscopic Structural Analysis of Nanomaterials - II

Lecture 20 - Other Characterization Techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Thermo-Mechanical and Thermo-Chemical Processes

Subject Co-ordinator - Prof. S. R. Meka

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Thermomechanical Processes

Lecture 2 - Conventional Thermomechanical Processes

Lecture 3 - Non-conventional Thermomechanical Processes

Lecture 4 - Stress and Strain

Lecture 5 - Effect of Strain Rate and Temperature

Lecture 6 - Microstructure Evolution

Lecture 7 - Dynamic Recovery

Lecture 8 - Discontinuous Dynamic Recrystallization

Lecture 9 - Dynamic Recrystallization

Lecture 10 - Continuous Dynamic Recrystallization (CDRX) and Geometrical Dynamic Recrystallization (GDRX)

Lecture 11 - Stereographic Projection

Lecture 12 - Using Stereographic Projection

Lecture 13 - Crystallographic Texture

Lecture 14 - Crystallographic Texture

Lecture 15 - Crystallographic Texture

Lecture 16 - Constitutive Analysis

Lecture 17 - Constitutive Analysis

Lecture 18 - Higher Strain Rate

Lecture 19 - Constitutive Based Model

Lecture 20 - Constitutive analysis

Lecture 21 - Processing Maps

Lecture 22 - Processing Maps

Lecture 23 - Microstructure and Application

Lecture 24 - Processing Maps

Lecture 25 - Processing Maps

Lecture 26 - Equal Channel Angular Pressing (ECAP)

Lecture 27 - Friction Stir Processing (FSP)

Lecture 28 - Accumulative Roll Bonding (ARB)

Lecture 29 - Multi Axial Forging (MAF)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Severe Plastic Deformation
- Lecture 31 - Overview on Thermo-Chemical treatments
- Lecture 32 - Overview on Thermo-Chemical treatments (Continued...)
- Lecture 33 - Thermodynamic aspects of thermo-chemical treatments
- Lecture 34 - Thermodynamics of Gaseous Nitriding - I
- Lecture 35 - Thermodynamics of Gaseous Nitriding - II
- Lecture 36 - Gaseous Nitriding of Pure Iron
- Lecture 37 - Gaseous Nitriding of Iron based alloys
- Lecture 38 - Duplex and Dual Phase microstructures through nitriding
- Lecture 39 - Alloying element nitride precipitation during nitriding of iron based alloys
- Lecture 40 - Kinetics of gaseous nitriding

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Welding Metallurgy

Subject Co-ordinator - Dr. Pradeep K. Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to welding metallurgy
- Lecture 2 - Overview of Welding Processes
- Lecture 3 - Introduction to phase diagrams
- Lecture 4 - Phase diagram of Iron Carbon system
- Lecture 5 - Phase diagram of non ferrous metals and alloys
- Lecture 6 - Phase Transformations
- Lecture 7 - Time Temperature Transformation Diagrams
- Lecture 8 - Continuous Cooling Transformation Diagrams
- Lecture 9 - Carbon Equivalent, Schaeffler Diagrams
- Lecture 10 - Problem solving on Phase Diagrams
- Lecture 11 - Introduction to strengthening mechanism in metals
- Lecture 12 - Solid solution strengthening and grain refinement
- Lecture 13 - Precipitation Hardening and Martensite Strengthening
- Lecture 14 - Strain Hardening and Strain Ageing
- Lecture 15 - Problem solving on strengthening mechanism in metals
- Lecture 16 - Introduction to Heat treatment Processes in Welding
- Lecture 17 - Hardening and Hardenability
- Lecture 18 - Martempering and Austempering
- Lecture 19 - Case Hardening methods
- Lecture 20 - Heat treatment of Non-Ferrous metals and alloys
- Lecture 21 - Heat Sources in Welding
- Lecture 22 - Heat Flow in Welding
- Lecture 23 - Temperature Distribution in Welding
- Lecture 24 - Effect of Welding Parameters
- Lecture 25 - Metallurgical effect of Heat Flow on Welding
- Lecture 26 - Principles of Solidification in Welding
- Lecture 27 - Solute redistribution during Solidification
- Lecture 28 - Constitutional Supercooling
- Lecture 29 - Microsegregation and Banding

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Grain Structure during Solidification in Welding
- Lecture 31 - Distinct Zones in Fusion Welded Specimen
- Lecture 32 - Heat Affected Zone
- Lecture 33 - Properties of Heat Affect Zone
- Lecture 34 - Microstructural Products in Weldments
- Lecture 35 - Introduction to Preheat and Postweld Heat Treatment
- Lecture 36 - Preheat and Postweld Heat Treatment of Different Materials
- Lecture 37 - Residual Stresses in Welding
- Lecture 38 - Causes of Residual Stress Development in Welding
- Lecture 39 - Measurement of Residual Stresses in Weldments
- Lecture 40 - Controlling Residual Stresses in Weldments
- Lecture 41 - Introduction to Welding Distortion
- Lecture 42 - Types of Welding Distortions
- Lecture 43 - Angular Distortions in Welds
- Lecture 44 - Bowing, Buckling and Twisting in Welds
- Lecture 45 - Control of Distortion in Welds
- Lecture 46 - Introduction to Cracks in Welds
- Lecture 47 - Types of Weld Cracks
- Lecture 48 - Specific Weld Cracks
- Lecture 49 - Chevron Cracks and Reheat Cracks
- Lecture 50 - Lamellar Cracks and Stress Corrosion Cracking
- Lecture 51 - Introduction to Weldability of Metals
- Lecture 52 - Weldability of Carbon Steels
- Lecture 53 - Weldability of Alloy Steels
- Lecture 54 - Weldability of Cast Iron
- Lecture 55 - Weldability of Non Ferrous Metals and Alloys
- Lecture 56 - Introduction to Welding Defects
- Lecture 57 - Surface and Subsurface Welding Defects
- Lecture 58 - Issues in Welding
- Lecture 59 - Considerations for Fatigue Loading in Welding
- Lecture 60 - Design Features for Fatigue and Static Loading in Welding

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Modeling of Tundish Steelmaking Process in Continuo

Subject Co-ordinator - Dr. Pradeep K. Jha

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Continuous Casting Process
- Lecture 2 - Role of Tundish in Continuous Casting
- Lecture 3 - Types of Continuous Casting Machine
- Lecture 4 - Components of Continuous Casting Unit
- Lecture 5 - Tundish Metallurgy
- Lecture 6 - Introduction to Physical Modeling
- Lecture 7 - Concept of Similarity in Physical Modeling
- Lecture 8 - Dimensional analysis
- Lecture 9 - Physical Modeling of Isothermal and Non-Isothermal system
- Lecture 10 - Consideration in Aqueous Modeling
- Lecture 11 - Introduction to Stimulus Response Techniques
- Lecture 12 - Characterization of Flow
- Lecture 13 - Characterization of Flow in Actual Systems
- Lecture 14 - Analysis of RTD Curves
- Lecture 15 - Plug, Mixed and Dead Regions in Tundish
- Lecture 16 - Fluid Flow Fundamentals
- Lecture 17 - Mass Conservation Equation
- Lecture 18 - Momentum Conservation Equation
- Lecture 19 - Energy Conservation Equation
- Lecture 20 - Navier Stokes Equations for Newtonian Fluid
- Lecture 21 - Introduction to Turbulence in Fluid Flow
- Lecture 22 - Characteristics of Turbulent Flow
- Lecture 23 - RANS Equations
- Lecture 24 - Turbulent Flow Calculations
- Lecture 25 - Turbulence Modeling Using  $k-\epsilon$  Model
- Lecture 26 - Introduction to Heat Transfer Phenomena
- Lecture 27 - Numerical Methods for Solving Governing Equation
- Lecture 28 - Finite Volume Method for Convection and Diffusion Problems
- Lecture 29 - Different Discretization Schemes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Assessment of Discretization Schemes
- Lecture 31 - Elements of Mathematical Modeling in Tundish Steelmaking
- Lecture 32 - Boundary Conditions
- Lecture 33 - Flow Analysis in Tundish
- Lecture 34 - Analysis of Fluid Flow and Mixing in Tundish
- Lecture 35 - Non-isothermal Flow Considerations in Tundish
- Lecture 36 - Intermixing in Tundish
- Lecture 37 - Modeling Consideration For Inclusion Removal in Tundish - I
- Lecture 38 - Modeling Consideration For Inclusion Removal in Tundish - II
- Lecture 39 - Case Studies in Modeling of Tundish Steelmaking - 1
- Lecture 40 - Case Studies in Modeling of Tundish Steelmaking - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC: Biomaterials for Bone Tissue Engineering Applications

Subject Co-ordinator - Prof. Bikramjit Basu

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Biomaterial
- Lecture 3 - Biocompatibility
- Lecture 4 - Host response
- Lecture 5 - Tissue Eng
- Lecture 6 - Scaffold
- Lecture 7 - Bone structure
- Lecture 8 - Bone properties
- Lecture 9 - Implant - I
- Lecture 10 - Implant - II
- Lecture 11 - Proteins
- Lecture 12 - Cell structure
- Lecture 13 - Bacteria structure
- Lecture 14 - Antibacterial assay
- Lecture 15 - Cell fate processes
- Lecture 16 - Cell division
- Lecture 17 - Cell differentiation
- Lecture 18 - Stem cells
- Lecture 19 - Osseointegration
- Lecture 20 - In vivo testing
- Lecture 21 - Cell-material interaction
- Lecture 22 - Cell-signalling
- Lecture 23 - In vitro testing
- Lecture 24 - Cytotoxicity assays
- Lecture 25 - Biocompatibility assay
- Lecture 26 - Clinical trials - I
- Lecture 27 - Clinical trials - II
- Lecture 28 - Metal manufacturing
- Lecture 29 - Ceramics manufacturing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Polymers manufacturing
- Lecture 31 - Additive manufacturing
- Lecture 32 - HA-Ti-Toughness, Cell functionality
- Lecture 33 - HA-CaTiO<sub>3</sub> development
- Lecture 34 - HA- BaTiO<sub>3</sub> Functional Prop
- Lecture 35 - HA-Ag antimicrob and cell viability
- Lecture 36 - HA-ZnO, Cell fate and antimicrobial
- Lecture 37 - Dental ceramics processing
- Lecture 38 - Sr-based glass Ceramics
- Lecture 39 - Acetabular socket (Compression mold)
- Lecture 40 - ZTA femoral ball head fabrication

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Iron Making

Subject Co-ordinator - Prof Govind S Gupta

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37  
Lecture 38  
Lecture 39 - Live Session

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Friction and Wear of Materials: Principles and Cas

Subject Co-ordinator - Prof. Dr. B. V. Manoj Kumar, Prof. Bikramjit Basu

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Tribology
- Lecture 2 - Surfaces and contacts
- Lecture 3 - Friction
- Lecture 4 - Contact temperature
- Lecture 5 - Lubrication
- Lecture 6 - Wear mechanisms
- Lecture 7 - Wear mechanisms
- Lecture 8 - Wear mechanisms
- Lecture 9 - Wear mechanisms
- Lecture 10 - Wear mechanisms
- Lecture 11 - Overview of tribological materials
- Lecture 12 - Friction and wear of metal matrix composites
- Lecture 13 - Overview
- Lecture 14 - Fabrication of engineering polymers
- Lecture 15 - Polymer Ceramic Composites for Orthopedic Applications
- Lecture 16 - Processing concepts of ceramics
- Lecture 17 - Mechanical properties of ceramics
- Lecture 18 - Fracture and toughening of brittle solids
- Lecture 19 - Sliding wear of SiC Ceramics
- Lecture 20 - Sliding wear of SiC-WC Composites
- Lecture 21 - Friction and wear of HDPE-HA-Al<sub>2</sub>O<sub>3</sub>
- Lecture 22 - Wear behavior of bioceramics and biocomposites
- Lecture 23 - Tribological behavior of dental restorative materials
- Lecture 24 - Wear of transformation toughened zirconia
- Lecture 25 - Fretting wear of SiAlON Ceramics
- Lecture 26 - Tribochemistry in wear of cermets
- Lecture 27 - Overview
- Lecture 28 - Wear of YSZ nanoceramics
- Lecture 29 - Wear behavior of nanostructured WC-ZrO<sub>2</sub> nanocomposites

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Erosive wear of SiC-WC composites
- Lecture 31 - Overview
- Lecture 32 - Sliding wear of alumina ceramics and zirconia ceramics in cryogenic environment
- Lecture 33 - Sliding wear of silicon carbide in cryogenic environment
- Lecture 34 - Wear of TiB<sub>2</sub> Ceramic Composites
- Lecture 35 - Erosive wear of ultra-high temperature NbB<sub>2</sub>-based ceramic composites
- Lecture 36 - Erosive wear of ultra-high temperature ZrB<sub>2</sub>-based ceramic composites
- Lecture 37 - Computational analysis in assessing wear
- Lecture 38 - Basics of ceramics coating techniques
- Lecture 39 - Erosive wear of WC-Co coating
- Lecture 40 - Abrasive wear of WC-Co coating

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mining Engineering - Fundamentals of Environmental Pollution and Control

Subject Co-ordinator - Prof. J. Bhattacharyya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - State of the Environment
- Lecture 2 - Environmental Movement
- Lecture 3 - Definitions of Environmental Terms
- Lecture 4 - Water Pollutants
- Lecture 5 - Water Pollutants (Continued...)
- Lecture 6 - Water Pollution Modelling-Surface Water
- Lecture 7 - Water Pollution Modelling-Surface Water(Continued...)
- Lecture 8 - BOD Modelling - Part 1
- Lecture 9 - BOD Modelling - Part 2
- Lecture 10 - Oxygen Demanding Waste in Streams - Part 1
- Lecture 11 - Oxygen Demanding Waste in Streams - Part 2
- Lecture 12 - Ground Water and its Contamination
- Lecture 13 - Ground Water and its Contamination (Continued...)
- Lecture 14 - Ground Water and its Contamination (Continued...)
- Lecture 15 - Waste Water Treatment
- Lecture 16 - Wastewater Treatment (Continued...)
- Lecture 17 - Wastewater Treatment (Continued...)
- Lecture 18 - Chemical Treatment
- Lecture 19 - Wetland Treatment and Bio-Technology Applications
- Lecture 20 - Introduction to Soil
- Lecture 21 - Parameters to Soil for Vegetative Growth
- Lecture 22 - Parameters to Soil for Vegetative Growth (Continued...)
- Lecture 23 - Soil Acidity
- Lecture 24 - Soil Erosion
- Lecture 25 - Mechanical Soil Erosion Control
- Lecture 26 - Soil Erosion Prediction
- Lecture 27 - Universal Soil Loss Equation
- Lecture 28 - Air Pollutants
- Lecture 29 - Health Effects of Air Pollutants - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Health Effects of Air Pollutants - Part 2
- Lecture 31 - Air Pollutants and Meteorology - Part 1
- Lecture 32 - Air Pollutants and Meteorology - Part 2
- Lecture 33 - The Point-Source Gaussian Plume Model
- Lecture 34 - Ground Level Concentration
- Lecture 35 - Emission Control
- Lecture 36 - EIA, EMP & EA

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mining Engineering - NOC:Drilling and Blasting Technology

Subject Co-ordinator - Prof. Kaushik Dey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Drilling Technology  
Lecture 2 - Introduction to Blasting Technology  
Lecture 3 - Rock Formation  
Lecture 4 - Rock Formation (Continued...)  
Lecture 5 - Rock Formation (Continued...)  
Lecture 6 - Rock Properties and Testing - 1  
Lecture 7 - Rock Properties and Testing - 2  
Lecture 8 - Drilling Mechanism  
Lecture 9 - Drillability of Rock  
Lecture 10 - Drilling Machines - 1  
Lecture 11 - Drilling Machines - 2  
Lecture 12 - Drilling Pattern - 1  
Lecture 13 - Drilling Pattern - 2  
Lecture 14 - Special Drilling Methods - I  
Lecture 15 - Special Drilling Methods - II  
Lecture 16 - Explosives - 1  
Lecture 17 - Explosives - 2  
Lecture 18 - Explosives accessories - 1  
Lecture 19 - Explosives accessories - 2  
Lecture 20 - Explosives accessories - 3  
Lecture 21 - Explosives properties - 1  
Lecture 22 - Explosives properties - 2  
Lecture 23 - Explosives properties - 3  
Lecture 24 - Basics of blasting - 1  
Lecture 25 - Basics of blasting - 2  
Lecture 26 - Explosive storage and transportation - 1  
Lecture 27 - Explosive storage and transportation - 2  
Lecture 28 - Surface blasting - 1  
Lecture 29 - Surface blasting - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Surface blast design
- Lecture 31 - Underground blast design - 1
- Lecture 32 - Underground blast design - 2
- Lecture 33 - Blasting results - 1
- Lecture 34 - Blasting results - 2
- Lecture 35 - Blasting results - 3
- Lecture 36 - Blasting results - 4
- Lecture 37 - Problems - 1
- Lecture 38 - Problems - 2
- Lecture 39 - Problems - 3
- Lecture 40 - Problems - 4

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mining Engineering - NOC:Network Analysis for Mines and Mineral Engineering

Subject Co-ordinator - Prof. Kaushik Dey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Network Analysis
- Lecture 2 - Introduction to network and some terminology
- Lecture 3 - Construction of network
- Lecture 4 - Introduction to activity on node diagram and comparison with arrow diagram
- Lecture 5 - Rules of dummy job, redundancy and cycles
- Lecture 6 - Critical path and its calculation
- Lecture 7 - Algorithm for critical path early start and early finish times
- Lecture 8 - Late start and late finish times algorithm
- Lecture 9 - Understanding the slack
- Lecture 10 - Examples of slacks and calculation of AON network
- Lecture 11 - Project due dates and earliest completion time examples
- Lecture 12 - CPM model and cost modelling
- Lecture 13 - Lowest cost schedule and optimum schedule
- Lecture 14 - Crashing and stretching of jobs
- Lecture 15 - Crashing and stretching of jobs (Continued...)
- Lecture 16 - Introduction to PERT
- Lecture 17 - Expected length of critical path calculation with examples
- Lecture 18 - Probability of completion of a project
- Lecture 19 - Event oriented project management
- Lecture 20 - Algorithm and computer program

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mining Engineering - NOC: Mining Machinery

Subject Co-ordinator - Prof. Khanindra Pathak

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Mining Machinery - Part A
- Lecture 2 - Introduction to Mining Machinery - Part B
- Lecture 3 - Introduction to Machine Elements
- Lecture 4 - Mechanical Transmission of Power
- Lecture 5 - Shafts, Pulleys, Gears, and Geartrains Bearing and Brakes
- Lecture 6 - Belt Drives, Chain Drives
- Lecture 7 - Prime Movers
- Lecture 8 - Fluid Power for Mining Machinery
- Lecture 9 - Pneumatic Power for Mining Machinery
- Lecture 10 - Steel Wire Rope : Types and Basic Calculation
- Lecture 11 - Steel Wire Rope Maintenance
- Lecture 12 - Principle of Rock - Tool Interaction
- Lecture 13 - Site and Rock Preparation Equipment : Dozer Ripper
- Lecture 14 - Site and Rock Preparation Equipment : Ripper
- Lecture 15 - Drilling Machines for Mining
- Lecture 16 - Site and Rock Preparation Equipment : Scraper
- Lecture 17 - Site and Rock Preparation Equipment : Motor Grader
- Lecture 18 - Surface Mining Machinery : Machinery for Cyclic Excavation : Electric Rope Shovel
- Lecture 19 - Surface Mining Machinery : Machinery for Cyclic Excavation : Hydraulic Excavators and Back Hoe
- Lecture 20 - Surface Mining Machinery : Machinery for Cyclic Excavation : Front End Loader
- Lecture 21 - Surface Mining Machinery : Machinery for Cyclic Excavation : Dragline
- Lecture 22 - Surface Mining Machinery : Machinery for Continuous Excavation : Bucket Wheel Excavator
- Lecture 23 - Surface Mining Machinery : Machinery for Continuous Excavation : Bucket Chain Excavators
- Lecture 24 - Surface Mining Machinery : Machinery for Continuous Excavation : Continuous Surface Miner
- Lecture 25 - Surface Mining Machinery : Machinery for Continuous Excavation : Dredger
- Lecture 26 - Underground Mining Machinery Loaders : Gathering Arm Loader
- Lecture 27 - Underground Mining Machinery Loaders : Rocker Shovel and Side Discharge Loader
- Lecture 28 - Underground Mining Machinery Loaders : Load Haul Dump (LHD) Loader
- Lecture 29 - Underground Mining Machinery : Road Header

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Underground Mining Machinery Underground Drills and Roof Bolter
- Lecture 31 - Underground Mining Machinery Continuous Miner
- Lecture 32 - Underground Mining Machinery Shuttle Car
- Lecture 33 - Longwall Mining Machinery Shearer
- Lecture 34 - Longwall Mining Machinery Armored Face Conveyor
- Lecture 35 - Longwall Mining Machinery Power Support
- Lecture 36 - Mine Pumps
- Lecture 37 - Mine Pumps : Special Pumps
- Lecture 38 - Basic Pumping Theory
- Lecture 39 - Air Compressor
- Lecture 40 - Fans for Mining
- Lecture 41 - Transportation Machinery for Surface Mines
- Lecture 42 - Automobiles in Mines and Mining Truck
- Lecture 43 - Off-highway Trucks
- Lecture 44 - Off-highway Trucks : Rimpull Curves and Tires
- Lecture 45 - Off-highway Trucks : Performance
- Lecture 46 - Belt Conveyor
- Lecture 47 - Belt Conveyor Design Criteria
- Lecture 48 - Power Requirements for Belt Conveyor
- Lecture 49 - Belt Conveyor Maintenance
- Lecture 50 - Aerial Rope Ways
- Lecture 51 - Machinery for Underground Mine Transport
- Lecture 52 - Endless Rope Haulage
- Lecture 53 - Rope Haulage in Underground Mines
- Lecture 54 - Locomotive
- Lecture 55 - Equipment for Shaft : Winding Machines
- Lecture 56 - Mechanics of Hoisting
- Lecture 57 - Low Profile Dumper
- Lecture 58 - Maintenance of Mining Machinery
- Lecture 59 - Maintenance Management Information System
- Lecture 60 - Non Destructive Testing



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mining Engineering - NOC:Underground Mining of Metalliferous Deposits

Subject Co-ordinator - Prof. Bibhuti Bhusan Mandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Metals and Civilisation  
Lecture 2 - Mine Life Cycle  
Lecture 3 - Present Status of Mineral Deposits  
Lecture 4 - Present Status of Underground Mining  
Lecture 5 - Terminology - I  
Lecture 6 - Terminology - II  
Lecture 7 - Determination of Cut Off Grade - I  
Lecture 8 - Determination of Cut Off Grade - II  
Lecture 9 - Determination of Cut Off Grade - III  
Lecture 10 - Dilution  
Lecture 11 - Recovery  
Lecture 12 - Adit - I  
Lecture 13 - Adit - II  
Lecture 14 - Incline Shaft  
Lecture 15 - Shaft - I  
Lecture 16 - Shaft - II  
Lecture 17 - Shaft - III  
Lecture 18 - Horizontal Drivages - I  
Lecture 19 - Horizontal Drivages - II  
Lecture 20 - Horizontal Drivages - III  
Lecture 21 - Horizontal Drivages - IV  
Lecture 22 - Raising and Winzing - I  
Lecture 23 - Raising and Winzing - II  
Lecture 24 - Raising and Winzing - III  
Lecture 25 - Raising and Winzing - IV  
Lecture 26 - Selection of Mining Methods - I  
Lecture 27 - Selection of Mining Methods - II  
Lecture 28 - Selection of Mining Methods - III  
Lecture 29 - Selection of Mining Methods - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Selection of Mining Methods - V
- Lecture 31 - Breast Stopping
- Lecture 32 - Sampling Practices
- Lecture 33 - Stope and Pillar - I
- Lecture 34 - Stope and Pillar - II
- Lecture 35 - Room and Pillar Mining - I
- Lecture 36 - Room and Pillar Mining - II
- Lecture 37 - Tributary area method
- Lecture 38 - Pillar Failure
- Lecture 39 - Shrinkage Stopping - I
- Lecture 40 - Shrinkage Stopping - II
- Lecture 41 - Cut and Fill stopping - I
- Lecture 42 - Cut and Fill stopping - II
- Lecture 43 - Cut and Fill stopping - III [Post Pillar Method]
- Lecture 44 - Backfill Materials
- Lecture 45 - Backfill Materials - II
- Lecture 46 - Rock Bolting - I
- Lecture 47 - Rock Bolting - II
- Lecture 48 - Cable Bolting
- Lecture 49 - Sublevel Stopping
- Lecture 50 - Long Hole Stopping
- Lecture 51 - Resuing Method of Stopping
- Lecture 52 - Square Set Stopping
- Lecture 53 - Vertical Crater Retreat Method - I
- Lecture 54 - Vertical Crater Retreat Method - II
- Lecture 55 - Sublevel Caving - I
- Lecture 56 - Sublevel Caving - II
- Lecture 57 - Block Caving - I
- Lecture 58 - Block Caving - II
- Lecture 59 - Safety in U/G Metal Mines - I
- Lecture 60 - Safety in U/G Metal Mines - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mining Engineering - NOC:Surface Mining Technology

Subject Co-ordinator - Prof. Kaushik Dey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Rocks Mineral and Ore
- Lecture 2 - Current Status of Surface Mining
- Lecture 3 - Stripping Ratios and Pit Layouts - I
- Lecture 4 - Stripping Ratios and Pit Layouts - II
- Lecture 5 - Stripping Ratios and Pit Layouts - III
- Lecture 6 - Phases of Surface Mining - I
- Lecture 7 - Phases of Surface Mining - II
- Lecture 8 - Phases of Surface Mining - III
- Lecture 9 - Opening Through Box Cut - I
- Lecture 10 - Opening Through Box Cut - II
- Lecture 11 - Drilling Technology for Surface Blasting - I
- Lecture 12 - Drilling Technology for Surface Blasting - II
- Lecture 13 - Drilling Technology for Surface Blasting - III
- Lecture 14 - Drilling Technology for Surface Blasting - IV
- Lecture 15 - Technology for Surface Blasting - I
- Lecture 16 - Technology for Surface Blasting - II
- Lecture 17 - Technology for Surface Blasting - III
- Lecture 18 - Technology for Surface Blasting - IV
- Lecture 19 - Technology for Surface Blasting - V
- Lecture 20 - Technology for Surface Blasting - VI
- Lecture 21 - Excavation by Ripper - I
- Lecture 22 - Excavation by Ripper - II
- Lecture 23 - Excavation by Ripper - III
- Lecture 24 - Excavation with Shovel - I
- Lecture 25 - Excavation with Shovel - II
- Lecture 26 - Excavation with Shovel - III
- Lecture 27 - Excavation with Shovel - IV
- Lecture 28 - Transportation in Surface Mines - I
- Lecture 29 - Transportation in Surface Mines - II

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Transportation in Surface Mines - III
- Lecture 31 - Excavation with Surface Miner - I
- Lecture 32 - Excavation with Surface Miner - II
- Lecture 33 - Excavation with Surface Miner - III
- Lecture 34 - Excavation with Surface Miner - IV
- Lecture 35 - Excavation with Surface Miner - V
- Lecture 36 - Excavation with Dragline - I
- Lecture 37 - Excavation with Dragline - II
- Lecture 38 - Excavation with Dragline - III
- Lecture 39 - Highwall Mining - I
- Lecture 40 - Highwall Mining - II
- Lecture 41 - Highwall Mining - III
- Lecture 42 - Excavation with Bucket Wheel Excavator - I
- Lecture 43 - Excavation with Bucket Wheel Excavator - II
- Lecture 44 - Excavation with Bucket Wheel Excavator - III
- Lecture 45 - Some Auxiliary Operations
- Lecture 46 - Haul Road - I
- Lecture 47 - Haul Road - II
- Lecture 48 - Haul Road - III
- Lecture 49 - Inland Transportation System - I
- Lecture 50 - Inland Transportation System - II
- Lecture 51 - Dimensional Stone Mining - I
- Lecture 52 - Dimensional Stone Mining - II
- Lecture 53 - Dimensional Stone Mining - III
- Lecture 54 - Seabed Mining - I
- Lecture 55 - Seabed Mining - II
- Lecture 56 - Stability Of Bench Slopes - I
- Lecture 57 - Stability Of Bench Slopes - II
- Lecture 58 - Stability Of Bench Slopes - III
- Lecture 59 - Closure Of Surface Mines - I
- Lecture 60 - Closure Of Surface Mines - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mining Engineering - NOC:Mine Automation and Data Analytics

Subject Co-ordinator - Prof. Radhakanta Koner

Co-ordinating Institute - IIT-ISM Dhanbad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Automation
- Lecture 2 - Principle of Automation and Strategies
- Lecture 3 - Elements of Automated System
- Lecture 4 - Elements of Automated System (Continued...)
- Lecture 5 - Autonomous Haulage System
- Lecture 6 - Autonomous Haulage System (Continued...)
- Lecture 7 - Automated Drilling System
- Lecture 8 - Automated Drilling System (Continued...)
- Lecture 9 - Fleet Management System
- Lecture 10 - Fleet Management System (Continued...)
- Lecture 11 - Introduction to CMMS
- Lecture 12 - Enterprise resource planning (ERP) system
- Lecture 13 - Remote operation and control center
- Lecture 14 - Remote operation and control center
- Lecture 15 - Proximity Sensors
- Lecture 16 - Proximity Sensors and Control System
- Lecture 17 - Sensing System: Radar Technology
- Lecture 18 - RFID in Mining Engineering
- Lecture 19 - Introduction to Geo-fencing
- Lecture 20 - CCD camera in Mine safety and management
- Lecture 21 - GNSS in Mining
- Lecture 22 - GNSS Case Studies - Part I
- Lecture 23 - GNSS Case Studies - Part II
- Lecture 24 - Image Processing and Analysis in Remote Sensing
- Lecture 25 - Basics of Digital Image Processing
- Lecture 26 - Automated communication and tracking technologies: Image processing
- Lecture 27 - Automated Communication and Tracking Technologies: SCADA
- Lecture 28 - SCADA and its Application in Mining
- Lecture 29 - Introduction to VR Systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Virtual Reality Application in Mining
- Lecture 31 - Introduction to Augmented Reality (AR)
- Lecture 32 - Augmented Reality Application in Mining
- Lecture 33 - Introduction - I
- Lecture 34 - Introduction - II
- Lecture 35 - Introduction to Probability and its associated terms
- Lecture 36 - Introduction to Probability and its associated terms
- Lecture 37 - Discrete Random Variable - Part I
- Lecture 38 - Discrete Random Variable - Part II
- Lecture 39 - Continuous Random Variable - Part I
- Lecture 40 - Continuous Random Variable - Part II
- Lecture 41 - Hypothesis Testing - I
- Lecture 42 - Hypothesis Testing - II
- Lecture 43 - t-test
- Lecture 44 - Chi-Squared Test
- Lecture 45 - Introduction to Machine Learning
- Lecture 46 - Regression
- Lecture 47 - Logistic Regression
- Lecture 48 - K Nearest Neighbor
- Lecture 49 - Support Vector Machine
- Lecture 50 - Naïve Bayes Classifier
- Lecture 51 - Artificial Neural Networks
- Lecture 52 - K Means Clustering
- Lecture 53 - DBSCAN
- Lecture 54 - Principal Component Analysis (PCA)
- Lecture 55 - Application of Big Data Analytics in Mining
- Lecture 56 - Big Data and AI Used Cases
- Lecture 57 - Cognitive Maintenance in Mining
- Lecture 58 - Cognitive Maintenance Case Studies
- Lecture 59 - Introduction to Orebody Modelling and Mine Design
- Lecture 60 - Case studies on Orebody Modeling and Mine Design

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Designing Learner-Centric MOOCs

Subject Co-ordinator - Prof.Sridhar Iyer, Prof.Sahana Murthy, Dr.Jayakrishnan M., Dr.Sameer Sahasrabudhe

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Introduction
- Lecture 2 - Perspectives of the Teachers and Learners
- Lecture 3 - Key Takeaways for Online Instruction
- Lecture 4 - Evolution of MOOCs
- Lecture 5 - Known Challenges
- Lecture 6 - Need of LC in MOOCs Post Pandemic
- Lecture 7 - Why LCM?
- Lecture 8 - The LCM Model
- Lecture 9 - What is an LeD?
- Lecture 10 - Chunking a Lectuer into LeD
- Lecture 11 - Introducing Reflection Spot
- Lecture 12 - Making Your Own LeD
- Lecture 13 - Deciding Appropriateness of Various Mediums to Create LeDs
- Lecture 14 - Example of Various Mediums from this course
- Lecture 15 - What is an LbD?
- Lecture 16 - Creating LbDs
- Lecture 17 - Constructive Customized Feedback in LbDs
- Lecture 18 - Giving Feedback for Open Ended Questions
- Lecture 19 - What is an LxT?
- Lecture 20 - Creating LxTs
- Lecture 21 - Creating an Assimilation Quiz
- Lecture 22 - Designing LxTs using LLMs
- Lecture 23 - Licensing and Ethical usage
- Lecture 24 - LeD : 5.1 Need of a Recap Week in a MOOC
- Lecture 25 - Do's and Don'ts - Part 1
- Lecture 26 - Do's and Don'ts - Part 2
- Lecture 27 - LxT 5.2b- A Primer on Licensing Essentials
- Lecture 28 - Recommendations for Effective LbDs
- Lecture 29 - What is an LxI

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Creating LxI with Reflection Quiz
- Lecture 31 - LxI- Sharing Experiences
- Lecture 32 - LxI- How to Achieve Learner - Learner Interaction?
- Lecture 33 - LxI- Types of Focus Questions - 1
- Lecture 34 - LxI- Types of Focus Questions - 2
- Lecture 35 - Orchestrating your MOOC
- Lecture 36 - Orchestration Dynamics in LCM
- Lecture 37 - Assessment
- Lecture 38 - How to Elicit Peer-to-Peer Interaction?
- Lecture 39 - Incentivizing Participation in the Forum
- Lecture 40 - Course Design in MOOC
- Lecture 41 - From Regular Course to LCM
- Lecture 42 - LeD 8.3 LCM Lite
- Lecture 43 - Adopting LCM Model: Prof. Mandar Bhanushe



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Introduction to Learning Analytics

Subject Co-ordinator - Prof. Ramkumar Rajendran

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Learning Analytics

Lecture 2 - LA, EDM and Academic Analytics

Lecture 3 - Types of Learning Analytics - I

Lecture 4 - Types of Learning Analytics - II

Lecture 5 - Data Collection

Lecture 6 - Data Collection in TELE

Lecture 7 - Data collection in MOOC

Lecture 8 - Multichannel Data

Lecture 9 - Ethics and Data Privacy in LA

Lecture 10 - Descriptive Analytics

Lecture 11 - Data Visualization

Lecture 12 - YouTube Analytics Dashboard

Lecture 13 - MOOCs Analytics Dashboard

Lecture 14 - Predictive Analytics

Lecture 15 - Linear Regression

Lecture 16 - Weka demo and how to read the results

Lecture 17 - MOOC data for Course Project

Lecture 18 - Summary of the Course

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Designing Learner-Centric e-Learning in STEM Disciplines

Subject Co-ordinator - Prof.Sahana Murthy

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Preview
- Lecture 2 - What is this course about?
- Lecture 3 - Course Format\_Learner Centric MOOC (LCM)
- Lecture 4 - E-Learning in STEM
- Lecture 5 - Making online Teaching Decisions
- Lecture 6 - Challenges in e-learning
- Lecture 7 - What is Learner-centric Approach?
- Lecture 8 - Promoting Learner Engagement with Content
- Lecture 9 - Why and How to Design Interactive Videos?
- Lecture 10 - What is an LeD?
- Lecture 11 - Learning by Doing (LbD)
- Lecture 12 - Articulation and Reflection
- Lecture 13 - Construct your Own Understanding
- Lecture 14 - Contextualized Learning
- Lecture 15 - Feedback to Learners
- Lecture 16 - Collaboration and Peer Learning
- Lecture 17 - Addressing Diversity
- Lecture 18 - Putting it All Together
- Lecture 19 - Selection and Analysis of Effective Technology
- Lecture 20 - Effective Integration of Technology
- Lecture 21 - Instructional Design in e-learning
- Lecture 22 - ADDIE Process of Instructional Design
- Lecture 23 - Constructive Alignment
- Lecture 24 - Implementing constructive alignment
- Lecture 25 - Multimedia Principle and Contiguity Principle
- Lecture 26 - Modality Principle and Redundancy Principle
- Lecture 27 - Coherence Principle
- Lecture 28 - Segmenting and Personalization Principles
- Lecture 29 - Visual Communication Strategies for E-content

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Forms of Learning
- Lecture 31 - Integrating LC Elements in E-content
- Lecture 32 - E-learning Design Process
- Lecture 33 - Closing

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Sustainable and Affordable Sanitation Solutions for Small Towns

Subject Co-ordinator - Prof. N.C Narayanan

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the Issue of Sanitation

Lecture 2 - Overview of Sanitation in the country

Lecture 3 - Centralised or Decentralised?

Lecture 4 - Need for Participatory Planning

Lecture 5 - Context setting for the Alappuzha Project

Lecture 6 - Environmental Policy

Lecture 7 - Environmental Impact Assessment 2006 and National Urban Sanitation Plan

Lecture 8 - Environmental Governance - Challenges and Alternatives

Lecture 9 - Municipal Solid Waste Management

Lecture 10 - MSWM - Status, Policy, governance structure

Lecture 11 - Integrated Municipal Solid Waste Management

Lecture 12 - Plastic Waste Management

Lecture 13 - Municipal Solid Waste Management in Alappuzha

Lecture 14 - Liquid Waste Management - an Overview

Lecture 15 - Introduction to Faecal Sludge Management

Lecture 16 - Faecal Sludge Management for Alappuzha town

Lecture 17 - Introduction to liquid waste treatment technologies

Lecture 18 - Decentralized Waste Water Treatment system - An Introduction

Lecture 19 - Case studies - Decentralised waste water treatment

Lecture 20 - Decentralized waste water treatment systems plan for Alappuzha

Lecture 21 - History of Sanitation in Alappuzha

Lecture 22 - Organic waste management in Alappuzha

Lecture 23 - Inorganic waste management - Role of Kudumbashree and Haritha Karma Sena

Lecture 24 - Youth engagement for reclaiming canals

Lecture 25 - Significance of institution building in reclaiming canals

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Engineering Statistics

Subject Co-ordinator - Prof. Manjesh Kumar Hanawal

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Probability
- Lecture 2 - Consequences of Axioms
- Lecture 3 - Interpretation of Probability
- Lecture 4 - Total Probability law and Baye's Theorem - I
- Lecture 5 - Total Probability law and Baye's Theorem - II
- Lecture 6 - Random variables and Cumulative Density Function
- Lecture 7 - Discrete and Continuous random variables - I
- Lecture 8 - Discrete and Continuous random variables - II
- Lecture 9 - Expectation and Variance
- Lecture 10 - Function of Random variables
- Lecture 11 - Generating RVs, Joint Distribution of RVs
- Lecture 12 - Joint Distribution of RVs and Marginal densities
- Lecture 13 - Covariance of Random variables
- Lecture 14 - Moment Generating Functions
- Lecture 15 - Conditional PMF and PDF
- Lecture 16 - Law of Large numbers, Central Limit Theorem
- Lecture 17 - Application of Central Limit Theorem - I
- Lecture 18 - Application of Central Limit Theorem - II
- Lecture 19 - Gamma and Chi-square distributions
- Lecture 20 - Beta distributions and Exponential families
- Lecture 21 - Random Sampling, Sample mean and Sample variance
- Lecture 22 - Sampling from Gaussian distribution and t-distribution
- Lecture 23 - Student's t- distribution
- Lecture 24 - F-distribution and its properties
- Lecture 25 - Convergence of Random variables and Consistency
- Lecture 26 - Order statistics, Median and Percentiles
- Lecture 27 - Generating random sample-Direct method
- Lecture 28 - Generating random sample-Indirect method
- Lecture 29 - Introduction to python

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- Lecture 30 - Python- Loops and Numpy library
- Lecture 31 - Sufficiency Principles and Sufficient Statistics
- Lecture 32 - Sufficient Statistics and Characterization of Sufficient Statistics
- Lecture 33 - Characterization of Sufficient Statistics and Factorization Theorem
- Lecture 34 - Example of Factorization Theorem, Minimal Sufficient Statistics
- Lecture 35 - Minimal sufficient statistics
- Lecture 36 - Test for minimal sufficient statistics with examples, Ancillary Statistics
- Lecture 37 - Likelihood Functions, Maximum Likelihood Estimator
- Lecture 38 - Method of moments, Baye's Estimator
- Lecture 39 - Evaluating Estimator, Cramer Rao Bound, Fisher Information
- Lecture 40 - Evaluating Estimator, Cramer Rao Bound, Fisher Information (Continued...)
- Lecture 41 - Hypothesis Testing, Likelihood Ratio Test
- Lecture 42 - Hypothesis Testing, Bayes Test
- Lecture 43 - Type I and II errors, Power Functions
- Lecture 44 - Type I and II errors, Power Functions (Continued...)
- Lecture 45 - Calculations of Power Functions
- Lecture 46 - Unbiased Test, Uniformly Most Powerful Test, Neyman- Pearson Lemma, Interval Estimation
- Lecture 47 - Interval Estimation
- Lecture 48 - Interval Estimation (Continued...)
- Lecture 49 - Construction of Confidence Intervals from tests
- Lecture 50 - Python- numpy and pandas functions II
- Lecture 51 - Tutology of tests and confidence intervals
- Lecture 52 - Tutology of tests and confidence intervals (Continued...)
- Lecture 53 - p-value, p-test of significance of a statistical test
- Lecture 54 - t-test and F-test, ANOVA
- Lecture 55 - Non-parametric test, Goodness of fit, Chi-squared test
- Lecture 56 - Distribution of Chi-squared test statistics
- Lecture 57 - Kolmogorov-Smirnov test
- Lecture 58 - Lilliefors's test and Explorator Data Analysis, Q-Q Plot and P-P Plot
- Lecture 59 - Generating random samples using Python, Hypothesis Testing using Python
- Lecture 60 - Generating random samples using Python, Hypothesis Testing using Python (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Similitude and Approximations in Engineering

Subject Co-ordinator - Vijay Gupta

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Fundamental of Fluid Mechanics for Chemical and Biomedical Engi

Subject Co-ordinator - Unknown

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Fluid Mechanics and Chemical Engineering
- Lecture 3 - Biomedical Applications of Fluid Mechanics
- Lecture 4 - Vectors: A review
- Lecture 5 - Introductory Concepts - 1
- Lecture 6 - Introductory Concepts - 2
- Lecture 7 - Flow Visualisation
- Lecture 8 - Dimensional Analysis - Pi Theorem
- Lecture 9 - Dimensional Analysis- Ipsen Method
- Lecture 10 - Similitude
- Lecture 11 - Pressure Distribution in a Static Fluid
- Lecture 12 - Force of Submerged Surfaces
- Lecture 13 - Buoyancy
- Lecture 14 - Surface Tension
- Lecture 15 - Reynolds Transport Theorem
- Lecture 16 - Mass Conservation
- Lecture 17 - Momentum Conservation - I
- Lecture 18 - Momentum Conservation - II
- Lecture 19 - Energy Conservation
- Lecture 20 - Fluid Translation
- Lecture 21 - Fluid Rotation and Deformation
- Lecture 22 - Mass Conservation: Derivation
- Lecture 23 - Mass Conservation: Cylindrical Coordinates
- Lecture 24 - Navier Stokes Equations: Derivation
- Lecture 25 - Flow Between Two Parallel Plates
- Lecture 26 - Flow in a Falling Liquid Film
- Lecture 27 - Fully-developed flow in a circular channel
- Lecture 28 - Flow between two concentric cylinders
- Lecture 29 - Lubrication Approximation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Creeping Flows
- Lecture 31 - Equation of Motion in Streamline Coordinates
- Lecture 32 - Irrotational Flow
- Lecture 33 - Bernoulli's Equation and Flow Measurement
- Lecture 34 - Boundary Layers
- Lecture 35 - Momentum Integral Equation
- Lecture 36 - Flow Separation and Drag
- Lecture 37 - Introduction to Turbulence
- Lecture 38 - Turbulent Flow in a Pipe
- Lecture 39 - Turbulent Boundary Layers
- Lecture 40 - Flow in Pipes: Major Losses
- Lecture 41 - Flow in Pipes: Minor Losses
- Lecture 42 - Flow in Pipes: Types of Problems
- Lecture 43 - Cavitation and NPSH

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Sustainable Power Generation Systems

Subject Co-ordinator - Dr. Pankaj Kalita

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introductory lecturer
- Lecture 2 - Fundamentals of solar thermal collector
- Lecture 3 - Low temperature solar thermal power plant
- Lecture 4 - Medium and high temperature solar thermal power plant
- Lecture 5 - Thermal analysis of solar thermal power plant
- Lecture 6 - Fundamentals and concept of solar PV power plant
- Lecture 7 - Offgrid solar photovoltaic systems
- Lecture 8 - Offgrid solar photovoltaic systems design
- Lecture 9 - Grid connected solar photovoltaic systems
- Lecture 10 - Performance of grid connected solar photovoltaic systems
- Lecture 11 - Introduction to wind power generation
- Lecture 12 - Wind data analysis
- Lecture 13 - Performance parameters and blade geometry
- Lecture 14 - Betz limit and optimum tip speed ratio
- Lecture 15 - Design of wind farm
- Lecture 16 - Fundamentals and working principle
- Lecture 17 - Analysis of small hydro power generation
- Lecture 18 - Introduction to biomass power generation
- Lecture 19 - Biochemical conversion for electricity generation
- Lecture 20 - Thermochemical conversion of solid fuels and gasification system
- Lecture 21 - Hydrogen energy
- Lecture 22 - Fuel cells technologies - Part I
- Lecture 23 - Fuel cells technologies - Part II
- Lecture 24 - Hydrogen energy tutorial
- Lecture 25 - Fundamentals and methods of geothermal energy harvesting
- Lecture 26 - Analysis of geothermal plant and resources
- Lecture 27 - Fundamentals and working of ocean thermal energy conversion systems
- Lecture 28 - Analysis of close rankine cycle OTEC system
- Lecture 29 - Fundamentals and working of tidal energy conversion systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fundamentals and working of wave energy conversion systems
- Lecture 31 - Overview and analysis of thermal energy storage
- Lecture 32 - Fundamentals and analysis of mechanical energy storage system
- Lecture 33 - Fundamentals and analysis of electro chemical energy storage system
- Lecture 34 - Summary and numerical exercise
- Lecture 35 - Fundamentals and methodology of evaluation of energy economics
- Lecture 36 - Case study involving energy economics of biomass power generation system and LCA
- Lecture 37 - Course Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Foundation Certificate in Palliative Care

Subject Co-ordinator - Prof. Geeta Joshi, Prof. Piyush Gupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Intro
- Lecture 2 - Discussion on Course
- Lecture 3 - Faculty Intro: Dr. Geeta Joshi and Dr. Piyush Gupta
- Lecture 4 - Faculty Intro: Dr. Abhijit Dam
- Lecture 5 - Principles of Palliative Care
- Lecture 6 - Integrating Science
- Lecture 7 - Growth of Palliative Care
- Lecture 8 - Holistic Care
- Lecture 9 - Palliative Care Concepts - Interview
- Lecture 10 - National Scenario of Palliative Care
- Lecture 11 - National Scenario
- Lecture 12 - WHO Perspective
- Lecture 13 - Allopathy
- Lecture 14 - Ayush Ministry
- Lecture 15 - Ayurveda
- Lecture 16 - Ayur Siddha Nature Yoga
- Lecture 17 - Naturopathy
- Lecture 18 - NHAM
- Lecture 19 - Ayush Modules
- Lecture 20 - Unani
- Lecture 21 - Homeopathy
- Lecture 22 - PC Delivery
- Lecture 23 - PC Delivery
- Lecture 24 - Practicing PC
- Lecture 25 - Home Based PC
- Lecture 26 - Home Care
- Lecture 27 - Home Nursing
- Lecture 28 - Hospice
- Lecture 29 - Caregiver

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Caregiver
- Lecture 31 - Integrative PC
- Lecture 32 - AYUSH in PC
- Lecture 33 - Siddha in PC
- Lecture 34 - Siddha
- Lecture 35 - Siddha
- Lecture 36 - Intro Yoga
- Lecture 37 - Yoga
- Lecture 38 - Yoga and Stress
- Lecture 39 - Introduction Pain
- Lecture 40 - Classification Pain
- Lecture 41 - Pain Assessment
- Lecture 42 - Total Pain
- Lecture 43 - Hospice Total Pain
- Lecture 44 - WHO 3 Step Ladder
- Lecture 45 - Pain Management
- Lecture 46 - Cancer Pain
- Lecture 47 - Pain Assessment
- Lecture 48 - Symptom Assessment
- Lecture 49 - Holistic Symptom Management
- Lecture 50 - Constipation
- Lecture 51 - Delirium
- Lecture 52 - Dyspnea
- Lecture 53 - Hygiene Bedsores
- Lecture 54 - Pressure Sore
- Lecture 55 - Secretions
- Lecture 56 - Fungating
- Lecture 57 - Fungating Wound
- Lecture 58 - Fungating pdf
- Lecture 59 - Oral NGT Catheter
- Lecture 60 - Oral NGT Cathe pdf
- Lecture 61 - Nutrition
- Lecture 62 - Communication
- Lecture 63 - Communications
- Lecture 64 - Communication in PC
- Lecture 65 - Body Language
- Lecture 66 - Communicating Patients
- Lecture 67 - Good and Bad Communication
- Lecture 68 - Good and Bad Communication

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Communication Bridging Gap
- Lecture 70 - Overview of Psychological Reactions
- Lecture 71 - Psychological Reactions
- Lecture 72 - Psychological Aspects
- Lecture 73 - Communicating with Patient
- Lecture 74 - Breaking Bad News
- Lecture 75 - Distress and Denial
- Lecture 76 - BBN Collusion Denial
- Lecture 77 - Emotional Reactions Breaking Denial
- Lecture 78 - Communication Interview
- Lecture 79 - Psychological Aspects
- Lecture 80 - Anxiety Depression Distress
- Lecture 81 - Counsellor in PC
- Lecture 82 - Caregiver Burnout Yoga
- Lecture 83 - PC in Elderly
- Lecture 84 - Spirituality
- Lecture 85 - Spirituality and Religion
- Lecture 86 - Laws of Karma
- Lecture 87 - Last Days of Life
- Lecture 88 - Care of Dying and Bereavement
- Lecture 89 - Quality of Death
- Lecture 90 - Death
- Lecture 91 - Grief and Bereavement
- Lecture 92 - Ethics in PC
- Lecture 93 - Volunteering
- Lecture 94 - Volunteers
- Lecture 95 - Volunteers
- Lecture 96 - Community
- Lecture 97 - Community Based PC
- Lecture 98 - Community Based PC
- Lecture 99 - Network Neighborhood
- Lecture 100 - Nurse in Home Care
- Lecture 101 - Care of Dying
- Lecture 102 - Safety Precaution
- Lecture 103 - Self Care
- Lecture 104 - Respite Care
- Lecture 105 - IT in PC
- Lecture 106 - COC
- Lecture 107 - Sandhi

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Cancer Aid Society
- Lecture 109 - Alpha
- Lecture 110 - PC Services in Punjab

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Multi-Criteria Decision Making and Applications

Subject Co-ordinator - Prof. Raghu Nandan Sengupta

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Example 01, 02, 03

Lecture 2 - Example 03, 04, 05, 06

Lecture 3 - Example 04, 05, 06 (Continued...)

Lecture 4 - Example 06 (Continued...), Example 07

Lecture 5 - Example 06 (Continued...), Example 07

Lecture 6 - MCDM: Definitions, Theory of Choice, MCDM Axioms, Condorcet Paradox

Lecture 7 - Theory of Choice, MCDM Axioms, Condorcet Paradox

Lecture 8 - MCDM Axioms, Condorcet Paradox, Utility Theory

Lecture 9 - Utility Theory, Expected value of Utility Function, Lotteries, Rational Choice, Properties of Utility

Lecture 10 - Rational Choice, Properties of Utility Function, Risk Aversion, Neutrality, Seeking Properties,

Lecture 11 - Utility Theory Examples, Properties of Utility Function, Risk Aversion, Neutrality, Seeking Properties,

Lecture 12 - Properties of Utility Function, Risk Aversion, Neutrality, Seeking Properties, Marginal Utility,

Lecture 13 - Example of Utility Functions, Certainty Equivalent, Geometric Mean Methods, Safety First Principle

Lecture 14 - Example of Utility Functions, Certainty Equivalent, Geometric Mean Methods, Safety First Principle

Lecture 15 - Certainty Equivalent, Geometric Mean Methods, Safety First Principle, Stochastic Dominance, Hyperbolic

Lecture 16 - Geometric Mean Methods, Safety First Principle, Stochastic Dominance, Hyperbolic Absolute Risk Aversion

Lecture 17 - Safety First Principle, Stochastic Dominance, Hyperbolic Absolute Risk Aversion Function

Lecture 18 - Safety First Principle, Stochastic Dominance, Hyperbolic Absolute Risk Aversion Function

Lecture 19 - Stochastic Dominance, Hyperbolic Absolute Risk Aversion Function

Lecture 20 - Stochastic Dominance, Hyperbolic Absolute Risk Aversion Function

Lecture 21 - Concept of Pareto Optimality in 2D Space, Effective Versus Inefficient Solutions, Karush Kuhn Tucker

Lecture 22 - Concept of Pareto Optimality in 2D Space, Effective Versus Inefficient Solutions, Karush Kuhn Tucker

Lecture 23 - Pareto Optimality, Property of Dominance, Strong Pareto Optimality, Weak Pareto Optimality, Concave

Lecture 24 - Concept of Pareto Optimality in 2D Space, Effective Versus Inefficient Solutions, Karush Kuhn Tucker

Lecture 25 - Concept of Pareto Optimality in 2D Space, Effective Versus Inefficient Solutions, Karush Kuhn Tucker

Lecture 26 - Concept of Pareto Optimality in 2D Space, Effective Versus Inefficient Solutions, Karush Kuhn Tucker

Lecture 27 - Concept of Pareto Optimality in 2D Space, Effective Versus Inefficient Solutions, Karush Kuhn Tucker

Lecture 28 - Scales of Measurements: Nominal Scale, Ordinal Scale, Interval Scale, Ratio Scale, Goal Programming

Lecture 29 - Pareto Optimality, Concept of Pareto Optimality, Goal Programming

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pareto Optimality, Pareto Curves, Goal Programming
- Lecture 31 - Goal Programming, Concepts of Pareto Optimality in 2D Space for LP, Concepts of Pareto Optimality in 3D Space for LP
- Lecture 32 - Concepts of Pareto Optimality in 2D Space for LP, Concepts of Pareto Optimality in 3D Space for LP
- Lecture 33 - LP Example of Goal Programming/MCDM, NLP Example of Goal Programming/MCDM
- Lecture 34 - LP Example of Goal Programming/MCDM, NLP Example of Goal Programming/MCDM (Continued...)
- Lecture 35 - LP Example of Goal Programming/MCDM, NLP Example of Goal Programming/MCDM (Continued...)
- Lecture 36 - LP Example of Goal Programming/MCDM, NLP Example of Goal Programming/MCDM (Continued...)
- Lecture 37 - Quadratic Programming, Goal Programming
- Lecture 38 - Multi Attribute Utility Theory, TOPSIS
- Lecture 39 - Multi Attribute Utility Theory, TOPSIS
- Lecture 40 - Technique For Order Preference by Similarity to Ideal Solutions (TOPSIS)
- Lecture 41 - Technique For Order Preference by Similarity to Ideal Solutions (TOPSIS)
- Lecture 42 - Technique For Order Preference by Similarity to Ideal Solutions (TOPSIS)
- Lecture 43 - Technique For Order Preference by Similarity to Ideal Solutions (TOPSIS), Elimination and Choice Translating Reality (ELECTRE)
- Lecture 44 - Elimination and Choice Translating Reality (ELECTRE)
- Lecture 45 - Elimination and Choice Translating Reality (ELECTRE)
- Lecture 46 - Elimination and Choice Translating Reality (ELECTRE)
- Lecture 47 - Elimination and Choice Translating Reality (ELECTRE)
- Lecture 48 - Elimination and Choice Translating Reality (ELECTRE), e-ELECTRE
- Lecture 49 - Elimination and Choice Translating Reality (ELECTRE), e-ELECTRE
- Lecture 50 - Elimination and Choice Translating Reality (ELECTRE), e-ELECTRE, VIKOR
- Lecture 51 - VIKOR (VIsekriterijumska Optimizacija I Kompromisno Resenje)
- Lecture 52 - VIKOR (VIsekriterijumska Optimizacija I Kompromisno Resenje)
- Lecture 53 - Analytical Hierarchy Process (AHP)
- Lecture 54 - Analytical Hierarchy Process (AHP) (Continued...)
- Lecture 55 - Analytical Hierarchy Process (AHP) (Continued...)
- Lecture 56 - Data Envelopment Analysis (DEA)
- Lecture 57 - Data Envelopment Analysis (DEA)
- Lecture 58 - Decision Tree Analysis
- Lecture 59 - Decision Tree Analysis (Continued...)
- Lecture 60 - Example in Multi Objective Decision Making

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Basic Certificate in Palliative Care

Subject Co-ordinator - Prof. Geeta Joshi, Prof. Piyush Gupta

Co-ordinating Institute - International Institute Of Distance Learning

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Prelude
- Lecture 2 - Prologue BCPC
- Lecture 3 - Introductory Dialogue - Week 1
- Lecture 4 - Basics of Palliative Care
- Lecture 5 - Community Participation
- Lecture 6 - Communication Skills in Palliative Care - Part I
- Lecture 7 - Communication Skills in Palliative Care - Part II
- Lecture 8 - Introductory Dialogue - Week 2
- Lecture 9 - What is Active Listening ?
- Lecture 10 - Are You Really Listening ?
- Lecture 11 - Active Listening Skills
- Lecture 12 - Communication Skills for Health Professionals
- Lecture 13 - Communication Competency in Health Professional
- Lecture 14 - Talking About Death
- Lecture 15 - Introductory Dialogue - Week 3
- Lecture 16 - Psychological Aspects in PC
- Lecture 17 - What is Psychological Distress ?
- Lecture 18 - Types of Psychological Distress
- Lecture 19 - Kessler Psychological Distress Scale
- Lecture 20 - Generalized Anxiety Disorder (GAD)
- Lecture 21 - Guilt and Regret
- Lecture 22 - Introductory Dialogue - Week 4
- Lecture 23 - Cultural Aspects in Palliative Care
- Lecture 24 - Spirituality (FAQs)
- Lecture 25 - Spiritual Distress
- Lecture 26 - Ways to Lead Spiritual Life !
- Lecture 27 - Introductory Dialogue - Week 5
- Lecture 28 - What is Stress and Burnout
- Lecture 29 - Some Tips to Manage Stress

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Burnout in Health Care Professionals
- Lecture 31 - Avoiding Burnout in Health Care Professionals
- Lecture 32 - Volunteers to Prevent Burnout !
- Lecture 33 - Self Care
- Lecture 34 - Introductory Dialogue - Week 6
- Lecture 35 - Ethical Aspects of End of Life
- Lecture 36 - Impact of Bereavement on Family
- Lecture 37 - Kubler-Ross Model
- Lecture 38 - Theoretical Models of Grief and Bereavement
- Lecture 39 - Psychology of Grief and Bereavement
- Lecture 40 - Management of Grief and Bereavement
- Lecture 41 - Introductory Dialogue - Week 7
- Lecture 42 - Metastatic Bone Pain Management
- Lecture 43 - How to Prescribe ENDS ?
- Lecture 44 - Safe Use of ENDS
- Lecture 45 - Neuropathic Pain and Its Management
- Lecture 46 - Introduction to Intervention Pain Management
- Lecture 47 - Introductory Dialogue - Week 8
- Lecture 48 - Gastrointestinal Symptoms
- Lecture 49 - Respiratory Symptoms Management - Part I
- Lecture 50 - Respiratory Symptoms Management - Part II
- Lecture 51 - Delirium and Dementia
- Lecture 52 - Emergencies in Palliative Medicine
- Lecture 53 - Recent Advances in Nausea and Vomiting
- Lecture 54 - Introductory Dialogue - Week 9
- Lecture 55 - Nursing Care Plans: Case Scenario
- Lecture 56 - Bladder and Bowel Care
- Lecture 57 - Stoma Care - Part I
- Lecture 58 - Stoma Care - Part II
- Lecture 59 - Skin Care in Colostomy
- Lecture 60 - Introductory Dialogue - Week 10
- Lecture 61 - Importance of Prognostication
- Lecture 62 - Diagnosing the Dying !
- Lecture 63 - Facing Death: How to Help ?
- Lecture 64 - Subcutaneous Route
- Lecture 65 - Introductory Dialogue - Week 11
- Lecture 66 - National Health Mission (NHM)
- Lecture 67 - Aushman Bharat
- Lecture 68 - Government Schemes for Palliative Care

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - NDPS Rules 2015
- Lecture 70 - Delivery Models of Palliative Care
- Lecture 71 - Introductory Dialogue - Week 12
- Lecture 72 - Availability of ENDS and Advocacy
- Lecture 73 - Availability of ENDS and Advocacy
- Lecture 74 - Euthanasia
- Lecture 75 - Advance Directive
- Lecture 76 - History of Opium - Part I
- Lecture 77 - History of Opium - Part II
- Lecture 78 - Panel Discussion

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Fuzzy Logic and Neural Networks

Subject Co-ordinator - Prof. Dilip Kumar Pratihari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Fuzzy Sets
- Lecture 2 - Introduction to Fuzzy Sets (Continued...)
- Lecture 3 - Introduction to Fuzzy Sets (Continued...)
- Lecture 4 - Introduction to Fuzzy Sets (Continued...)
- Lecture 5 - Introduction to Fuzzy Sets (Continued...)
- Lecture 6 - Introduction to Fuzzy Sets (Continued...)
- Lecture 7 - Applications of Fuzzy Sets
- Lecture 8 - Applications of Fuzzy Sets (Continued...)
- Lecture 9 - Applications of Fuzzy Sets (Continued...)
- Lecture 10 - Applications of Fuzzy Sets (Continued...)
- Lecture 11 - Applications of Fuzzy Sets (Continued...)
- Lecture 12 - Applications of Fuzzy Sets (Continued...)
- Lecture 13 - Applications of Fuzzy Sets (Continued...)
- Lecture 14 - Applications of Fuzzy Sets (Continued...)
- Lecture 15 - Applications of Fuzzy Sets (Continued...)
- Lecture 16 - Applications of Fuzzy Sets (Continued...)
- Lecture 17 - Optimization of Fuzzy Reasoning and Clustering Tool
- Lecture 18 - Optimization of Fuzzy Reasoning and Clustering Tool (Continued...)
- Lecture 19 - Optimization of Fuzzy Reasoning and Clustering Tool (Continued...)
- Lecture 20 - Optimization of Fuzzy Reasoning and Clustering Tool (Continued...)
- Lecture 21 - Some Examples of Neural Networks
- Lecture 22 - Some Examples of Neural Networks (Continued...)
- Lecture 23 - Some Examples of Neural Networks (Continued...)
- Lecture 24 - Some Examples of Neural Networks (Continued...)
- Lecture 25 - Some Examples of Neural Networks (Continued...)
- Lecture 26 - Some Examples of Neural Networks (Continued...)
- Lecture 27 - Some Examples of Neural Networks (Continued...)
- Lecture 28 - Some Examples of Neural Networks (Continued...)
- Lecture 29 - Some Examples of Neural Networks (Continued...)

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- Lecture 30 - Some Examples of Neural Networks (Continued...)
- Lecture 31 - Optimal Designs of Neural Networks
- Lecture 32 - Optimal Designs of Neural Networks (Continued...)
- Lecture 33 - Neuro-Fuzzy System
- Lecture 34 - Neuro-Fuzzy System (Continued...)
- Lecture 35 - Neuro-Fuzzy System (Continued...)
- Lecture 36 - Neuro-Fuzzy System (Continued...)
- Lecture 37 - Concepts of Soft Computing and Expert Systems
- Lecture 38 - Concepts of Soft Computing and Expert Systems (Continued...)
- Lecture 39 - A Few Applications
- Lecture 40 - A Few Applications (Continued...)
- Lecture 41 - A Few Applications (Continued...)
- Lecture 42 - A Few Applications (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Entrepreneurship Essentials

Subject Co-ordinator - Prof. Manoj Kumar Mondal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Economic Contributions of Entrepreneurs
- Lecture 2 - Definition, Motivation and Types of Entrepreneurship
- Lecture 3 - Vision, Mission and Values
- Lecture 4 - Entrepreneurial Qualities
- Lecture 5 - Two Inspiring Stories
- Lecture 6 - Myths and Realities around Entrepreneurship
- Lecture 7 - Causes of Failure of Startups
- Lecture 8 - Why Startups Fail (Continued...)
- Lecture 9 - Forms of Legal Entities
- Lecture 10 - Factors Driving Competitive Advantages
- Lecture 11 - Marketing for Startups - I
- Lecture 12 - Marketing for Startups - II
- Lecture 13 - Marketing for Startups - III
- Lecture 14 - Marketing Research
- Lecture 15 - Marketing Research (Continued...)
- Lecture 16 - Business Model Canvas
- Lecture 17 - Value Proposition Canvas
- Lecture 18 - Illustration of Business Model Canvas
- Lecture 19 - Features of Winning Business Models
- Lecture 20 - Business Model Innovation
- Lecture 21 - Identifying Opportunities Based on Trend
- Lecture 22 - Circle of Competence and Effectuation
- Lecture 23 - Lean Startup - I
- Lecture 24 - Lean Startup - II
- Lecture 25 - Lean Startup - III
- Lecture 26 - Design and Innovation - I
- Lecture 27 - Design and Innovation - II
- Lecture 28 - Design and Innovation - III
- Lecture 29 - Design and Innovation - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Design and Innovation - V
- Lecture 31 - Introduction to Financial Statements
- Lecture 32 - Introduction to Financial Statements (Continued...)
- Lecture 33 - Introduction to Financial Statements (Continued...)
- Lecture 34 - Introduction to Financial Statements (Continued...)
- Lecture 35 - Introduction to Financial Statements (Continued...)
- Lecture 36 - Introduction to Financial Statements (Continued...)
- Lecture 37 - Introduction to Financial Statements (Continued...)
- Lecture 38 - Depreciation and Amortization and Treatment of Capital Gain or Loss from Sale of Fixed Asset
- Lecture 39 - Cost, Volume, Profit
- Lecture 40 - Cost, Volume, Profit
- Lecture 41 - Founding Team and Early Recruits
- Lecture 42 - Business Plan - I
- Lecture 43 - Business Plan - II
- Lecture 44 - Pitching the Business Plan - I
- Lecture 45 - Pitching the Business Plan - II
- Lecture 46 - Funding New Venture - I
- Lecture 47 - Funding New Venture - II
- Lecture 48 - Funding New Venture - III
- Lecture 49 - Funding New Venture - IV
- Lecture 50 - Funding New Venture - V
- Lecture 51 - Some Dos and Donts
- Lecture 52 - Go-To-Market Strategies - I
- Lecture 53 - Go-To-Market Strategies - II
- Lecture 54 - Capital Budgeting Decisions
- Lecture 55 - Capital Budgeting Decisions (Continued...)
- Lecture 56 - Start up Valuation - I
- Lecture 57 - Start up Valuation - II
- Lecture 58 - Human Resource Management - I
- Lecture 59 - Human Resource Management - II
- Lecture 60 - Growth Strategies



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Roadmap for Patent Creation

Subject Co-ordinator - Prof. Gouri Gargate

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Roadmap for patent creation - Introduction
- Lecture 2 - Roadmap for patent creation - Property and IP
- Lecture 3 - Roadmap for patent creation - IPR
- Lecture 4 - Roadmap for patent creation - IP and future areas
- Lecture 5 - Roadmap for patent creation - Patent - Introduction
- Lecture 6 - Patent searching and analysis
- Lecture 7 - Patent-Definition
- Lecture 8 - Novelty
- Lecture 9 - Non obviousness
- Lecture 10 - Industrial application
- Lecture 11 - Parts of patent document
- Lecture 12 - Terminologies and codes used in a patent document
- Lecture 13 - How to read a patent ? - I
- Lecture 14 - How to read a patent ? - II
- Lecture 15 - How to read a patent ? - III
- Lecture 16 - Roadmap for patent creation - IP identification tool
- Lecture 17 - Roadmap for patent creation - Patentability tool
- Lecture 18 - Roadmap for patent creation - IP audit framework
- Lecture 19 - Roadmap for patent creation - Public patent databases
- Lecture 20 - Roadmap for patent creation - Capsule version
- Lecture 21 - Types of patent
- Lecture 22 - Patent filing procedure in India
- Lecture 23 - Patent timelines - India and PCT
- Lecture 24 - Inventions not patent in India
- Lecture 25 - Indicators for patentability
- Lecture 26 - Use of patent database for research/project topic identification
- Lecture 27 - Importance of laboratory notebook
- Lecture 28 - In which technical category my invention falls - IPC
- Lecture 29 - Patent - Statutory differences between India, Europe and USA

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Identification of inventor and applicant and their rights
- Lecture 31 - Developing your own IP system
- Lecture 32 - When to publish and when to patent (confidentiality)
- Lecture 33 - Statutory exceptions (anticipation)
- Lecture 34 - Procedure for patent filing (Forms and fees)
- Lecture 35 - Interaction with IP attorney (Initial drafting, FER reply and hearing)
- Lecture 36 - Research/project planning
- Lecture 37 - Post patent filing requirements
- Lecture 38 - Patent commercialization
- Lecture 39 - Capsule version

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Accreditation and Outcome based Learning

Subject Co-ordinator - Prof. Shyamal Kumar Das Mandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Challenges and Needs of 21st Century Education

Lecture 3 - Accreditation

Lecture 4 - Accreditation (Continued...)

Lecture 5 - Outcome based Learning

Lecture 6 - Important Steps in Outcome based education

Lecture 7 - Introduction to Taxonomies of Learning and Cognitive Domains of Learning

Lecture 8 - Psychomotor Domain and Affective Domain of Learning

Lecture 9 - Instructional Objectives or Outcome

Lecture 10 - Need and Use of Instructional Objectives or Outcome

Lecture 11 - Example of Different Instructional Objectives or Outcome and their Cognitive Level

Lecture 12 - Outcome-based Curriculum Design

Lecture 13 - Outcome-based Curriculum Design (Continued...)

Lecture 14 - Outcome-based Curriculum Design software framework

Lecture 15 - Course outcome, Module outcome and lecture/unit outcome and teaching learning process

Lecture 16 - Mapping of outcome based curriculum with Graduate attribute

Lecture 17 - Introduction to Assessment and Evaluation

Lecture 18 - Formative Assessment and Summative Assessments

Lecture 19 - Test Item analysis

Lecture 20 - Test Item analysis (Continued...)

Lecture 21 - Evaluation Rubrics

Lecture 22 - Mission and Vision, Program Educational Objectives (PEOs), Program Outcome (PO) and their Consis

Lecture 23 - Mapping of course outcome and Program Outcome

Lecture 24 - Attainment of Program outcome and course outcome

Lecture 25 - Calculation of direct attainment

Lecture 26 - Calculation of Indirect Attainment

Lecture 27 - Introduction to Tutoed Video Instruction (TVI)

Lecture 28 - TVI Learning Improvement Data - as reported in literature

Lecture 29 - Use of TVI as ELNET-3L program

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Lessons on Good Teaching from ELNET-3L
- Lecture 31 - Evaluation of Teaching Quality
- Lecture 32 - Evaluation of Teaching Quality - A Research Proposal
- Lecture 33 - Evaluation of Teaching Quality - A Research Proposal (Continued...)
- Lecture 34 - Evaluation of Teaching Quality - A Research Proposal (Continued...)
- Lecture 35 - Assessment and Evaluation - to Improve Teaching
- Lecture 36 - Item Analysis - Theory and Practice
- Lecture 37 - Learning Styles and Learning Approaches
- Lecture 38 - Good Teaching Attributes and Characteristics
- Lecture 39 - Teacher Effectiveness Research
- Lecture 40 - Teacher Effectiveness Research (Continued...)
- Lecture 41 - Teaching Learning Process using Outcome based Education

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Introduction to Environmental Engineering and Science - Fundame

Subject Co-ordinator - Prof. Brajesh Kumar Dubey

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Sustainability Concepts - Innovations and Challenges

Lecture 2 - Sustainability Concepts - Innovations and Challenges

Lecture 3 - Basics and Sustainability Concepts and Evolution

Lecture 4 - Engineering for Sustainability

Lecture 5 - Life Cycle Thinking and Circular Economy

Lecture 6 - Mass Concentration Units

Lecture 7 - Partial Pressure Units

Lecture 8 - Other Types of Units

Lecture 9 - Units (Continued...), Qualitative and Quantitative Measurements

Lecture 10 - Quantative Measurements Basics

Lecture 11 - Ecology

Lecture 12 - Energy Flow and Ecological Concepts

Lecture 13 - Population

Lecture 14 - Population, Consumption and Biodiversity

Lecture 15 - Environmental Chemistry

Lecture 16 - Mass Balance and Reactor Systems

Lecture 17 - Mass Balance in Continuous Reactor / Continuous Stirred Tank Reactor (CSTR) and Plug Flow Reactor

Lecture 18 - Plug Flow Reactor and Energy Flow

Lecture 19 - Energy Balance and Earth Overshot Day

Lecture 20 - Mass Transport Processes

Lecture 21 - Oxygen Demand in Environmental Systems

Lecture 22 - BOD Examples, Oxygen Levels in Surface Waters, COD

Lecture 23 - Environmental Health Basics and SDGs

Lecture 24 - Field Applications

Lecture 25 - Nutrient Cycle

Lecture 26 - Environmental Risk

Lecture 27 - Risk Assessment Steps and EIA Introduction

Lecture 28 - Environmental Risk Assessments with Concepts of EIA and LCA

Lecture 29 - Environmental Risk Assessments with Concepts of EIA and LCA (Continued...)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Environmental Risk Assessments with Concepts of EIA and LCA (Continued...)
- Lecture 31 - Water Quantity
- Lecture 32 - Water Availability and Usage
- Lecture 33 - Population Forecasting
- Lecture 34 - Water Quality
- Lecture 35 - Water Quality (Continued...)
- Lecture 36 - Plain Sedimentation
- Lecture 37 - Coagulation
- Lecture 38 - Review of Sedimentation and Rapid Sand Filtration
- Lecture 39 - Disinfection and Water Supply
- Lecture 40 - Water Treatment Plant Visit
- Lecture 41 - Wastewater collection and characterization
- Lecture 42 - Sewerage System and Sewage Characteristics
- Lecture 43 - BOD Concepts and Preliminary Treatment of Wastewater
- Lecture 44 - Wastewater Treatment - I
- Lecture 45 - Activated Sludge Process and Sludge Disposal
- Lecture 46 - Introduction to Solid Waste Management
- Lecture 47 - Introduction to Solid Waste Management (Continued...)
- Lecture 48 - Components of Solid Waste Management
- Lecture 49 - Collection and Treatment
- Lecture 50 - Waste Disposal and Summary
- Lecture 51 - Basics of Air Pollution Issues - Global and Local
- Lecture 52 - Air Pollutants and Air Pollution Index
- Lecture 53 - Global Warming and Climate Change
- Lecture 54 - Air Pollution Models
- Lecture 55 - SDGs, Noise and Soil Pollution
- Lecture 56 - Present Issues and Few Case Studies
- Lecture 57 - Case Study - Solid Waste Management
- Lecture 58 - Case Study - Industrial Pollution and Disasters
- Lecture 59 - Case Study - Global Food Waste Initiatives
- Lecture 60 - Case Study - Global Food Waste and Resource Recovery

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Biophotonics

Subject Co-ordinator - Prof. Basudev Lahiri

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Biophotonics - Part I
- Lecture 2 - Introduction to Biophotonics - Part II
- Lecture 3 - Introduction to Biophotonics - Part III
- Lecture 4 - Nature of Light - Part I (As Wave)
- Lecture 5 - Nature of Light - Part II (As Particle)
- Lecture 6 - Fact of Matter - Part I
- Lecture 7 - Fact of Matter - Part II
- Lecture 8 - Basic of Light-Matter Interaction
- Lecture 9 - Molecular Materials
- Lecture 10 - Introduction to Fluorescence
- Lecture 11 - The Cell
- Lecture 12 - The Central Dogma
- Lecture 13 - Genetic Code
- Lecture 14 - Building Blocks
- Lecture 15 - Remaining Topics
- Lecture 16 - Light-Matter Interactions in Molecules (Basic of Spectroscopy)
- Lecture 17 - Light-Matter Interactions in Molecules (Basic of Spectroscopy) (Continued...)
- Lecture 18 - Interaction of Light with Cells
- Lecture 19 - Interaction of Light with Tissues
- Lecture 20 - Photoprocesses in Biopolymers
- Lecture 21 - Laser Principles and Operation
- Lecture 22 - Types of Lasers
- Lecture 23 - Nonlinear Optical Processes
- Lecture 24 - In Vivo Photoexcitation
- Lecture 25 - Examples and Applications
- Lecture 26 - Introduction
- Lecture 27 - Microscopy Techniques
- Lecture 28 - Near Field Microscopy and Optical Coherence Tomography
- Lecture 29 - Fluorophores and Fluorescence Microscopy Techniques

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Future: AFM-IR
- Lecture 31 - Biosensing Background
- Lecture 32 - Optical Fiber Sensors
- Lecture 33 - Metamaterials
- Lecture 34 - Metamaterials as Biosensors
- Lecture 35 - Biosensing with Optical Nano-antennas
- Lecture 36 - Introduction to Photodynamic Therapy (PDT)
- Lecture 37 - Application of Photodynamic Therapy (PDT)
- Lecture 38 - Light Irradiation for Photodynamic Therapy (PDT)
- Lecture 39 - Real Life Examples of Photodynamic Therapy (PDT)
- Lecture 40 - Future of PDT and Photothermal Therapy (PTT)
- Lecture 41 - Laser Based Tissue Engineering
- Lecture 42 - Laser Tissue Contouring: Dermatological Application
- Lecture 43 - Laser Tissue Welding and Tissue Regeneration
- Lecture 44 - Laser Tissue Contouring: Ophthalmic Application
- Lecture 45 - Laser in Dentistry
- Lecture 46 - Tools for Micromanipulation
- Lecture 47 - The Optical/Laser Tweezer
- Lecture 48 - Design of Optical Tweezers
- Lecture 49 - Optical Scissors
- Lecture 50 - Selected Examples of Application
- Lecture 51 - Introduction to nanotechnology
- Lecture 52 - Processes of Nanotechnology
- Lecture 53 - Nano-Lithography: The Art of Small
- Lecture 54 - Thin Film Deposition
- Lecture 55 - Bionanophotonics Applications
- Lecture 56 - Introduction to Optogenetics
- Lecture 57 - Controlling the Brain with Light
- Lecture 58 - Optical Neuroimaging and Tomography
- Lecture 59 - Functional Near Infrared Spectroscopy (fNIRS) of the Brain
- Lecture 60 - Summary and Revisiting Few topics



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Vacuum Technology and Process Application

Subject Co-ordinator - Prof. V. Vasudeva Rao

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Vacuum, Natural Vacuum
- Lecture 2 - History of Vacuum Technology
- Lecture 3 - Kinetic Theory of Gases, Physical Parameters of Vacuum and Regions of Vacuum
- Lecture 4 - Vacuum Process Applications - I
- Lecture 5 - Vacuum Process Applications - II
- Lecture 6 - Pumping Speed and Throughput Concepts
- Lecture 7 - Rotary Vacuum Pump
- Lecture 8 - Diffusion Pump
- Lecture 9 - Roots Vacuum Pump
- Lecture 10 - Rotary Piston Pump
- Lecture 11 - Liquid Ring Pump
- Lecture 12 - Steam Jet Ejector
- Lecture 13 - Diaphragm Pump
- Lecture 14 - Claw Pump
- Lecture 15 - Screw Pump
- Lecture 16 - Scroll Pump, Sorption Concepts and Pumps
- Lecture 17 - Ion Pumping-Sputter Ion Pump
- Lecture 18 - Turbomolecular Pump
- Lecture 19 - Cryopumps
- Lecture 20 - Selection Criteria of Vacuum Pumps
- Lecture 21 - Primary vs Secondary Gauges, U Tube/McLeod gauges (Primary)
- Lecture 22 - Bourdon/Capacitance Gauges (Mechanical Deflection)
- Lecture 23 - Thermo-couple/Pirani gauges (Thermal Conductivity)
- Lecture 24 - Spinning Rotor/Ionization/Bayard Alpert Gauges
- Lecture 25 - Penning/ Inverted Magnetron gauges, Gauge calibration
- Lecture 26 - Vacuum Materials (Metals, Glasses, Ceramics, Greases and Oils)
- Lecture 27 - Vacuum Components (Flanges, Couplings, Seals, Valves)
- Lecture 28 - Vacuum Chamber Design
- Lecture 29 - Fabrication Techniques for Vacuum Systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Testing of Vacuum Systems for Mechanical Failures, Gas Leaks and Outgassing
- Lecture 31 - Gas Flow at Low Pressures, Conductance and Effective Pumping Speed Concepts
- Lecture 32 - Conductance Calculations in Viscous Flow Region
- Lecture 33 - Molecular Flow
- Lecture 34 - Transition and Choked Flows
- Lecture 35 - Conductance and Pump Down Calculations in Vacuum Systems
- Lecture 36 - Design Aspects of Vacuum Systems for Different Applications - Part I
- Lecture 37 - Design Aspects of Vacuum Systems for Different Applications - Part II
- Lecture 38 - Design of a Vacuum Furnace for Metallurgical Processing
- Lecture 39 - Leak Detection in Vacuum Systems
- Lecture 40 - Magnetic Deflection Leak Detector and Quadrupole Residual Gas Analyzer
- Lecture 41 - Vacuum Processes in Chemical and Pharmaceutical Industries
- Lecture 42 - Vacuum for Food Processing
- Lecture 43 - Vacuum Technology in the Packaging Industry
- Lecture 44 - Vacuum in Wood Industry
- Lecture 45 - Vacuum Systems for Medical and Dental Applications
- Lecture 46 - Vacuum for Desalination of Sea Water and Treatment of Waste Water
- Lecture 47 - Vacuum Technology for Power Sector
- Lecture 48 - Vacuum Technology In Oil and Gas Industries
- Lecture 49 - Vacuum Technology in LNG industry
- Lecture 50 - Vacuum Technology for Cryogenic Applications
- Lecture 51 - Vacuum Technology in High Speed Transportation (Hyperloop and Maglev)
- Lecture 52 - Vacuum technology for Metallurgical applications
- Lecture 53 - Vacuum Technology for Analytical Instruments
- Lecture 54 - Vacuum based coating units for thin film deposition
- Lecture 55 - Vacuum for solar energy (Thermal and PV)
- Lecture 56 - Vacuum Technology for semiconductor chip manufacturing
- Lecture 57 - Vacuum Technology for Display Systems
- Lecture 58 - Vacuum Technology for Nuclear Applications - Part I
- Lecture 59 - Vacuum Technology for Nuclear Applications - Part II
- Lecture 60 - Vacuum technology for Space Applications

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Basics of Health Promotion and Education Intervention

Subject Co-ordinator - Prof. Sweety Suman Jha, Prof.Chandrashekhar Taklikar, Prof. Madumita Dobe, Prof. Arist

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Brief history of public health
- Lecture 2 - Scope and Evolution of Health Promotion and Education
- Lecture 3 - Ottawa Charter
- Lecture 4 - Principles of health promotion
- Lecture 5 - Settings and audiences for health promotion
- Lecture 6 - Concepts of Health Behavior
- Lecture 7 - Health Risk Behavior Vs Health Promotion Behavior
- Lecture 8 - Concepts of Health Communication - Part I
- Lecture 9 - Concepts of Health Communication - Part II
- Lecture 10 - Health Literacy
- Lecture 11 - Information Education and Communication (IEC)
- Lecture 12 - Behavior Change Communication (BCC) - Part I
- Lecture 13 - Behavior Change Communication (BCC) - Part II
- Lecture 14 - Social and Behavior Change Communication (SBCC) - Part I
- Lecture 15 - Social and Behavior Change Communication (SBCC) - Part II
- Lecture 16 - Need Assessment for Health Promotion
- Lecture 17 - Approaches for Health Promotion and Behavior Change
- Lecture 18 - Models of Individual Health Behavior
- Lecture 19 - Models of Inter-Personal Health Behaviour
- Lecture 20 - Community and Group Models of Health Behavior Change
- Lecture 21 - Planning HPE Intervention - Part I
- Lecture 22 - Planning HPE Intervention - Part II
- Lecture 23 - Implementing HPE Intervention - Part I
- Lecture 24 - Implementing HPE Intervention - Part II
- Lecture 25 - Monitoring HPE Intervention
- Lecture 26 - Principles of Designing Messages
- Lecture 27 - Processes and Approaches of Designing Messages - Part I
- Lecture 28 - Processes and Approaches of Designing Messages - Part II
- Lecture 29 - Overview of Pretesting

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pretesting of Health Promotion and Education Tools
- Lecture 31 - Health Education Methods - Part I
- Lecture 32 - Health Education Methods - Part II
- Lecture 33 - Health Education Material - Part I
- Lecture 34 - Health Education Material - Part II
- Lecture 35 - Technology-based approaches to health behavior change
- Lecture 36 - Evaluation of Theory-based HPE Interventions - Part I
- Lecture 37 - Evaluation of Theory-based HPE Interventions - Part II
- Lecture 38 - Analyzing Health Behavior Change Data
- Lecture 39 - RE-AIM Framework for Health Promotion Program Evaluation
- Lecture 40 - Health Impact Assessment

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Basics of Mental Health and Clinical Psychiatry

Subject Co-ordinator - Prof. Arijita Banerjee, Prof. Sumit Kumar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Neuroanatomy  
Lecture 2 - Cerebellum  
Lecture 3 - Basal Ganglia  
Lecture 4 - Thalamus and Hypothalamus  
Lecture 5 - Cerebral Cortex  
Lecture 6 - Synapse and Neurotransmitters - 1  
Lecture 7 - Synapse and Neurotransmitters - 2  
Lecture 8 - Limbic System  
Lecture 9 - Physiology of Emotions  
Lecture 10 - Reticular Formation  
Lecture 11 - Electrical activity of brain  
Lecture 12 - Descriptive Psychopathology  
Lecture 13 - Principles of Personality Development  
Lecture 14 - Schizophrenia  
Lecture 15 - Mood Disorders - 1  
Lecture 16 - Mood Disorders - 2  
Lecture 17 - Anxiety Disorders - I  
Lecture 18 - Anxiety Disorders - II  
Lecture 19 - Eating Disorders  
Lecture 20 - Physiology of sleep  
Lecture 21 - Sleep Disorders  
Lecture 22 - Learning and Memory - 1  
Lecture 23 - Learning and Memory - 2  
Lecture 24 - Neurocognitive Disorders - I  
Lecture 25 - Neurocognitive Disorders - II  
Lecture 26 - Substance - I  
Lecture 27 - Substance - II  
Lecture 28 - Physiology of sensations  
Lecture 29 - Psychosomatic Illness

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Emergency Psychiatry
- Lecture 31 - Child Psychiatry - I
- Lecture 32 - Child Psychiatry - II
- Lecture 33 - Psychotherapy - I
- Lecture 34 - Psychotherapy - II
- Lecture 35 - Psychological Tests
- Lecture 36 - Anti-psychotic drugs
- Lecture 37 - Antidepressants
- Lecture 38 - Mood Stabilizer
- Lecture 39 - Anti-anxiety drugs
- Lecture 40 - Forensic Psychiatry

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Introduction to Reliability Engineering

Subject Co-ordinator - Prof. Neeraj Kumar Goyal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Reliability Engineering  
Lecture 2 - Introduction to Reliability Engineering  
Lecture 3 - Introduction to Reliability Engineering  
Lecture 4 - Probability Basics  
Lecture 5 - Probability Basics (Continued...)  
Lecture 6 - Constant Failure Rate Model - I  
Lecture 7 - Constant Failure Rate Model - II  
Lecture 8 - Constant Failure Rate Model - III  
Lecture 9 - Two Parameter Exponential Distribution  
Lecture 10 - Weibull Distribution (2 Parmeter)  
Lecture 11 - Burn-in Screening for Weibull  
Lecture 12 - Weibull Distribution  
Lecture 13 - Normal Distribution  
Lecture 14 - Lognormal Distribution  
Lecture 15 - System Reliability Modelling  
Lecture 16 - System Reliability Modelling (Continued...)  
Lecture 17 - System Reliability Modelling (Continued...)  
Lecture 18 - System Reliability Modelling (Continued...)  
Lecture 19 - System Reliability Modelling (Continued...)  
Lecture 20 - System Reliability Modelling (Continued...)  
Lecture 21 - Markov Analysis  
Lecture 22 - Markov Analysis (Continued...)  
Lecture 23 - Markov Analysis (Continued...)  
Lecture 24 - Markov Analysis (Continued...)  
Lecture 25 - Markov Analysis (Continued...)  
Lecture 26 - Failure Data Analysis: Non-Parametric Approach  
Lecture 27 - Failure Data Analysis: Non-Parametric Approach (Continued...)  
Lecture 28 - Failure Data Analysis: Non-Parametric Approach (Continued...)  
Lecture 29 - Failure Data Analysis: Non-Parametric Approach (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Failure Data Analysis (Parametric)
- Lecture 31 - Failure data analysis (Parametric) (Continued...)
- Lecture 32 - Failure data analysis (Parametric) (Continued...)
- Lecture 33 - Goodness of fit
- Lecture 34 - Goodness of Fit (GoF) Tests
- Lecture 35 - Goodness of Fit (GoF) Tests (Continued...)
- Lecture 36 - Maintainability and Availability
- Lecture 37 - Maintainability and Availability (Continued...)
- Lecture 38 - Maintainability and Availability (Continued...)
- Lecture 39 - Maintainability and Availability (Continued...)
- Lecture 40 - Summary of the course Introduction to Reliability Engineering



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Nanobio Technology Enabled Point-of-Care Devices

Subject Co-ordinator - Prof. Gorachand Dutta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Biosensors and its Application
- Lecture 3 - Translational Research and Nano Biosensing
- Lecture 4 - Nanomaterials for Healthcare Biosensing
- Lecture 5 - Signal Amplification for Ultrasensitive Biosensors
- Lecture 6 - Signal Amplification for Ultrasensitive Biosensors (Continued...)
- Lecture 7 - Signal Amplification for Ultrasensitive Biosensors (Continued...)
- Lecture 8 - Signal Amplification for Ultrasensitive Biosensors (Continued...)
- Lecture 9 - Different Measurement Techniques for Electrochemical Biosensors
- Lecture 10 - Limit of Detection and Wash-Free Detection for Biosensors
- Lecture 11 - Wash-Free Detection for Biosensors (Continued...)
- Lecture 12 - Label-Free Detection for Biosensors
- Lecture 13 - Label-free detection and Multiplex Biosensors
- Lecture 14 - Multiplex Biosensors (Continued...)
- Lecture 15 - Strategy for Electrochemical Detection and Tuning of Electrocatalytic Activities
- Lecture 16 - Enhanced electrocatalytic activity for biosensors
- Lecture 17 - Strategy for Electrochemical Detection and Tuning of Electrocatalytic Activities
- Lecture 18 - Strategy for Electrochemical Detection and Tuning of Electrocatalytic Activities
- Lecture 19 - Strategy for Electrochemical Detection and Tuning of Electrocatalytic Activities
- Lecture 20 - Strategy for Electrochemical Detection and Tuning of Electrocatalytic Activities
- Lecture 21 - Strategy for Electrochemical Detection and Tuning of Electrocatalytic Activities
- Lecture 22 - Strategy for Electrochemical Detection and Tuning of Electrocatalytic Activities
- Lecture 23 - Effect of pretreatment on PCB and biosensor development
- Lecture 24 - Impact of surface Roughness of PCB and PCB for Glucose sensors
- Lecture 25 - Tutorial on Biosensors Fabrication
- Lecture 26 - Tutorial on Biosensors Fabrication (Continued...)
- Lecture 27 - Tutorial on Biosensors Fabrication (Continued...)
- Lecture 28 - Tutorial on Biosensors Fabrication (Continued...)
- Lecture 29 - Tutorial on Biosensors Fabrication (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial on Biosensors Fabrication (Continued...)
- Lecture 31 - Self-Powered Biosensors
- Lecture 32 - Biosensors for Safety and Security
- Lecture 33 - Research Proposal and Ethical Clearance
- Lecture 34 - Special Chemistry for Biosensing
- Lecture 35 - Tutorial - 2
- Lecture 36 - Tutorial - 3
- Lecture 37 - Tutorial - 4
- Lecture 38 - Lab Demonstration - 1
- Lecture 39 - Lab Demonstration - 2
- Lecture 40 - Lab Demonstration - 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Adolescent Health and Well-Being : A Holistic Approach

Subject Co-ordinator - Dr. Sumana Samanta, Dr. Parmeshwar Satpathy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Adolescent Health Statistics
- Lecture 2 - Introduction to Nutrition and Dietetics
- Lecture 3 - Role of Macronutrients
- Lecture 4 - Role of Micronutrients
- Lecture 5 - Basics of Adolescent Mental Health
- Lecture 6 - Physiological and Psychological changes during Adolescence
- Lecture 7 - Special Nutritional Requirements in Adolescents
- Lecture 8 - Malnutrition in Adolescents and their effects in Adult life
- Lecture 9 - Adolescent Immunization
- Lecture 10 - High risk behaviour in Adolescents
- Lecture 11 - Nutrition Care Process
- Lecture 12 - Dietary Counseling and Nutrition Planning
- Lecture 13 - Common Micronutrient Deficiency in Adolescents
- Lecture 14 - Eating Disorders in Adolescents
- Lecture 15 - National Initiatives related to Adolescents
- Lecture 16 - Behavior Modification for Weight Management
- Lecture 17 - Adolescents And Physical Activity
- Lecture 18 - Combating Special Situations
- Lecture 19 - Legislations for Adolescents
- Lecture 20 - Innovations for Holistic Well-being of Adolescents

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Research Methods in Health Promotion

Subject Co-ordinator - Dr. Arista Lahiri, Dr. Sweety Suman Jha, Prof. Madhumita Dobe

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basics of Health Promotion
- Lecture 2 - Basic Principles of Health Promotion
- Lecture 3 - The Health Promotion Research Process
- Lecture 4 - Process of Health Promotion Research: Integrity and Rigor
- Lecture 5 - Ethics in Health Promotion Research
- Lecture 6 - Health Behavior and Health Behavior Change
- Lecture 7 - Theory, Research and Behavior Change Techniques
- Lecture 8 - Intervention Mapping
- Lecture 9 - Ecological Models of Health Behavior
- Lecture 10 - Social Science Techniques
- Lecture 11 - Precede-Proceed Model
- Lecture 12 - Models of Individual Health Behavior - I
- Lecture 13 - Models of Individual Health Behavior - II
- Lecture 14 - Models of Interpersonal Health Behavior
- Lecture 15 - Community and Group Models of Health Behavior Change
- Lecture 16 - Research design and techniques
- Lecture 17 - Observational research designs
- Lecture 18 - Experimental Research Designs
- Lecture 19 - Experimental Research Designs: Issues and Challenges
- Lecture 20 - Measurements in Health promotion
- Lecture 21 - Qualitative methods in Health Promotion - Part I
- Lecture 22 - Qualitative Methods in Health Promotion - Part II
- Lecture 23 - Qualitative Methods in Health Promotion - Part III
- Lecture 24 - Qualitative Methods in Health Promotion - Part IV
- Lecture 25 - Qualitative Methods in Health Promotion - Part V
- Lecture 26 - Introduction to Mixed Methods Research
- Lecture 27 - The Convergent Design
- Lecture 28 - The Explanatory Sequential Design
- Lecture 29 - The Exploratory Sequential Design (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Embedded Design
- Lecture 31 - Different study tools and their application in health promotion research
- Lecture 32 - Formulating an appropriate study tool (Quantitative data collection tools)
- Lecture 33 - Validity and reliability of study tools in quantitative research - Part I
- Lecture 34 - Validity and reliability of study tools in quantitative research - Part II
- Lecture 35 - Formulating an appropriate study tool(Qualitative data collection tools)
- Lecture 36 - Designing messages - Part I
- Lecture 37 - Designing messages - Part II
- Lecture 38 - Materials and Methods of Intervention Delivery - Part I
- Lecture 39 - Materials and Methods of Intervention Delivery - Part II
- Lecture 40 - Pretesting of an intervention tool
- Lecture 41 - BCC and SBCC - Part I
- Lecture 42 - BCC and SBCC - Part II
- Lecture 43 - BCC and SBCC - Part III
- Lecture 44 - BCC and SBCC - Part IV
- Lecture 45 - BCC and SBCC - Part V
- Lecture 46 - Community-Based Participatory Research in context to Health Promotion - Part I
- Lecture 47 - Community-Based Participatory Research in context to Health Promotion - Part II
- Lecture 48 - Community-Based Participatory Research in context to Health Promotion - Part III
- Lecture 49 - Community-Based Participatory Research in context to Health Promotion - Part IV
- Lecture 50 - Community-Based Participatory Research in context to Health Promotion - Part V
- Lecture 51 - Quantitative analytical methods - Part I
- Lecture 52 - Quantitative analytical methods - Part II
- Lecture 53 - Quantitative analytical methods - Part III
- Lecture 54 - Analysis of Qualitative data
- Lecture 55 - Analyzing Mixed Methods data
- Lecture 56 - Developing a research proposal in health promotion
- Lecture 57 - Report writing in health Promotion: An Overview
- Lecture 58 - Report writing: quantitative research in health promotion - Part I
- Lecture 59 - Report writing: quantitative research in health promotion - Part II
- Lecture 60 - Report Writing: Qualitative and Mixed Methods research

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Urban Ecological Heritagescapes through Interactive Governance:

Subject Co-ordinator - Prof. Jenia Mukherjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Urban Heritage - Global Conventions and Declarations

Lecture 3 - Historical Urban Landscape (HUL) - Approach, Toolkit, and Actions

Lecture 4 - Urban Heritage - The Indian Context

Lecture 5 - SDG(s) 11(.4) - Transdisciplinary Possibilities, Pathways, and Actions

Lecture 6 - Historicizing lakes of Bangalore - social-ecological perspectives

Lecture 7 - Urban environmentalisms - lake-based and rights-based

Lecture 8 - Example 1: The Jakkur Lake

Lecture 9 - Example 2: The Puttenahalli Lake

Lecture 10 - Example 3: The Kaikondrahalli Lake

Lecture 11 - Kolkata's heritage - Applying the urban ecological heritage lens

Lecture 12 - Kolkata and EKW - conveying the co-evolutionary narrative

Lecture 13 - Living Systems infrastructure of Kolkata

Lecture 14 - Case study 1: The Nalban and Goltala Fisheries

Lecture 15 - Case study 2: Baro Chaynavi Cooperative

Lecture 16 - Case study 3: Jhagrashisha

Lecture 17 - EKW as heritage - Lessons from a Practical Empirical Implementation Project - I

Lecture 18 - EKW as heritage - Lessons from a Practical Empirical Implementation Project - I

Lecture 19 - Conclusions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Experimental Robotics

Subject Co-ordinator - Prof. Dilip Kumar Pratihari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Experiment 1: Teaching of Serial Manipulator

Lecture 3 - Experimentation I

Lecture 4 - Experiment 1: Teaching of Serial Manipulator (Continued...)

Lecture 5 - Experiment 2: Control of Tracked Mobile Manipulator

Lecture 6 - Experimentation II

Lecture 7 - Experiment 2: Control of Tracked Mobile Manipulator (Continued...)

Lecture 8 - Experiment 3: Path and Gait Planning of Six-legged Robot

Lecture 9 - Experimentation III

Lecture 10 - Experiment 3: Path and Gait Planning of Six-legged Robot (Continued...)

Lecture 11 - Experiment 4: Navigation of Drone

Lecture 12 - Experimentation IV

Lecture 13 - Experimentation IV (Continued...)

Lecture 14 - Experiment 5: Path and Gait Planning of 25 dof NAO Humanoid Robot

Lecture 15 - Experimentation V

Lecture 16 - Experiment 5: Path and Gait Planning of 25 dof NAO Humanoid Robot (Continued...)

Lecture 17 - Current Trends in Robotics Research

Lecture 18 - Summary of the Course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Medical Law

Subject Co-ordinator - Prof. Narendran Thiruthy, Prof. Chaitanya Mittal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Interface between Medical Profession and Law
- Lecture 2 - Role of Medical practitioners in Justice Administration
- Lecture 3 - Dos and Don'ts of Doctors
- Lecture 4 - Dos and Don'ts for Legal Practitioners
- Lecture 5 - Knowledge exchange between Medical and Legal Practitioners
- Lecture 6 - Consent in Law
- Lecture 7 - Types of Consent in Medical Field
- Lecture 8 - Ethics in Medical Profession
- Lecture 9 - Importance of Documentation in Medical practice
- Lecture 10 - Legal Implications of Improper Documentation
- Lecture 11 - Legal Responsibilities of Medical Practitioners
- Lecture 12 - Medical Negligence and Legal Implications
- Lecture 13 - Legal Implications of Medical Malpractice
- Lecture 14 - Landmark Judgments on Medical Negligence
- Lecture 15 - Testimony of Doctors in Medical Negligence
- Lecture 16 - Healthcare Policy and Law
- Lecture 17 - Clinical Establishment Law
- Lecture 18 - Legal liability of Hospitals/Clinical Establishments
- Lecture 19 - Legal responsibility in Diagnostics
- Lecture 20 - Penalties for non-compliance
- Lecture 21 - Role of IPR in promoting medical innovation and technologies
- Lecture 22 - Health Policy formulation and Role of IPR
- Lecture 23 - Intellectual Property and Access to Medicine
- Lecture 24 - Neglected diseases and Role of IPR
- Lecture 25 - Patenting Therapeutic Practices and Techniques
- Lecture 26 - Duties of Doctor in Courts
- Lecture 27 - Evidence Law and Medical experts
- Lecture 28 - Admissibility of Forensic Evidence
- Lecture 29 - Various Legal procedures in Medical practice

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Collection, preservation and dispatch of Forensic Evidence
- Lecture 31 - Ethical insight into different aspects of Surrogacy practice
- Lecture 32 - Surrogacy Regulation in India
- Lecture 33 - Assisted Reproductive Technology Regulation in India
- Lecture 34 - Pre-Conception and Pre-Natal Diagnostic
- Lecture 35 - Penalties for non-compliance
- Lecture 36 - Ethical Issues in Organ Transplantation
- Lecture 37 - Law governing organ transplantation
- Lecture 38 - Comparative Law on Organ Transplantation
- Lecture 39 - Medico-Legal Issues in Clinical Trials
- Lecture 40 - Regulatory Law for Clinical Trials in India

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:An Overview on Maternal Health Antenatal, Intranatal and Postnatal

Subject Co-ordinator - Prof. Barnali Ghosh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of Obstetrics
- Lecture 2 - Anatomy of Vulva or pudendum
- Lecture 3 - Anatomy of Vagina
- Lecture 4 - Anatomy of Cervix and Uterus
- Lecture 5 - Anatomy of Uterus
- Lecture 6 - Anatomy of fallopian tubes and ovary
- Lecture 7 - Anatomy of pelvic floor and perineum
- Lecture 8 - Gametogenesis
- Lecture 9 - Fertilisation and Embryogenesis
- Lecture 10 - Implantation
- Lecture 11 - Placentation (normal and abnormal)
- Lecture 12 - Placentation (normal and abnormal) (Continued...)
- Lecture 13 - Umbilical cord and Fetal membranes - Part 1
- Lecture 14 - Umbilical cord and Fetal membranes - Part 2
- Lecture 15 - FETUS (physiology and circulation)
- Lecture 16 - Physiological changes in pregnancy - Part 1
- Lecture 17 - Physiological changes in pregnancy - Part 2
- Lecture 18 - Physiological changes in pregnancy - Part 3
- Lecture 19 - Hormones in pregnancy
- Lecture 20 - Hormones in pregnancy (Continued...)
- Lecture 21 - Diagnosis of pregnancy - 1
- Lecture 22 - Diagnosis of Pregnancy - 2
- Lecture 23 - Obstetrical Examination
- Lecture 24 - Obstetrical Examination on antenatal mother (Clinical Study)
- Lecture 25 - Maternal Pelvis & Foetal Skull - Part 1
- Lecture 26 - Fetal Skull
- Lecture 27 - Pre-conceptional counselling and care
- Lecture 28 - Nutrition in Pregnancy
- Lecture 29 - Antenatal Care - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Antenatal Care - Part 2
- Lecture 31 - Antenatal Care - Part 3
- Lecture 32 - Antenatal Assessment of Fetal Well-Being - Part 1
- Lecture 33 - Antenatal Assessment of Fetal Well-Being - Part 2
- Lecture 34 - Antenatal Assessment of Fetal Well-Being - Part 3
- Lecture 35 - Prenatal Screening and Diagnosis of aneuploidies
- Lecture 36 - Invasive and non-invasive Prenatal Diagnostic Test
- Lecture 37 - Invasive and non-invasive Prenatal Diagnostic Test (Continued...)
- Lecture 38 - Fetal Imaging and Amniotic Fluid Study
- Lecture 39 - Fetal Imaging and Amniotic Fluid Study
- Lecture 40 - Teratology, Teratogens and fetotoxic agents - Part 1
- Lecture 41 - Teratology, Teratogens and fetotoxic agents - Part 2
- Lecture 42 - Normal Labour - Stages and cause of onset
- Lecture 43 - Physiology of Labor
- Lecture 44 - Events of Normal Labour
- Lecture 45 - Mechanism of Normal Labour
- Lecture 46 - Mechanism of Normal Labour (Continued...)
- Lecture 47 - Clinical course of Labour
- Lecture 48 - Monitoring of Normal Labour - Part 1
- Lecture 49 - Monitoring of Normal Labour - Part 2
- Lecture 50 - Labour Analgesia
- Lecture 51 - Labour Analgesia (Continued...)
- Lecture 52 - Abnormal Labour
- Lecture 53 - Intrapartum Fetal Monitoring - Partogram
- Lecture 54 - Intrapartum Fetal Monitoring - Cardiotocography (CTG)
- Lecture 55 - Intrapartum Fetal Monitoring - Cardiotocography (CTG) (Continued...)
- Lecture 56 - Induction and Augmentation of Labour
- Lecture 57 - WHO Labour Guide
- Lecture 58 - Episiotomy
- Lecture 59 - Instrumental Vaginal Delivery
- Lecture 60 - Obstetric anal sphincter injuries OASIS
- Lecture 61 - Lower Segment Caesarean Section
- Lecture 62 - Normal Puerperal changes
- Lecture 63 - Management of Puerperium
- Lecture 64 - Post-Natal care and postpartum contraception
- Lecture 65 - Maternal Health Indicators and demographic scenario
- Lecture 66 - Government health programmes related to Maternal Health
- Lecture 67 - Government health programmes related to Maternal Health (Continued...)
- Lecture 68 - Comprehensive Abortion Care (MTP Amendment Act 2021)

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Recommender Systems

Subject Co-ordinator - Prof. Mamata Jenamani

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Recommender system and its business value
- Lecture 2 - Types of recommender system - I
- Lecture 3 - Types of recommender system - II
- Lecture 4 - Data Collection
- Lecture 5 - Data Description
- Lecture 6 - Data preprocessing
- Lecture 7 - Dimensionality Reduction
- Lecture 8 - Introduction to machine learning - I
- Lecture 9 - Introduction to machine learning - II
- Lecture 10 - Introduction to machine learning - III
- Lecture 11 - Distance and Similarity
- Lecture 12 - Distance and Similarity (Continued...)
- Lecture 13 - User-Based Approach
- Lecture 14 - Item-Based Approach
- Lecture 15 - Additional Topics in Neighbourhood Based Approach
- Lecture 16 - Association rule based model
- Lecture 17 - UV Decomposition
- Lecture 18 - The latent factor model
- Lecture 19 - Basic latent factor models
- Lecture 20 - Other advanced models
- Lecture 21 - Introduction to content based recommender system: Foundations
- Lecture 22 - Feature Engineering - I
- Lecture 23 - Feature Engineering - II
- Lecture 24 - Feature Engineering - III
- Lecture 25 - Feature Engineering - IV
- Lecture 26 - Decision Trees for content based recommendation
- Lecture 27 - Naïve Bayes classifier for content based recommendation
- Lecture 28 - kNN Classifier for Recommender System
- Lecture 29 - Rule based classification

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Regression methods and conclusions
- Lecture 31 - Introduction to evaluation of recommender system
- Lecture 32 - Resampling methods
- Lecture 33 - Evaluation metrics for accuracy
- Lecture 34 - Drawing reliable conclusions - I
- Lecture 35 - Drawing reliable conclusions - II
- Lecture 36 - Hybrid recommender systems
- Lecture 37 - Knowledge based recommender systems
- Lecture 38 - Context-Sensitive recommender systems
- Lecture 39 - Structural Recommendations in Networks
- Lecture 40 - Trust aware recommender systems

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Comprehensive Molecular Diagnostics and Advanced Gene Expression

Subject Co-ordinator - Prof. Arindam Ghosh, Prof. Aritri Bir

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Foundation of Molecular Biology
- Lecture 2 - DNA Replication and Repair Mechanism
- Lecture 3 - Transcription (RNA Synthesis)
- Lecture 4 - Protein Synthesis (Translation)
- Lecture 5 - Nucleic Acid Isolation and Detection Methods
- Lecture 6 - PCR (Polymerase Chain Reaction) Fundamentals
- Lecture 7 - Realtime PCR - Part 1
- Lecture 8 - Realtime PCR - Part 2
- Lecture 9 - Variations of the PCR - Part 1
- Lecture 10 - Variations of the PCR - Part 2
- Lecture 11 - DNA Cloning and Recombinant DNA technology - I
- Lecture 12 - DNA Cloning and Recombinant DNA technology - II
- Lecture 13 - DNA Cloning and Recombinant DNA technology - III
- Lecture 14 - Genome Editing Technologies - I
- Lecture 15 - Genome Editing Technologies - II
- Lecture 16 - DNA Microarray
- Lecture 17 - FISH (Fluorescence in situ Hybridization)
- Lecture 18 - Methods to study DNA-protein interaction - I
- Lecture 19 - Methods to study DNA-protein interaction - II
- Lecture 20 - Epigenetics and DNA methylation analysis
- Lecture 21 - DNA Sequencing - Part 1 - Maxam Gilbert Sequencing
- Lecture 22 - DNA Sequencing - Part 2 - Sanger Sequencing
- Lecture 23 - Next Generation Sequencing - Part 1
- Lecture 24 - Next Generation Sequencing - Part 2
- Lecture 25 - Next Generation Sequencing - Part 3
- Lecture 26 - Overview, Importance, Methods in Proteomics
- Lecture 27 - Proteomic Techniques - High performance liquid chromatography (HPLC)
- Lecture 28 - Proteomic Techniques - Mass Spectrometry
- Lecture 29 - Proteomic Techniques - Differential in-gel electrophoresis

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Proteomic Techniques - Protein Microarray
- Lecture 31 - Label-based Protein Quantification Technologies - Part 1
- Lecture 32 - Label-based Protein Quantification Technologies - Part 2
- Lecture 33 - Label free methods of protein quantification
- Lecture 34 - Next Generation Proteomics
- Lecture 35 - Proteomic Data Analysis and Bioinformatic Tools
- Lecture 36 - Syndromic Panels and Multiplex Assay : Molecular identification of Microorganism
- Lecture 37 - Molecular Diagnostics in Antimicrobial Resistance Testing
- Lecture 38 - RNA Sequencing: Role in Infectious diseases - I
- Lecture 39 - RNA Sequencing: Role in Infectious diseases - II
- Lecture 40 - Point of Care (POC) diagnostics in Infectious diseases
- Lecture 41 - Molecular genetics in tumorogenesis
- Lecture 42 - Liquid biopsies in cancer detection
- Lecture 43 - Digital PCR in Cancer detection
- Lecture 44 - Mutation Detection Methods
- Lecture 45 - Isothermal Nucleic Acid Amplification
- Lecture 46 - Genetic Testing and Inherited Disorders - Part 1
- Lecture 47 - Genetic Testing and Inherited Disorders - Part 2
- Lecture 48 - Prenatal diagnostics and NIPT
- Lecture 49 - Reproductive genetics and genetic counselling
- Lecture 50 - Genetic counselling and patient education
- Lecture 51 - Serial Analysis of Gene Expression
- Lecture 52 - Metabolomics in Molecular Diagnostics
- Lecture 53 - Immunoassay and Luminex Multiplex Assay
- Lecture 54 - Molecular diagnostics in Metabolic, Cardiovascular and Gastrointestinal disorders
- Lecture 55 - Molecular diagnostics in Endocrine, Neurodegenerative and Transplantation disorders
- Lecture 56 - Pharmacogenomics and Personalized Medicine
- Lecture 57 - Quality control (QC) in molecular diagnostics
- Lecture 58 - Ethical concerns in molecular diagnostics
- Lecture 59 - Artificial Intelligence and Machine learning in Genomics
- Lecture 60 - Integration of Multiomics Data in Molecular Diagnostics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Neuroscience of Human Movement

Subject Co-ordinator - Prof. Varadhan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 0 - Neuroscience of Human Movement  
Lecture 1 - Membrane Physiology - Part 1  
Lecture 2 - Membrane Physiology - Part 2  
Lecture 3 - Nernst Equation  
Lecture 4 - Goldman Equation  
Lecture 5 - Action Potential - Part 1  
Lecture 6 - Action Potential - Part 2  
Lecture 7 - Action Potential - Part 3  
Lecture 8 - Action Potential - Part 4  
Lecture 9 - Action Potential - Part 5  
Lecture 10 - Review of Action Potential and Neurotransmitters  
Lecture 11 - Neuromuscular Junction  
Lecture 12 - Disorders of Neuromuscular Junction  
Lecture 13 - Skeletal Muscles - Part 1  
Lecture 14 - Skeletal Muscles - Part 2  
Lecture 15 - Skeletal Muscles - Part 3  
Lecture 16 - Skeletal Muscles - Part 4  
Lecture 17 - Muscle force production  
Lecture 18 - Motor Units - Part 1  
Lecture 19 - Motor Units - Part 2  
Lecture 20 - Motor Units - PIC and EMG  
Lecture 21 - Receptors - Part 1  
Lecture 22 - Receptors - Part 2  
Lecture 23 - Spine and Spinal Cord  
Lecture 24 - Excitation and Inhibition within Spinal Cord - Part 1  
Lecture 25 - Excitation and Inhibition within Spinal Cord - Part 2  
Lecture 26 - Monosynaptic Reflexes - Part 1  
Lecture 27 - Monosynaptic Reflexes - Part 2  
Lecture 28 - Monosynaptic Reflexes - Part 3

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Oligosynaptic and Polysynaptic Reflexes - Part 1
- Lecture 30 - Oligosynaptic and Polysynaptic Reflexes - Part 2
- Lecture 31 - Pre-Programmed Reactions - Part 1
- Lecture 32 - Pre-Programmed Reactions - Part 2
- Lecture 33 - Spinal Cord Injuries and Central Pattern Generators
- Lecture 34 - Animal Preparations for Neuroscience Experiments
- Lecture 35 - Overview of motor control system
- Lecture 36 - Terminology
- Lecture 37 - Primary Motor Cortex - Part 2
- Lecture 38 - Primary Motor Cortex - Part 3
- Lecture 39 - Primary Motor Cortex - Part 4
- Lecture 40 - Primary Motor Cortex - Part 5
- Lecture 41 - Primary Motor Cortex - Part 6
- Lecture 42 - Primary Motor Cortex - Part 7
- Lecture 43 - Primary Motor Cortex - Part 8
- Lecture 44 - Primary Motor Cortex - Part 9
- Lecture 45 - Primary Motor Cortex - Part 10
- Lecture 46 - Primary Motor Cortex - Part 11
- Lecture 47 - Primary Motor Cortex - Part 12
- Lecture 48 - Primary Motor Cortex - Part 13
- Lecture 49 - Primary Motor Cortex - Part 14
- Lecture 50 - Primary Motor Cortex - Part 15
- Lecture 51 - Cerebellum - Part 1
- Lecture 52 - Cerebellum - Part 2
- Lecture 53 - Cerebellum - Part 3
- Lecture 54 - Cerebellum - Part 4
- Lecture 55 - Cerebellum - Part 5
- Lecture 56 - Cerebellum - Part 6
- Lecture 57 - Cerebellum - Part 7
- Lecture 58 - Cerebellum - Part 8
- Lecture 59 - Cerebellum - Part 9
- Lecture 60 - Cerebellum - Part 10
- Lecture 61 - Cerebellum - Part 11
- Lecture 62 - Cerebellum - Part 12
- Lecture 63 - Basal Ganglia - Part 1
- Lecture 64 - Basal Ganglia - Pathways
- Lecture 65 - Basal Ganglia - Inputs
- Lecture 66 - Basal Ganglia - Outputs
- Lecture 67 - Basal Ganglia - Various Functions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 68 - Basal Ganglia - Motor Functions
- Lecture 69 - Basal Ganglia - Motor Functions.
- Lecture 70 - Basal Ganglia - Dopamine and Acetylcholine
- Lecture 71 - Basal Ganglia - Disorders
- Lecture 72 - Parkinson's Disease - Intro
- Lecture 73 - Parkinson's Disease - Rate Model, Pathophysiology
- Lecture 74 - Parkinson's Disease - Current therapeutic approaches and the future
- Lecture 75 - Basal Ganglia - Various Disorders
- Lecture 76 - Neuropsychiatric disorders due to BG dysfunction
- Lecture 77 - Parietal and Premotor Cortex - Part 1
- Lecture 78 - Parietal and Premotor Cortex - Part 2
- Lecture 79 - Parietal and Premotor Cortex - Part 3
- Lecture 80 - Parietal and Premotor Cortex - Part 4
- Lecture 81 - Parietal and Premotor Cortex - Part 5
- Lecture 82 - Parietal and Premotor Cortex - Part 6

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Manage TB

Subject Co-ordinator - Dr. M S Jawahar, Dr.V.V.Banu Rekha, Prof. Mohan Natrajan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - How is TB affecting public health Globally and Nationally

Lecture 2 - Epidemiology of TB-Session - 1

Lecture 3 - Epidemiology of TB-Session - 2

Lecture 4 - Pathogenesis of TB-Session - 1

Lecture 5 - Pathogenesis of TB-Session - 2

Lecture 6 - Clinical manifestations of TB-Session - 1

Lecture 7 - Clinical manifestations of TB-Session - 2

Lecture 8 - Clinical manifestations of TB-Session - 3

Lecture 9 - Bacteriological Diagnosis of Tuberculosis - Smear and Culture

Lecture 10 - Demonstration of processing of sputum specimen for culture for diagnosis of tuberculosis

Lecture 11 - Demonstration of sputum smear examination for diagnosis of tuberculosis

Lecture 12 - Demonstration of solid culture method for diagnosis of tuberculosis

Lecture 13 - Demonstration of liquid culture method for diagnosis of tuberculosis in sputum

Lecture 14 - Phenotypic drug susceptibility testing in Tuberculosis

Lecture 15 - Demonstration of drug susceptibility testing of first line anti-TB drugs by liquid culture

Lecture 16 - Molecular Diagnosis of Tuberculosis-Session - 1

Lecture 17 - Molecular Diagnosis of Tuberculosis-Session - 2

Lecture 18 - Demonstration of Xpert MTB-RIF assay for diagnosis of tuberculosis from sputum specimens

Lecture 19 - Demonstration of Line Probe Assay (LPA) (Direct detection of tuberculosis and resistance to isoniazid)

Lecture 20 - Radiology in diagnosis of Tuberculosis-Session - 1

Lecture 21 - Radiology in diagnosis of Tuberculosis-Session - 2

Lecture 22 - Radiology in diagnosis of Tuberculosis-Session - 3

Lecture 23 - Radiology in diagnosis of Tuberculosis-Session - 4

Lecture 24 - Approach to diagnosis of Pulmonary TB

Lecture 25 - Case Discussion-Approach to diagnosis of TB in a person with presumptive pulmonary TB

Lecture 26 - Case Discussion-Approach to diagnosis of pulmonary TB in a patient with negative sputum smear for TB

Lecture 27 - Approach to diagnosis of Extra-pulmonary TB

Lecture 28 - Case Discussion-Approach to diagnosis of TB in a person with swelling in the neck

Lecture 29 - Case Discussion-Approach to diagnosis of TB spine

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diagnosis of Childhood Tuberculosis-Session - 1
- Lecture 31 - Diagnosis of Childhood Tuberculosis-Session - 2
- Lecture 32 - Video demonstration of gastric fluid aspiration technique in a child
- Lecture 33 - Case Discussion-Approach to diagnosis of TB in a child with presumptive pulmonary TB
- Lecture 34 - Case Discussion-Approach to diagnosis of TB meningitis in a child
- Lecture 35 - Drugs for treating Tuberculosis and Principles of Chemotherapy-Session - 1
- Lecture 36 - Drugs for treating Tuberculosis and Principles of Chemotherapy-Session - 2
- Lecture 37 - Treatment of Drug Sensitive Pulmonary Tuberculosis
- Lecture 38 - Case discussion-Approach to treatment of drug sensitive TB
- Lecture 39 - Management of drug resistant Tuberculosis-Session - 1
- Lecture 40 - Management of drug resistant Tuberculosis-Session - 2
- Lecture 41 - Case discussion-Approach to treatment of Multi-drug resistant TB (MDR-TB)/ Extensively drug resistant TB
- Lecture 42 - Management of Extra-pulmonary Tuberculosis-Session - 1
- Lecture 43 - Management of Extra-pulmonary Tuberculosis-Session - 2
- Lecture 44 - Panel discussion-Practical difficulties in the management of Extra-pulmonary TB
- Lecture 45 - Management of patients with HIV-TB coinfection-Session - 1
- Lecture 46 - Management of patients with HIV-TB coinfection-Session - 2
- Lecture 47 - Case discussion-Approach to management of HIV-TB
- Lecture 48 - Management of TB in special situations
- Lecture 49 - Case discussion-Approach to management of TB in pregnancy
- Lecture 50 - Treatment of Pediatric Tuberculosis-Session - 1
- Lecture 51 - Treatment of Pediatric Tuberculosis-Session - 2
- Lecture 52 - Management of Adverse effects to anti-TB drugs-Session - 1
- Lecture 53 - Management of Adverse effects to anti-TB drugs-Session - 2
- Lecture 54 - Case discussion-Approach to management of jaundice during anti-TB treatment
- Lecture 55 - Case discussion-Approach to management of skin rashes during anti-TB treatment
- Lecture 56 - Non-tuberculous Mycobacteria- Diagnosis and Clinical management-Session - 1
- Lecture 57 - Non-tuberculous Mycobacteria - Diagnosis and Clinical Management Session - 2
- Lecture 58 - Newer Anti-TB drugs and regimens-Session - 1
- Lecture 59 - Newer Anti-TB drugs and regimens-Session - 2
- Lecture 60 - Management of Latent TB Infection-Session - 1
- Lecture 61 - Management of Latent TB Infection-Session - 2
- Lecture 62 - Airborne infection control in tuberculosis-Session - 1
- Lecture 63 - Airborne infection control in tuberculosis-Session - 2
- Lecture 64 - Vaccine for Tuberculosis-Session - 1
- Lecture 65 - Vaccine for Tuberculosis-Session - 2
- Lecture 66 - Services offered by Revised National TB Control Programme (RNTCP)-Session - 1
- Lecture 67 - Services offered by Revised National TB Control Programme (RNTCP)-Session - 2
- Lecture 68 - Services offered by Revised National TB Control Programme (RNTCP)-Session - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Services offered by Revised National TB Control Programme (RNTCP)-Session - 4
- Lecture 70 - Tuberculosis notification-Session - 1
- Lecture 71 - Tuberculosis notification-Session - 2
- Lecture 72 - Addressing Social Barriers in Tuberculosis Control-Session - 1
- Lecture 73 - Addressing Social Barriers in Tuberculosis Control-Session - 2
- Lecture 74 - Standards for TB Care in India-Session - 1
- Lecture 75 - Standards for TB Care in India-Session - 2
- Lecture 76 - Global Tuberculosis Control Strategies

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Ecology and Environment

Subject Co-ordinator - Dr. Abhijit P. Deshpande

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Sustainability
- Lecture 2 - Dams
- Lecture 3 - Dams
- Lecture 4 - Adayar River
- Lecture 5 - Adayar River
- Lecture 6 - Urbanisation in Western Ghats and Biodiesel
- Lecture 7 - Use And Throw Plastic
- Lecture 8 - Nano Materials Information Technology
- Lecture 9 - Definition of Health Risk
- Lecture 10 - Transport Of Pollutants in the Environment
- Lecture 11 - Assesment of Risk
- Lecture 12 - Remediation and Liability
- Lecture 13 - Remendiation and Liability
- Lecture 14 - Life Cycle Analysis
- Lecture 15 - Energy and Environment module - 1
- Lecture 16 - Energy and Environment module - 2
- Lecture 17 - Energy and Environment module - 3
- Lecture 18 - Energy and Environment module - 4
- Lecture 19 - Energy and Environment module - 5
- Lecture 20 - Energy and Environment module - 6
- Lecture 21 - Energy and Environment module - 7
- Lecture 22 - Drinking Water Supply
- Lecture 23 - Drinking Water Supply
- Lecture 24 - Water Quality Standards And Philosophy of Water Treatment
- Lecture 25 - Water Treatment
- Lecture 26 - Wastewater Management in Developing Urban Environments
- Lecture 27 - Wastewater Recycling
- Lecture 28 - Sustainable Water Management In Urban Areas - Part 1
- Lecture 29 - Sustainable Water Management In Urban Areas - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ground Water Contamination
- Lecture 31 - Groundwater - Sanitation Nexus
- Lecture 32 - Chasing Sustainability - The Challenge - Part 1
- Lecture 33 - Chasing Sustainability - The Challenge - Part 2
- Lecture 34 - Developing Frame Works Of Action
- Lecture 35 - Developing Frame Works Of Action
- Lecture 36 - Social And sanitation
- Lecture 37 - Promoting Policies For Eco-Productive Cities in the global House - Part 1
- Lecture 38 - Promoting Policies For Eco-Productive Cities in the global House - Part 2
- Lecture 39 - The need to study ecology
- Lecture 40 - Ecosystem functions and services
- Lecture 41 - What is studied in ecology?
- Lecture 42 - Ecological footprint
- Lecture 43 - Energy and Material flow in ecosystems and ecological efficiency
- Lecture 44 - Energy flow, productivity and Biodiversity
- Lecture 45 - Biodiversity, population and ecological principles

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Current Regulatory Requirements for Conducting Clinical Trials

Subject Co-ordinator - Prof. Nandini K Kumar, Prof. Sucheta Banerjee Kurundkar, Prof. A. B. Ramteke

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - C1 - L00

Lecture 2 - C1 - Introduction Assorted Interviews

Lecture 3 - C1 - L01

Lecture 4 - C1 - L02

Lecture 5 - C1 - L03

Lecture 6 - C1 - L04

Lecture 7 - C1 - L05

Lecture 8 - C1 - L06

Lecture 9 - C1 - L07

Lecture 10 - C1 - L08

Lecture 11 - C1 - L09

Lecture 12 - C1 - L10A

Lecture 13 - C1 - L10B



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Regulatory Requirements for Medical Devices and IVD kits in India

Subject Co-ordinator - Prof. A. B. Ramteke, Prof. Malay Mitra

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - C2 - Introduction Assorted Interviews

Lecture 2 - C2 - L00

Lecture 3 - C2 - L01

Lecture 4 - C2 - L02

Lecture 5 - C2 - L03

Lecture 6 - C2 - L04

Lecture 7 - C2 - L05

Lecture 8 - C2 - L06

Lecture 9 - C2 - L07

Lecture 10 - C2 - L08

Lecture 11 - C2 - L09

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Numerical Methods for Engineers

Subject Co-ordinator - Dr. Niket S.Kaisare

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Overview of Learning Modules
- Lecture 3 - Course Plan
- Lecture 4 - Tutorial
- Lecture 5 - Errors and Approximations
- Lecture 6 - Truncation and Round-Off Errors
- Lecture 7 - Binary Numbers
- Lecture 8 - Floating Point
- Lecture 9 - Floating Point in Binary system
- Lecture 10 - Iterative Method
- Lecture 11 - Direct Method
- Lecture 12 - Sequential Method
- Lecture 13 - Linear Algebra
- Lecture 14 - Introduction to Linear Equations
- Lecture 15 - Rank Condition for Solving Linear Equations
- Lecture 16 - Motivating Gauss Elimination
- Lecture 17 - Gauss Elimination
- Lecture 18 - Tutorial Recap
- Lecture 19 - Back Substitution to find solution
- Lecture 20 - Gauss Jordan and LU Decomposition
- Lecture 21 - Partial Pivoting in Gauss Elimination
- Lecture 22 - Analysis of Gauss Elimination
- Lecture 23 - Tri-Diagonal Systems
- Lecture 24 - Thomas Algorithm for Tri-Diagonal Systems
- Lecture 25 - Gauss Siedel Method
- Lecture 26 - Analysis of Gauss Siedel Method
- Lecture 27 - Gauss Siedel vs. Jacobi Methods
- Lecture 28 - Bonus
- Lecture 29 - Summary

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Nonlinear Equations
- Lecture 31 - Bisection Method
- Lecture 32 - Analysis of Bisection Method
- Lecture 33 - Bonus
- Lecture 34 - Regula-Falsi Method
- Lecture 35 - Bonus
- Lecture 36 - Regula-Falsi vs. Secant Method
- Lecture 37 - Bonus
- Lecture 38 - Some special cases
- Lecture 39 - Fixed-Point Iteration
- Lecture 40 - Newton-Raphson Method
- Lecture 41 - Analysis of Fixed-Point Iteration
- Lecture 42 - Analysis of Newton-Raphson
- Lecture 43 - Problems with Newton-Raphson
- Lecture 44 - Multi-Variable Fixed-Point Iteration
- Lecture 45 - Multi-Variable Newton-Raphson
- Lecture 46 - Out of Syllabus
- Lecture 47 - Out of Syllabus
- Lecture 48 - Summary
- Lecture 49 - Introduction
- Lecture 50 - Linear Regression in One Variable
- Lecture 51 - Recap
- Lecture 52 - Bonus
- Lecture 53 - Linear Regression in Multiple Variables
- Lecture 54 - Matrix Method for Multi-Linear Regression
- Lecture 55 - Polynomial Regression
- Lecture 56 - Functional Regression
- Lecture 57 - Bonus
- Lecture 58 - Interpolation
- Lecture 59 - Bonus
- Lecture 60 - Lagrange Interpolating Polynomials
- Lecture 61 - Newton's Forward Difference Polynomial
- Lecture 62 - Newton's Divided Differences
- Lecture 63 - Interpolation Examples
- Lecture 64 - Bonus
- Lecture 65 - Summary
- Lecture 66 - Numerical Differentiation
- Lecture 67 - Numerical Differentiation Formula and Analysis
- Lecture 68 - Derivation using Method of undetermined coefficients

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Three-point differentiation formulae
- Lecture 70 - Bonus
- Lecture 71 - Truncation vs. Round-Off Errors
- Lecture 72 - Numerical Differentiation Examples
- Lecture 73 - Summary of Numerical Differentiation
- Lecture 74 - Numerical Integration
- Lecture 75 - Trapezoidal rule and Derivation
- Lecture 76 - Simpson's Rules for Integration
- Lecture 77 - Bonus
- Lecture 78 - Error Analysis for Simpson's Rules
- Lecture 79 - Numerical Integration Examples
- Lecture 80 - Bonus
- Lecture 81 - Summary of Newton Cotes Formulae
- Lecture 82 - Richardson's Extrapolation
- Lecture 83 - Gauss Quadrature
- Lecture 84 - Summary of Numerical Integration
- Lecture 85 - Introduction to ODE-IVP
- Lecture 86 - Motivation using an Example (Bonus)
- Lecture 87 - Euler's Methods and Second-Order Methods
- Lecture 88 - Second-Order Runge-Kutta Methods
- Lecture 89 - Summary of RK-2
- Lecture 90 - Higher order RK Methods
- Lecture 91 - Bonus
- Lecture 92 - Bonus
- Lecture 93 - Summary and Recap
- Lecture 94 - Introduction to Predictor-Corrector Methods
- Lecture 95 - Stability of Implicit Methods
- Lecture 96 - Stability Analysis of Euler's Methods
- Lecture 97 - Extension to multiple variables
- Lecture 98 - Local vs. Global Truncation Errors
- Lecture 99 - Richardson's Extrapolation
- Lecture 100 - Stiff System of ODEs
- Lecture 101 - Adaptive Step-sizing
- Lecture 102 - Adaptive step-sizing and Embedded Methods
- Lecture 103 - Bonus
- Lecture 104 - Summary and Recap (Weeks 10 and 11)
- Lecture 105 - Introduction to ODE-BVP
- Lecture 106 - Shooting Method
- Lecture 107 - Finite Difference Method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Solution using Shooting Method
- Lecture 109 - Algorithm for Shooting Method
- Lecture 110 - Problems with Shooting Method
- Lecture 111 - Solving ODE-BVP using Finite Difference Method
- Lecture 112 - Microsoft Excel based Solution
- Lecture 113 - Recap of Week-12 (ODE-BVP)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - Basic Course in Biomedical Research

Subject Co-ordinator - Dr. Sanjay Mehendale

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to health research
- Lecture 2 - Formulating research question
- Lecture 3 - Literature review
- Lecture 4 - Measures of disease frequency
- Lecture 5 - Descriptive study designs
- Lecture 6 - Analytical study designs
- Lecture 7 - Experimental study designs
- Lecture 8 - Validity of epidemiological studies
- Lecture 9 - Qualitative research methods
- Lecture 10 - Measurement of study variables
- Lecture 11 - Sampling methods
- Lecture 12 - Calculating sample size and power
- Lecture 13 - Selection of study population
- Lecture 14 - Study plan and project management
- Lecture 15 - Designing data collection tools
- Lecture 16 - Principles of data collection
- Lecture 17 - Data management
- Lecture 18 - Overview of data analysis
- Lecture 19 - Ethical framework for health research
- Lecture 20 - Conducting clinical trails
- Lecture 21 - Preparing a concept paper for research projects
- Lecture 22 - Elements of a protocol for research studies

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Thermodynamics

Subject Co-ordinator - Prof. Anand T. N. C

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic concepts and definitions - Part 1  
Lecture 2 - Basic concepts and definitions - Part 2  
Lecture 3 - Basic concepts and definitions - Part 3  
Lecture 4 - Tutorial problems on exact and inexact differential  
Lecture 5 - Basic concepts and definitions - Part 4  
Lecture 6 - Work - Part 1  
Lecture 7 - Work - Part 2  
Lecture 8 - Work - Part 3  
Lecture 9 - Work - Part 4  
Lecture 10 - Work - Part 5  
Lecture 11 - Tutorial problem on 'Work' - Part 1  
Lecture 12 - Tutorial problem - Part 2  
Lecture 13 - Tutorial problem on 'Work' - Part 3  
Lecture 14 - Tutorial problem on 'Work' - Part 4  
Lecture 15 - Zeroth law of thermodynamics  
Lecture 16 - Methods of temperature measurement  
Lecture 17 - Modes of heat transfer  
Lecture 18 - Tutorial problem on 'Modes of heat transfer'  
Lecture 19 - Tutorial problem on 'Methods of temperature measurement'  
Lecture 20 - First law of thermodynamics  
Lecture 21 - Tutorial problem  
Lecture 22 - Tutorial problem  
Lecture 23 - Heat and work interactions for a system  
Lecture 24 - Tutorial problem - Part 1  
Lecture 25 - Pure substance  
Lecture 26 - Tutorial problem - Part 2  
Lecture 27 - Ideal gas - Part 1  
Lecture 28 - Ideal gas - Part 2  
Lecture 29 - Tutorial problem - Part 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial problem - Part 4
- Lecture 31 - Tutorial problem - Part 5
- Lecture 32 - Specific heats at constant pressure and constant volume
- Lecture 33 - Tutorial problem - Part 6
- Lecture 34 - Tutorial problem - Part 7
- Lecture 35 - Ideal gas - Part 3
- Lecture 36 - Ideal gas - Part 4
- Lecture 37 - Ideal gas - Part 5
- Lecture 38 - Tutorial problem - Part 1
- Lecture 39 - Tutorial problem - Part 2
- Lecture 40 - Tutorial problem - Part 3
- Lecture 41 - Tutorial problem - Part 4
- Lecture 42 - Beyond ideal gases - Part 1
- Lecture 43 - Beyond ideal gases - Part 2
- Lecture 44 - Two phase system - Part 1
- Lecture 45 - Two phase system - Part 2
- Lecture 46 - Two phase system
- Lecture 47 - Tutorial problems (2 numbers)
- Lecture 48 - Tutorial problem - Part 1
- Lecture 49 - Tutorial problem - Part 2
- Lecture 50 - Tutorial problem - Part 3
- Lecture 51 - Tutorial problems on two-phase systems (2 numbers)
- Lecture 52 - Tutorial problem (1 number)
- Lecture 53 - Rate equation of the first law of thermodynamics for a control mass and a control volume
- Lecture 54 - Energy equation for a steady-state, steady-flow process in selected engineering devices
- Lecture 55 - Tutorial problems (3 numbers)
- Lecture 56 - Tutorial problem - Part 1
- Lecture 57 - Tutorial problem - Part 2
- Lecture 58 - Quasi-static process revisited
- Lecture 59 - Second law of thermodynamics
- Lecture 60 - Second law of thermodynamics
- Lecture 61 - Second law of thermodynamics
- Lecture 62 - Second law of thermodynamics
- Lecture 63 - Second law of thermodynamics
- Lecture 64 - Second law of thermodynamics
- Lecture 65 - Tutorial problems (2 numbers)
- Lecture 66 - Tutorial problem (1 number)
- Lecture 67 - Tutorial problem (1 number)
- Lecture 68 - Tutorial problem (2 numbers)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Second law of thermodynamics
- Lecture 70 - Entropy - Part 1
- Lecture 71 - Tutorial problem (1 number)
- Lecture 72 - Entropy - Part 2
- Lecture 73 - Entropy - Part 3
- Lecture 74 - Entropy - Part 4
- Lecture 75 - Tutorial problem (1 number)
- Lecture 76 - Tutorial problem (1 number)
- Lecture 77 - Tutorial problems (2 numbers)
- Lecture 78 - Entropy - Part 5
- Lecture 79 - Entropy - Part 6
- Lecture 80 - Entropy - Part 7
- Lecture 81 - Exergy - Part 1
- Lecture 82 - Exergy - Part 2
- Lecture 83 - Exergy - Part 3
- Lecture 84 - Thermodynamics cycles
- Lecture 85 - Tutorial problem (1 number)
- Lecture 86 - Thermodynamics cycles
- Lecture 87 - Tutorial problem (1 number)
- Lecture 88 - Thermodynamics cycles
- Lecture 89 - Tutorial problem (1 number)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Regulatory Requirements for Medical Devices including in Vitro

Subject Co-ordinator - Prof. Malay Mitra, Prof. Aseem Sahu, Prof. Arun B.Ramteke

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Courses Overview

Lecture 2 - Medical device and in vitro diagnostics

Lecture 3 - Medical Device Rules, 2017

Lecture 4 - Classification of medical devices

Lecture 5 - Labelling of medical devices and in vitro diagnostics

Lecture 6 - Standards of medical device, quality assurance and testing

Lecture 7 - Regulatory requirements of biocompatibility of medical devices and ISO 10993

Lecture 8 - Clinical investigation of medical devices, regulation of investigational medical devices

Lecture 9 - Quality assurance and quality management system

Lecture 10 - How to obtain a licence to manufacture a medical device?

Lecture 11 - ISO 14971 (Medical devices)

Lecture 12 - Inspection of medical device and IVD establishments

Lecture 13 - Import and export of medical devices and IVDs

Lecture 14 - Medical device regulation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Current Regulatory Requirements for Conducting Clinical Trials

Subject Co-ordinator - Prof. Nandini K Kumar, Prof. Y. K. Gupta, Prof. D. K. Sable, Prof. Arun B. Ramteke, Pr

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Courses Overview

Lecture 2 - Overview of Indian regulatory system

Lecture 3 - Overview of Drugs and Cosmetics Act and Rules thereunder

Lecture 4 - Overview of New Drugs and Clinical Trials Rules, 2019

Lecture 5 - Pre-Clinical Data Requirements

Lecture 6 - Rules Governing Clinical Trials

Lecture 7 - Phases of clinical trial, forms, and fees

Lecture 8 - Regulatory pathway and data requirements for NDCT, 2019

Lecture 9 - BA/BE study and study centers

Lecture 10 - Guidelines to conduct BA/BE studies

Lecture 11 - Ethics Committee registration and re-registration

Lecture 12 - Ethical Considerations

Lecture 13 - Good Clinical Practice

Lecture 14 - Requirements for import/manufacture of new drug/IND for conducting clinical trials in India

Lecture 15 - Requirements for import/manufacture of new drug/IND for sale/ distribution and unapproved new dr

Lecture 16 - Important issues

Lecture 17 - Special concern

Lecture 18 - Clinical trial related guidelines (NDCT Rules)

Lecture 19 - Content of Proposed Clinical Trial Protocol

Lecture 20 - Content of a Clinical Trial Report

Lecture 21 - Post Marketing Assessment and Clinical Trial Compensation

Lecture 22 - Common observations during submission of CT/BA/BE protocol

Lecture 23 - Common observations during CT/BA/BE centre inspections

Lecture 24 - Drug development process

Lecture 25 - Salient feature of NDCT 2019 - what's new in NDCT?

Lecture 26 - Online Submission 23A

Lecture 27 - Online Submission (CTRI)

Lecture 28 - Tables Given in NDCT 2019 and its Content

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Model Predictive Control: Theory and Applications

Subject Co-ordinator - Dr. Niket S.Kaisare

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Background: Model Predictive Control  
Lecture 2 - Course Outline  
Lecture 3 - Additional MATLAB Video - Array Operations  
Lecture 4 - Additional MATLAB Video - Array Operations  
Lecture 5 - Recap: Linear Algebra  
Lecture 6 - Recap: Differential and Difference Equations  
Lecture 7 - Recap: Process Control Basics  
Lecture 8 - Introduction to Model Predictive Control  
Lecture 9 - MPC: Salient Features  
Lecture 10 - MPC: Historical Perspective  
Lecture 11 - Vectors and Matrices  
Lecture 12 - Vector Spaces  
Lecture 13 - Linear Operation  
Lecture 14 - Null and Image Spaces  
Lecture 15 - Eigenvalues and Eigenvectors  
Lecture 16 - Eigenvalue Decomposition and Tutorial  
Lecture 17 - Recap of Week-2  
Lecture 18 - Model Classification  
Lecture 19 - Discrete-Time Models Overview  
Lecture 20 - Discrete-Time Models  
Lecture 21 - Finite Impulse Response Models  
Lecture 22 - Finite Step Response Models  
Lecture 23 - Recap and Plan for Week-4  
Lecture 24 - State Space and Step Response Models  
Lecture 25 - Nonlinear Models and Model Linearization  
Lecture 26 - Model Types and Model Conversion  
Lecture 27 - Model Conversion - 2  
Lecture 28 - Model Conversion: TF to SS  
Lecture 29 - How to handle MIMO systems

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Discretization of State-Space Models
- Lecture 31 - Introduction to Dynamic Matrix Control (DMC)
- Lecture 32 - The DMC Algorithm: Future Predictions
- Lecture 33 - The DMC Algorithm: Objective and Constraints
- Lecture 34 - The DMC Algorithm: Optimization
- Lecture 35 - Coding for DMC Algorithm: Setup
- Lecture 36 - Coding for DMC Algorithm: Populate Matrices
- Lecture 37 - Recap of DMC Algorithm
- Lecture 38 - Extensions of DMC Algorithm
- Lecture 39 - LTI Models and Coordinate Transform
- Lecture 40 - LTI Models: Stability
- Lecture 41 - LTI Models: Controllability
- Lecture 42 - LTI Models: Conditions for controllability
- Lecture 43 - Tutorial by Arvind (Recap of Controllability)
- Lecture 44 - LTI Models: Observability
- Lecture 45 - Linear Control: Introduction
- Lecture 46 - Pole Placement Controller
- Lecture 47 - Linear Quadratic Regulator: Batch Solution
- Lecture 48 - LQR: Dynamic Programming Solution
- Lecture 49 - State Estimation: Introduction
- Lecture 50 - Stochastic Processes and Random Variables
- Lecture 51 - State Estimation: Pole Placement Observer
- Lecture 52 - Kalman Filter: Terminology
- Lecture 53 - Kalman Filter: Derivation
- Lecture 54 - Recap of Modules 7-9
- Lecture 55 - Recap and Plan for this week
- Lecture 56 - Linear Quadratic Gaussian
- Lecture 57 - LQG Derivation and Separation Principle
- Lecture 58 - Setpoint Tracking in LQ Control
- Lecture 59 - Disturbance Rejection in LQ Control
- Lecture 60 - Disturbance Modeling for Estimation
- Lecture 61 - Estimation with Disturbance Modeling
- Lecture 62 - Recap and Plan for this week
- Lecture 63 - State-Space MPC: Deterministic case
- Lecture 64 - Extension to Measured Disturbances
- Lecture 65 - Offset-Free State Space MPC
- Lecture 66 - Comparison of State-Space MPC with DMC
- Lecture 67 - State-Space MPC: Disturbance Modeling
- Lecture 68 - Disturbance Modeling: Background and Setup

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Stochastic Output-Feedback State-Space MPC
- Lecture 70 - Bonus Video: Disturbance Modeling for State Space MPC
- Lecture 71 - Self-Guided Tutorial of MPC Toolbox
- Lecture 72 - Help Session: Using MPC Toolbox
- Lecture 73 - Recap of LQ Control and Linear MPC
- Lecture 74 - Linear MPC - Key Features and Results
- Lecture 75 - Practical Issues: Inferential Control
- Lecture 76 - Practical Issues: Measurement Delay
- Lecture 77 - Other Practical Issues
- Lecture 78 - Some Classical Examples of MPC

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Research Methodology

Subject Co-ordinator - Prof. Soumitro Banerjee

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is Science? - Part 1
- Lecture 2 - What is Science? - Part 2
- Lecture 3 - Subjective Thinking Versus Objective Thinking
- Lecture 4 - Idealism Versus Materialism
- Lecture 5 - Causality - Part 1
- Lecture 6 - Causality - Part 2
- Lecture 7 - Logical Reasoning: Inductive Logic
- Lecture 8 - Logical Reasoning: Deductive Logic - Part 1
- Lecture 9 - Logical Reasoning: Deductive Logic - Part 2
- Lecture 10 - Logical Reasoning: Syllogistic Logic - Part 1
- Lecture 11 - Logical Reasoning: Syllogistic Logic - Part 2
- Lecture 12 - Logical Reasoning: Syllogism Logic, Truth and Validity
- Lecture 13 - Historical Perspective: Emergence of Materialism and Idealism - Part 1
- Lecture 14 - Historical Perspective: Emergence of Materialism and Idealism - Part 2
- Lecture 15 - Historical Perspective: Renaissance to the Development of Mechanical Materialism - Part 1
- Lecture 16 - Historical Perspective: Renaissance to the Development of Mechanical Materialism - Part 2
- Lecture 17 - Historical Perspective: The Advent of Empiricism and the Idea of Evolution
- Lecture 18 - Historical Perspective: Science in Ancient India
- Lecture 19 - Historical Perspective: The Advent of Scientific Materialism - Part 1
- Lecture 20 - Historical Perspective: The Advent of Scientific Materialism - Part 2
- Lecture 21 - Historical Perspective: The Rise and Fall of Positivism - Part 1
- Lecture 22 - Historical Perspective: The Rise and Fall of Positivism - Part 2
- Lecture 23 - What Scientists Actually Do - Part 1
- Lecture 24 - What Scientists Actually Do - Part 2
- Lecture 25 - Falsifiability and Reproducibility - Part 1
- Lecture 26 - Falsifiability and Reproducibility - Part 2
- Lecture 27 - Proposing a Hypothesis - Part 1
- Lecture 28 - Proposing a Hypothesis - Part 2
- Lecture 29 - Elements of Scientific Measurement - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Elements of Scientific Measurement - Part 2
- Lecture 31 - The Central Limit Theorem and its Applications - Part 1
- Lecture 32 - The Central Limit Theorem and its Applications - Part 2
- Lecture 33 - Error Bars and Confidence Interval - Part 1
- Lecture 34 - Error Bars and Confidence Interval - Part 2
- Lecture 35 - Measurement of a Proportion - Part 1
- Lecture 36 - Measurement of a Proportion - Part 2
- Lecture 37 - Examples of Proportion Measurement
- Lecture 38 - Box and Whisker Plot
- Lecture 39 - Propagation of Errors - Part 1
- Lecture 40 - Propagation of Errors - Part 2
- Lecture 41 - Issues in Hypothesis Testing - Part 1
- Lecture 42 - Issues in Hypothesis Testing - Part 2
- Lecture 43 - Statistical Methods in Hypothesis Testing: Z-Test and T-Test - Part 1
- Lecture 44 - Statistical Methods in Hypothesis Testing: Z-Test and T-Test - Part 2
- Lecture 45 - Hypothesis Testing: The Chi-Square Test - Part 1
- Lecture 46 - Hypothesis Testing: The Chi-Square Test - Part 2
- Lecture 47 - Hypothesis Testing: The Chi-Square Test - Part 3
- Lecture 48 - Hypothesis Testing: The Chi-Square Test - Part 4
- Lecture 49 - Theoretical Research: Functional Relationships from Experimental Data - Part 1
- Lecture 50 - Theoretical Research: Functional Relationships from Experimental Data - Part 2
- Lecture 51 - Theoretical Research: Mathematical Models of Physical Systems
- Lecture 52 - Order of Magnitude Calculations
- Lecture 53 - Theoretical Research: Modeling Using Dimensional Analysis - Part 1
- Lecture 54 - Theoretical Research: Modeling Using Dimensional Analysis - Part 2
- Lecture 55 - An Example of Mathematical Modeling
- Lecture 56 - Importance of Theory-Building in Science
- Lecture 57 - Scientific Writing: Journal Papers - Part 1
- Lecture 58 - Scientific Writing: Journal Papers - Part 2
- Lecture 59 - Scientific Writing: Journal Papers - Part 3
- Lecture 60 - Scientific Writing: Journal Papers - Part 4
- Lecture 61 - Scientific Writing: PhD Thesis
- Lecture 62 - Scientific Writing: Text Stylistics
- Lecture 63 - Presentation in Scientific Conferences - Part 1
- Lecture 64 - Presentation in Scientific Conferences - Part 2
- Lecture 65 - Writing Grant Proposals - Part 1
- Lecture 66 - Writing Grant Proposals - Part 2
- Lecture 67 - Ethical Conduct in Science: Aspects of Scientific Ethics
- Lecture 68 - Ethical Conduct in Science: Research Misconduct

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Ethical Conduct in Science: Ethics in Scientific Publication - Part 1
- Lecture 70 - Ethical Conduct in Science: Ethics in Scientific Publication - Part 2
- Lecture 71 - Ethical Conduct in Science: Cases of Scientific Misconduct - Part 1
- Lecture 72 - Ethical Conduct in Science: Cases of Scientific Misconduct - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Management of Medical Emergencies in Dental Practice

Subject Co-ordinator - Multifaculty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Vasovagal Syncope

Lecture 2 - Vasovagal Syncope - Clinical Scenario

Lecture 3 - Postural Hypotension

Lecture 4 - Postural Hypotension - Clinical Scenario

Lecture 5 - Hyperventilation

Lecture 6 - Hyperventilation - Clinical Scenario

Lecture 7 - Asthma - Status Asthmaticus - Part 1

Lecture 8 - Asthma - Status Asthmaticus - Part 2

Lecture 9 - Asthma - Clinical Scenario

Lecture 10 - Chest Pain Of Cardiac Origin - Myocardial Infarction And Anigina Pectoris - Part 1

Lecture 11 - Chest Pain Of Cardiac Origin - Myocardial Infarction And Anigina Pectoris - Part 2

Lecture 12 - Chest Pain - Clinical Scenario

Lecture 13 - Acute Adrenal Insufficiency

Lecture 14 - Acute Adrenal Insufficiency - Clinical Scenario

Lecture 15 - Diabetes Mellitus

Lecture 16 - Diabetes Mellitus - Clinical Scenario

Lecture 17 - Throid Dysfunction

Lecture 18 - Allergies/Hypersensitivity Reaction - Part 1

Lecture 19 - Allergies/Hypersensitivity Reaction - Part 2

Lecture 20 - Epilepsy- Status Epilepticus

Lecture 21 - Chronic Kidney Disease

Lecture 22 - Hepatic Dysfunction

Lecture 23 - Basic Life Support - Part 1

Lecture 24 - Basic Life Support - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Basic Course in Ornithology

Subject Co-ordinator - Prof. Mousumi Ghosh, Prof. Manjari Jain, Prof. R Jayapal, Prof. Anand Krishnan, Prof.

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Ornithology
- Lecture 2 - Diversity and Classification - Part 1
- Lecture 3 - Diversity and Classification - Part 2
- Lecture 4 - Evolution and Speciation - Part 1
- Lecture 5 - Evolution and Speciation - Part 2
- Lecture 6 - Anatomy
- Lecture 7 - Physiology
- Lecture 8 - Colour
- Lecture 9 - Life History
- Lecture 10 - Foraging Behaviour
- Lecture 11 - Mating and Breeding Behaviour
- Lecture 12 - Social Behaviour
- Lecture 13 - Methods of Science and Research Questions
- Lecture 14 - Vocal Behaviour: Mechanisms - Part 1
- Lecture 15 - Vocal Behaviour: Mechanisms - Part 2
- Lecture 16 - Vocal Behaviour: Ecology and Evolution - Part 1
- Lecture 17 - Vocal Behaviour: Ecology and Evolution - Part 2
- Lecture 18 - Vocal Mimicry in Birds
- Lecture 19 - Basics of Research Design
- Lecture 20 - Bird Migration - LIVE Guest Lecture
- Lecture 21 - Bird Populations: Concepts
- Lecture 22 - Bird Communities: Concepts - Part 1
- Lecture 23 - Bird Communities: Concepts - Part 2
- Lecture 24 - Interactive Session by Dr Mousumi Ghosh (NCF) and Dr Umesh Srinivasan (IISc)
- Lecture 25 - Studying bird populations and communities - Part 1
- Lecture 26 - Studying bird populations and communities - Part 2
- Lecture 27 - Mixed Species Flocks - Live Session
- Lecture 28
- Lecture 29 - Introduction to Data Visualisation Analysis - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Data Visualisation Analysis - Part 2
- Lecture 31 - Basic Course in Ornithology - Guest Session on Avian Diseases
- Lecture 32 - Biogeography
- Lecture 33 - Macroecology
- Lecture 34 - Macroecology - Case Study - LIVE
- Lecture 35 - Week 10 Interactive session with Dr VV Robin and Dr Umesh Srinivasan
- Lecture 36 - Bird Conservation - Concepts
- Lecture 37 - Avian Conservation: Case study 1
- Lecture 38 - Avian Conservation: Case study 2
- Lecture 39 - Avian Conservation: Case study 3
- Lecture 40 - Avian Conservation: Case study 4
- Lecture 41 - Avian Conservation: Case study 5
- Lecture 42
- Lecture 43 - Molecular Techniques - Part 1
- Lecture 44 - Molecular Techniques - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Oral Biology

Subject Co-ordinator - Multifaculty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Craniofacial anatomy - Part 1
- Lecture 2 - Craniofacial anatomy - Part 2
- Lecture 3 - Tooth and It's Supporting Structures - Part 1
- Lecture 4 - Tooth and It's Supporting Structures - Part 2
- Lecture 5 - Specialised mucosa
- Lecture 6 - Saliva-Composition and functions
- Lecture 7 - Saliva Diagnostics
- Lecture 8 - Stem cells in the oro-dental region
- Lecture 9 - Stem cell isolation
- Lecture 10 - Mineralization dynamics - Part 1
- Lecture 11 - Mineralization dynamics - Part 2
- Lecture 12 - TMJ Anatomy and Function
- Lecture 13 - Oral defense mechanisms
- Lecture 14 - Mucosal and regional immunology
- Lecture 15 - Oral microbiome
- Lecture 16 - Evaluation of Oral microbiome
- Lecture 17 - Dysbiosis
- Lecture 18 - Molecular mechanisms in oral cancer
- Lecture 19 - Flow cytometry in cell and molecular biology
- Lecture 20 - Basics of Biomaterial science and engineering
- Lecture 21 - Biomimetics - Part 1
- Lecture 22 - Biomimetics - Part 2
- Lecture 23 - Biomaterials - Polymers
- Lecture 24 - Biomaterials - Metals
- Lecture 25 - Biomaterials - Ceramics and Colloids
- Lecture 26 - 3-D Bioprinting
- Lecture 27 - Protein mediated biomaterials
- Lecture 28 - Immune response to biomaterials
- Lecture 29 - Biomaterial Applications

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Biocompatible assays

Lecture 31 - Immunoassay

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Introduction to Biomimicry

Subject Co-ordinator - Prof. Sivakumar Srinivasan, Prof. Satya Seshadri, Prof. Mrinalini, Prof. Shiva Subrama

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course overview
- Lecture 2 - What is biomimicry ?
- Lecture 3 - Why is biomimicry important ?
- Lecture 4 - Nature's unifying patterns - Introduction
- Lecture 5 - Case study
- Lecture 6 - How to do biomimicry ?
- Lecture 7 - Learning resources - Biomimicry Institute
- Lecture 8 - Skills, attitudes and mindset for a biomimic
- Lecture 9 - Course activity
- Lecture 10 - Recap of Week 1
- Lecture 11 - What are we mimicking ?
- Lecture 12 - Function and Strategy
- Lecture 13 - Approaches to biomimicry
- Lecture 14 - From Problem to Solution
- Lecture 15 - Using the UNSDG to identify challenges
- Lecture 16 - Recap of Week 2
- Lecture 17 - Step 1 - Define the problem
- Lecture 18 - Step 2 - Biologize the problem
- Lecture 19 - Step 3 - Discover strategies in nature
- Lecture 20 - Applying the Biomimicry Design Spiral
- Lecture 21 - Step 4 - Abstract design strategies from nature
- Lecture 22 - Step 5 - Emulate nature's strategies in your solution
- Lecture 23 - Step 6 - Evaluate feasibility
- Lecture 24 - How to apply the biomimicry process ?
- Lecture 25 - Recap of Week 4
- Lecture 26 - Nature's Unifying Patterns I
- Lecture 27 - Systems Thinking - Introduction
- Lecture 28 - Systems Thinking - Understanding consequences
- Lecture 29 - Nature's Unifying Patterns II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tools - Mind mapping
- Lecture 31 - Using biomimicry to design a solution
- Lecture 32 - Recap of Week 6
- Lecture 33 - Developing creative confidence
- Lecture 34 - Learning from the biomimicry process
- Lecture 35 - The need for creativity in our lives
- Lecture 36 - Unlocking your creativity
- Lecture 37 - Taking your biomimicry ideas to market
- Lecture 38 - The journey so far
- Lecture 39 - Finding the hero in you
- Lecture 40 - Course wrap-up



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Electrocardiogram - Interpretation and Application in Clinical

Subject Co-ordinator - Multi-faculty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - Electrocardiogram - Interpretation and application in clinical practice

Lecture 2 - Basic Conduction of Heart

Lecture 3 - ECG Lead system

Lecture 4 - Recording of a Standard ECG (Lead placements and measurements)

Lecture 5 - Waveforms, Intervals and Segments

Lecture 6 - Vector Electrocardiography

Lecture 7 - From Action Potentials to Arrhythmias

Lecture 8 - Pathophysiology, Myocardial Ischemia / Injury

Lecture 9 - Myocardial Infarction (MI), Pathophysiology

Lecture 10 - Drug effects on ECG

Lecture 11 - Patient identification, preparation and interpretation of ECG

Lecture 12 - Sinus rhythms and Bradyarrhythmias

Lecture 13 - Approach to tachyarrhythmias

Lecture 14 - AV Blocks and Bundle Branch Block

Lecture 15 - Chamber enlargement and Heart Failure

Lecture 16 - Electrolyte Abnormalities on ECG

Lecture 17 - Recognizing signs and ECG changes in Myocardial Ischemia/Injury

Lecture 18 - ECG changes in myocardial infarction

Lecture 19 - Miscellaneous ECG findings and cardiac arrest

Lecture 20 - Pacemaker Rhythms

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:One Health

Subject Co-ordinator - Multi Faculty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the One Health Concept and National and International health/public health agencies
- Lecture 2 - Global Health vs One Health
- Lecture 3 - Basics of Research Ethics
- Lecture 4 - Integrated human and animal disease surveillance systems
- Lecture 5 - Emerging infectious diseases
- Lecture 6 - Process of disease emergence and assessment of the risk factors
- Lecture 7 - Mechanisms of pathogen cross over across species boundaries
- Lecture 8 - Importance of disease detection, Identification and monitoring in public health
- Lecture 9 - Introduction to disease vectors and basics of Medical Entomology
- Lecture 10 - The factors influencing an emerging disease
- Lecture 11 - Antimicrobial resistance a global threat and Importance of antibiotic stewardship program
- Lecture 12 - Introduction of Food safety and food borne diseases
- Lecture 13 - What are zoonotic diseases and its role in our changing world
- Lecture 14 - The integration of human, animal and ecosystem health in control and prevention of these diseases
- Lecture 15 - Community engagement for zoonotic disease control in humans and animals through One Health
- Lecture 16 - Basics of Epidemiological Studies
- Lecture 17 - Rapid Response system, Disaster Management and Outbreak Investigation Plans
- Lecture 18 - Basic statistical methods and their application and the measurement of disease frequency
- Lecture 19 - Principles of survey design and the concepts of sampling and Mixed method research
- Lecture 20 - Introduction to health policy
- Lecture 21 - Risk Communication and Pandemic Preparedness
- Lecture 22 - Role of community in disease control and ways for community engagement
- Lecture 23 - Uses of different types of media for communication

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Canning Technology, Value Addition of Seafood (Fish Processing)

Subject Co-ordinator - Dr. Abhilash Sasidharan, Dr. Maya Raman

Co-ordinating Institute - KUFOS Panangad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course overview Canning technology and Value addition of sea food
- Lecture 2 - Introduction and the concept of canning technology
- Lecture 3 - History of canning technology - Part 1
- Lecture 4 - History of canning technology - Part 2
- Lecture 5 - Canning Technology and Value Addition Containers and their Properties - Part 1
- Lecture 6 - Canning Technology and Value Addition Containers and their Properties - Part 2
- Lecture 7 - Canning Technology and Value Addition Containers and their Properties - Part 3
- Lecture 8 - Canning Technology and Value Addition Containers and their Properties - Part 4
- Lecture 9 - Canning Technology and Value Addition - Canning process - Part 1
- Lecture 10 - Canning Technology and Value Addition - Canning process - Part 2
- Lecture 11 - Canning Technology and Value Addition - Thermal process calculations - Part 1
- Lecture 12 - Canning Technology and Value Addition - Thermal process calculations - Part 2
- Lecture 13 - Microbiology and spoilage of canned food - Part 1
- Lecture 14 - Microbiology and spoilage of canned food - Part 2
- Lecture 15 - Process of seafood canning - Part 1
- Lecture 16 - Process of seafood canning - Part 2
- Lecture 17 - Seafood pre-processing - Part 1
- Lecture 18 - Seafood pre-processing - Part 2
- Lecture 19 - Additives - Part 1
- Lecture 20 - Additives - Part 2
- Lecture 21 - SOP for seafood canning - Part 1
- Lecture 22 - SOP for seafood canning - Part 2
- Lecture 23 - SOP for seafood canning - Part 3
- Lecture 24 - Nutritional quality of seafood
- Lecture 25 - Muscle structure of seafood
- Lecture 26 - Spoilage in seafood
- Lecture 27 - Preservation methods
- Lecture 28 - Value addition in thermally processed foods
- Lecture 29 - Quality standards for seafood value added products - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quality standards for seafood value added products - Part 2
- Lecture 31 - Quality standards for seafood value added products - Part 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Food Packaging Technology

Subject Co-ordinator - Dr. Jenny Ann John, Dr. Maya Raman

Co-ordinating Institute - KUFOS Panangad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course overview
- Lecture 2 - Introduction
- Lecture 3 - Paper as packaging material - Part 1
- Lecture 4 - Paper as packaging material - Part 2
- Lecture 5 - Paper as packaging material - Part 3
- Lecture 6 - Glass as packaging material
- Lecture 7 - Metal as packaging material - Part 1
- Lecture 8 - Metal as packaging material - Part 2
- Lecture 9 - Plastic as packaging material - Part 1
- Lecture 10 - Plastic as packaging material - Part 2
- Lecture 11 - Introduction to packaging system
- Lecture 12 - Product characteristics and packaging requirements
- Lecture 13 - Rigid, semi-rigid, flexible packaging forms - Part 1
- Lecture 14 - Rigid, semi-rigid, flexible packaging forms - Part 2
- Lecture 15 - Designing of packaging material
- Lecture 16 - Testing of packaging material - Part 1
- Lecture 17 - Testing of packaging material - Part 2
- Lecture 18 - Testing of packaging material - Part 3
- Lecture 19 - Testing of packaging material - Part 4
- Lecture 20 - Testing of package performance
- Lecture 21 - Principles developing safe and protective packing
- Lecture 22 - Transport worthiness test - Part 1
- Lecture 23 - Transport worthiness test - Part 2
- Lecture 24 - Transport worthiness test - Part 3
- Lecture 25 - Safety aspects of food packaging
- Lecture 26 - Packaging accessories and advances in packaging
- Lecture 27 - Active packaging - Part 1
- Lecture 28 - Active packaging - Part 2
- Lecture 29 - MA and Aseptic packaging

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Edible packaging - Part 1
- Lecture 31 - Edible packaging - Part 2
- Lecture 32 - Vacuum packing machine
- Lecture 33 - CA and MA packing machine
- Lecture 34 - Gas packing machine
- Lecture 35 - Seal and shrink packing machine
- Lecture 36 - Form fill sealing machine
- Lecture 37 - Aseptic packaging systems
- Lecture 38 - Retort pouches
- Lecture 39 - Bottling machine - Part 1
- Lecture 40 - Bottling machine - Part 2
- Lecture 41 - Carton making machine
- Lecture 42 - Package printing machines - Part 1
- Lecture 43 - Package printing machines - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Vulnerability Studies: An Introduction

Subject Co-ordinator - Prof. Pramod K Nayar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Fragility

Lecture 3 - Resilience

Lecture 4 - Interpreting Vulnerability, precarity of work and Access Equality for Equal Opportunity - Part I

Lecture 5 - Interpreting Vulnerability, precarity of work and Access Equality for Equal Opportunity - Part II

Lecture 6 - Social Vulnerability and Group Vulnerability

Lecture 7 - Willed Vulnerability - Endurance Sports

Lecture 8 - Illness, Storytelling and Embodiment

Lecture 9 - Illness, Storytelling and Embodiment Reading - Audre Lorde's : The Cancer Journals

Lecture 10 - Group Discussion - Vulnerable Bodies

Lecture 11 - The Aesthetics of Vulnerability - I

Lecture 12 - The Aesthetics of Vulnerability - II Traumatic Materialism

Lecture 13 - The Aesthetics of Vulnerability - III Melodrama

Lecture 14 - Vulnerability Aesthetics The Sublime

Lecture 15 - The Aesthetics of Vulnerability - Discussion

Lecture 16 - Biopolitics, biopower and vulnerability - I

Lecture 17 - Biopolitics, biopower and vulnerability - II

Lecture 18 - Pandemics and Biopolitics

Lecture 19 - Biopolitics and vulnerable populations in Contemporary Literature

Lecture 20 - Discussion on Biopolitics

Lecture 21 - Ecoprecarity

Lecture 22 - Ecodystopia - I

Lecture 23 - Ecodystopia - II

Lecture 24 - Discussion on Ecoprecarity and Ecodystopias - I

Lecture 25 - Discussion on Ecoprecarity and Ecodystopias - II

Lecture 26 - Aging and Vulnerability in Literature

Lecture 27 - Aging and Vulnerability - 2

Lecture 28 - Aging and Vulnerability - 3

Lecture 29 - Discussion on Vulnerability and Aging - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Discussion on Vulnerability and Aging - 2
- Lecture 31 - Childhood and Vulnerability - 1
- Lecture 32 - Childhood and Vulnerability - 2
- Lecture 33 - Childhood and Vulnerability - 3
- Lecture 34 - Discussion on Childhood and Vulnerability - I
- Lecture 35 - Discussion on Childhood and Vulnerability - II
- Lecture 36 - Imperial Vulnerability - I
- Lecture 37 - Imperial Vulnerability - II
- Lecture 38 - Posthuman Vulnerability
- Lecture 39 - Contemporary Genres of Resilience - The Graphic Novel - I
- Lecture 40 - Contemporary Genres of Resilience - The Graphic Novel - II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Pulmonary Function Tests - Interpretation and Application in Clinical Practice

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - Chettinad Hospital and Research Institute

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Functional Anatomy of the Respiratory Tract
- Lecture 2 - Mechanics of Respiration - Section 1
- Lecture 3 - Mechanics of Respiration - Section 2
- Lecture 4 - Ventilation, Perfusion Ventilation Perfusion Relationship
- Lecture 5 - Essential Principles of Spirometer
- Lecture 6 - Types of Pulmonary function tests
- Lecture 7 - Obstructive Lung Diseases: Pathophysiology
- Lecture 8 - Restrictive lung Diseases: Pathophysiology
- Lecture 9 - Drug Effects on Pulmonary Function
- Lecture 10 - Lung Disorders in Children
- Lecture 11 - Assessment of Lung Functions in Children
- Lecture 12 - Static and Dynamic lung function tests
- Lecture 13 - Interpretation of Normal Pulmonary Function Tests
- Lecture 14 - Indications for Pulmonary Function Testing
- Lecture 15 - Obstructive Airway Diseases - Approach
- Lecture 16 - Clinical Diagnosis of Restrictive Lung Disease - Part 1
- Lecture 17 - Clinical Diagnosis of Restrictive Lung Disease - Part 2
- Lecture 18 - Essential Criteria For a Good Pulmonary Function Testing
- Lecture 19 - Interpretation of pulmonary function tests in Restrictive lung disease
- Lecture 20 - Interpretation of PFT in Obstructive lung diseases
- Lecture 21 - Diffusion Capacity of Lungs for Carbon Monoxide DLCO
- Lecture 22 - Radiological assessment of obstructive and restrictive lung disorders
- Lecture 23 - Laboratory Video - Pulmonary Function tests - Interpretation and application in clinical practice

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Teaching and Learning in Engineering (TALE)

Subject Co-ordinator - Prof. N.J. Rao

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview of TALE and Good Engineer
- Lecture 2 - Education and Teaching
- Lecture 3 - Learning, Instruction and Assessment
- Lecture 4 - What is OBE?
- Lecture 5 - Accreditation
- Lecture 6 - Outcomes
- Lecture 7 - Program Outcomes - 1
- Lecture 8 - Program Outcomes - 2
- Lecture 9 - Taxonomy of Learning
- Lecture 10 - Cognitive Levels
- Lecture 11 - General Categories of Knowledge
- Lecture 12 - Metacognitive Knowledge
- Lecture 13 - Vincenti Categories of Engineering Knowledge
- Lecture 14 - Affective and Psychomotor Domains
- Lecture 15 - Taxonomy Table
- Lecture 16 - Course Outcomes - 1
- Lecture 17 - Course Outcomes - 2
- Lecture 18 - Course Outcomes - POs and PSOs
- Lecture 19 - Attainment of COs
- Lecture 20 - Attainment of POs and PSOs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:Teaching and Learning in General Programs

Subject Co-ordinator - Prof. N.J. Rao

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Teaching and Learning in General Programs (TALG)

Lecture 2 - Education and Teaching

Lecture 3 - Learning, Assessment and Instruction

Lecture 4 - Outcome Based Education (OBE)

Lecture 5 - Accreditation

Lecture 6 - Program Outcomes

Lecture 7 - POs and PSOs

Lecture 8 - Taxonomy of Learning

Lecture 9 - Taxonomy of Learning

Lecture 10 - Taxonomy of Learning

Lecture 11 - Taxonomy of Learning

Lecture 12 - Affective Domain

Lecture 13 - Psychomotor Domain

Lecture 14 - Taxonomy Tables

Lecture 15 - Course Outcomes - 1

Lecture 16 - Course Outcomes - 2

Lecture 17 - Tagging the Course Outcomes

Lecture 18 - Attainment of Course Outcomes

Lecture 19 - Attainment of POs and PSOs

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:TALE 2 - Course Design and Instruction of Engineering Courses

Subject Co-ordinator - Prof K Rajani Kanth

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Engineering Programs, NBA Accreditation and Engineering Courses

Lecture 2 - Course Design

Lecture 3 - ISD and ADDIE

Lecture 4 - Analysis Phase - 1

Lecture 5 - Analysis Phase - 2

Lecture 6 - Design Phase

Lecture 7 - Technology and Targets

Lecture 8 - Assessment Pattern and Assessment Instruments

Lecture 9 - Item Banks

Lecture 10 - Development Phase

Lecture 11 - Instruction Material and Learning Material

Lecture 12 - Implement Phase - 1

Lecture 13 - Implement Phase - 2

Lecture 14 - Evaluate Phase

Lecture 15 - Course Exit Survey

Lecture 16 - Evaluating Laboratories and Electives

Lecture 17 - Exit Surveys for Projects

Lecture 18 - Summary Feedback

Lecture 19 - Instruction

Lecture 20 - Instructional Situations

Lecture 21 - How Brains Learn - 1

Lecture 22 - How Brains Learn - 2

Lecture 23 - How Brains Learn - 3

Lecture 24 - Instructional Components - 1

Lecture 25 - Instructional Components - 2

Lecture 26 - Merrill's Principles of Learning

Lecture 27 - ID based on Merrill's Principles

Lecture 28 - Direct Approach to Instruction

Lecture 29 - Project Based Approach to Instruction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Problem Based Approach to Instruction
- Lecture 31 - Experiential Approach to Instruction
- Lecture 32 - Simulation Approach to Instruction
- Lecture 33 - Instruction for Design
- Lecture 34 - Instruction for Metacognitive Learning
- Lecture 35 - So, what should a teacher do?

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Multi Disciplinary - NOC:NBA Accreditation and Teaching Learning in Engineering (NATE)

Subject Co-ordinator - Prof. N J Rao, Prof. K. Rajanikanth

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - NATE
- Lecture 2 - NBA Accreditation
- Lecture 3 - Outcome Based Education
- Lecture 4 - Self Assessment Report
- Lecture 5 - Education, Teaching, Learning, Instruction, and Assessment
- Lecture 6 - PEOs and POs (1-5)
- Lecture 7 - POs (6-9)
- Lecture 8 - POs (10-12)
- Lecture 9 - PSOs
- Lecture 10 - Taxonomy of Learning
- Lecture 11 - Cognitive Processes - 1
- Lecture 12 - Cognitive Processes - 2
- Lecture 13 - Categories of Knowledge - 1
- Lecture 14 - Categories of Knowledge - 2
- Lecture 15 - Taxonomy Table
- Lecture 16 - Affective and Psychomotor Domains
- Lecture 17 - Course Outcomes - 1
- Lecture 18 - Course Outcomes - 2
- Lecture 19 - Tagging Course Outcomes
- Lecture 20 - Computing Attainment of COs
- Lecture 21 - Computing PO and PSO Attainment
- Lecture 22 - Course Design Component of Teaching as per Fink's Model
- Lecture 23 - ISD and ADDIE Models
- Lecture 24 - ADDIE - Analysis Phase 1
- Lecture 25 - ADDIE - Analysis Phase 2
- Lecture 26 - ADDIE - Design Phase
- Lecture 27 - Technology for Assessment; Setting Targets
- Lecture 28 - Assessment Plan and Assessment Instruments
- Lecture 29 - Item Banks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - ADDIE- Development Phase
- Lecture 31 - ADDIE - Implement Phase 1
- Lecture 32 - ADDIE - Implement Phase 2
- Lecture 33 - Exit Surveys - 1
- Lecture 34 - Exit Surveys - 2
- Lecture 35 - ADDIE - Evaluate Phase
- Lecture 36 - Instruction An Overview
- Lecture 37 - Instructional Situations
- Lecture 38 - How Brains Learn
- Lecture 39 - Instructional Components
- Lecture 40 - Principles of Instruction Design
- Lecture 41 - Direct Instruction - 1
- Lecture 42 - Direct Instruction - 2
- Lecture 43 - Project Based Approach to Instruction
- Lecture 44 - Problem Based Approach to Instruction
- Lecture 45 - Instruction for Design thinking
- Lecture 46 - Simulation Approach to Instruction
- Lecture 47 - Instruction for Metacognitive Learning
- Lecture 48 - So, What Should the teacher do?
- Lecture 49 - NBA Criterion 1 Vision, Mission, PEOs - 1
- Lecture 50 - NBA Criterion 1 Vision, Mission, PEOs - 2
- Lecture 51 - NBA Criterion 2 Teaching-Learning Processes - 1
- Lecture 52 - NBA Criterion 2 Teaching-Learning Processes - 2
- Lecture 53 - NBA Criterion 3 COs and POs - 1
- Lecture 54 - NBA Criterion 3 COs and POs - 2
- Lecture 55 - NBA Criterion 4 Students' Performance
- Lecture 56 - NBA Criterion 5 Faculty Information and Contributions
- Lecture 57 - NBA Criterion 6 Facilities and Technical Support
- Lecture 58 - NBA Criterion 7 Continuous Improvement
- Lecture 59 - NBA Criterion 8 First Year Academics
- Lecture 60 - NBA Criterion 9 Student Support Systems
- Lecture 61 - NBA Criterion 10 Governance, Institutional Support and Financial Resources
- Lecture 62 - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Nanotechnology - Nano structured materials-synthesis, properties, self assembly and appl

Subject Co-ordinator - Prof. A.K. Ganguli

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Nanotechnology
- Lecture 2 - Introduction to Nanotechnology (Continued...)
- Lecture 3 - Synthetic Methodologies
- Lecture 4 - Synthetic Methodologies (Continued...)
- Lecture 5 - Synthetic Methodologies (Continued...)
- Lecture 6 - Synthetic Methodologies (Continued...)
- Lecture 7 - Synthetic Methodologies (Continued...)
- Lecture 8 - Synthetic Methodologies (Continued...)
- Lecture 9 - Template Methods - I
- Lecture 10 - Template Methods - II
- Lecture 11 - Spray Pyrolysis
- Lecture 12 - V-L-S Method
- Lecture 13 - Lithography - I
- Lecture 14 - Lithography - II
- Lecture 15 - Fullerenes and Carbon Nanotubes - I
- Lecture 16 - Fullerenes and Carbon Nanotubes - II
- Lecture 17 - Fullerenes and Carbon Nanotubes - III
- Lecture 18 - Metal and Metal Oxide Nanowires - I
- Lecture 19 - Metal and Metal Oxide Nanowires - II
- Lecture 20 - Metal and Metal Oxide Nanowires - III
- Lecture 21 - Self Assembly of Nanostructures - I
- Lecture 22 - Self Assembly of Nanostructures - II
- Lecture 23 - Self Assembly of Nanostructures - III
- Lecture 24 - Core Shell Nanostructures - I
- Lecture 25 - Core Shell Nanostructures - II
- Lecture 26 - Core Shell Nanostructures - III
- Lecture 27 - Nanocomposites - I
- Lecture 28 - Nanocomposites - II
- Lecture 29 - Photocatalysis - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Photocatalysis - II
- Lecture 31 - Photocatalysis - III
- Lecture 32 - Dielectric Properties - I
- Lecture 33 - Dielectric Properties - II
- Lecture 34 - Magnetic Properties - I
- Lecture 35 - Magnetic Properties - II
- Lecture 36 - Magnetic Properties - III
- Lecture 37 - Optical Properties - I
- Lecture 38 - Optical Properties - II
- Lecture 39 - Mechanical Properties
- Lecture 40 - Concluding Lecture

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Nanotechnology - Nanostructures and Nanomaterials: Characterization and Properties

Subject Co-ordinator - Dr. Anandh Subramaniam, Dr. Kantesh Balani

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Nanomaterials  
Lecture 2 - Introduction to Nanomaterials  
Lecture 3 - Introduction to Nanomaterials  
Lecture 4 - Introduction to Nanomaterials  
Lecture 5 - Introduction to Nanomaterials  
Lecture 6 - Introduction to Nanomaterials  
Lecture 7 - Introduction to Nanomaterials  
Lecture 8 - Introduction to Nanomaterials  
Lecture 9 - Introduction to Nanomaterials  
Lecture 10 - Introduction to Nanomaterials  
Lecture 11 - Surface Effects and Physical properties of nanomaterials  
Lecture 12 - Surface Effects and Physical properties of nanomaterials  
Lecture 13 - Surface Effects and Physical properties of nanomaterials  
Lecture 14 - Surface Effects and Physical properties of nanomaterials  
Lecture 15 - Surface Effects and Physical properties of nanomaterials  
Lecture 16 - Defect Structure & Mechanical Behaviour of Nanomaterials  
Lecture 17 - Defect Structure & Mechanical Behaviour of Nanomaterials  
Lecture 18 - Defect Structure & Mechanical Behaviour of Nanomaterials  
Lecture 19 - Defect Structure & Mechanical Behaviour of Nanomaterials  
Lecture 20 - Defect Structure & Mechanical Behaviour of Nanomaterials  
Lecture 21 - Electrical, Magnetic and Optical Properties of Nanomaterials  
Lecture 22 - Electrical, Magnetic and Optical Properties of Nanomaterials  
Lecture 23 - Electrical, Magnetic and Optical Properties of Nanomaterials  
Lecture 24 - Electrical, Magnetic and Optical Properties of Nanomaterials  
Lecture 25 - Electrical, Magnetic and Optical Properties of Nanomaterials  
Lecture 26 - Atomic Bonding  
Lecture 27 - Overview of Nano structures and Nano materials  
Lecture 28 - Carbon Nanostructures  
Lecture 29 - Multi-Scale Hierarchy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Self Assembly
- Lecture 31 - Nanomaterials in Nature
- Lecture 32 - Surfaces and Interfaces
- Lecture 33 - Non-wetting
- Lecture 34 - Nanomaterials Science and Nanomanufacturing
- Lecture 35 - Surface Adsorption Isotherms (Langmuir/Bet)
- Lecture 36 - Reciprocal Lattice
- Lecture 37 - Transmission Electron Microscopy
- Lecture 38 - Transmission Electron Microscopy
- Lecture 39 - Auger Electron Spectroscopy
- Lecture 40 - X-Ray Photoelectron Spectroscopy (XPS)
- Lecture 41 - Electron Energy Loss Spectroscopy (EELS)
- Lecture 42 - Deformation Behavior of Nanomaterials
- Lecture 43 - Fracture and Creep
- Lecture 44 - Nanomechanics
- Lecture 45 - Nanotribology

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Elements of Ocean Engineering

Subject Co-ordinator - Dr. Ashoke Bhar

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Physical Oceanography - I  
Lecture 3 - Physical Oceanography - II  
Lecture 4 - Physical Oceanography - III  
Lecture 5 - Physical Oceanography - IV  
Lecture 6 - Sediments & Open Ocean  
Lecture 7 - Open Ocean - I  
Lecture 8 - Open Ocean - II  
Lecture 9 - Physical Properties of Water  
Lecture 10 - Water and Waves  
Lecture 11 - Waves - I  
Lecture 12 - Waves - II  
Lecture 13 - Waves - III  
Lecture 14 - Introduction to Offshore Structures - I  
Lecture 15 - Introduction to Offshore Structures - II  
Lecture 16 - Waves - IV  
Lecture 17 - The Wave Spectra  
Lecture 18 - The Wave Spectra (Continued...1)  
Lecture 19 - The Wave Spectra (Continued...2)  
Lecture 20 - Offshore Structures - I  
Lecture 21 - Offshore Structures - II  
Lecture 22 - Offshore Structures - III  
Lecture 23 - Floating Offshore Structures  
Lecture 24 - Drilling from Platforms  
Lecture 25 - Drilling and Topsides  
Lecture 26 - Topsides  
Lecture 27 - Mooring Systems  
Lecture 28 - Mooring Systems (Continued...1)  
Lecture 29 - Static Analysis of Mooring Cable

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Static Analysis of Mooring Cable (Continued...)
- Lecture 31 - Mooring Systems (Continued...2)
- Lecture 32 - Mooring Systems (Continued...3)
- Lecture 33 - Mooring Systems (Continued...4)
- Lecture 34 - Mooring Systems (Continued...5)
- Lecture 35 - Mooring Systems (Continued...6)
- Lecture 36 - Fixed Offshore Structures
- Lecture 37 - Fixed Offshore Structures (Continued...)
- Lecture 38 - Structural Analysis of Jacket Platforms
- Lecture 39 - Structural Analysis of Jacket Platforms (Continued...1)
- Lecture 40 - Structural Analysis of Jacket Platforms (Continued...2)
- Lecture 41 - Jacket Pile Selection
- Lecture 42 - Jacket Pile Selection (Continued...1)
- Lecture 43 - Jacket Pile Selection (Continued...2)
- Lecture 44 - Floating Platform Design
- Lecture 45 - Semi-Submersibles
- Lecture 46 - Semi-Submersibles & TLPs
- Lecture 47 - Tension Leg Platform
- Lecture 48 - Tension Leg Platform (Continued...)
- Lecture 49 - SPAR Platform

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Hydrostatics and Stability

Subject Co-ordinator - Dr. Hari V. Warrior

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Archimedes Principle  
Lecture 3 - Archimedes Principle (Continued...)  
Lecture 4 - Numerical Integration  
Lecture 5 - Problems in Stability - I  
Lecture 6 - Problems in Stability - II  
Lecture 7 - Problems in Stability - III  
Lecture 8 - Problems in Integration  
Lecture 9 - Free Surface Effect  
Lecture 10 - Inclining Experiment  
Lecture 11 - Hydrostatic Curves - I  
Lecture 12 - Hydrostatic Curves - II  
Lecture 13 - Stability Curve  
Lecture 14 - Dynamical Stability - I  
Lecture 15 - Dynamical Stability - II  
Lecture 16 - Heeling Moment - I  
Lecture 17 - Heeling Moment - II  
Lecture 18 - Heeling Moment - III  
Lecture 19 - Dynamical Stability - III  
Lecture 20 - Discussion  
Lecture 21 - Righting Stability - I  
Lecture 22 - Righting Stability - II  
Lecture 23 - Trim Calculations - I  
Lecture 24 - Trim Calculations - II  
Lecture 25 - Trim Stability - I  
Lecture 26 - Trim Stability - II  
Lecture 27 - Dry Docking - I  
Lecture 28 - Dry Docking - II  
Lecture 29 - Bilging - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Bilging - II
- Lecture 31 - Bilging - III
- Lecture 32 - Bilging - IV
- Lecture 33 - Safety Regulations
- Lecture 34 - Safety Regulations (Continued...)
- Lecture 35 - Safety Regulations (Continued...)
- Lecture 36 - Ship Stability on Waves
- Lecture 37 - Ship Stability on Waves (Continued...)
- Lecture 38 - Ship Stability on Waves (Continued...)
- Lecture 39 - Wave Theory
- Lecture 40 - Conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Marine Construction and Welding

Subject Co-ordinator - Prof. N.R. Mandal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to ships & offshore structures
- Lecture 2 - Characteristics of shipbuilding industry
- Lecture 3 - Structural Requirement
- Lecture 4 - Basic Structural Components
- Lecture 5 - Structural Subassemblies
- Lecture 6 - Bulkheads
- Lecture 7 - Decks & Shells
- Lecture 8 - Structural Assemblies Double Bottom Construction
- Lecture 9 - Wing Tanks & Duct Keels
- Lecture 10 - Fore & Aftend Construction
- Lecture 11 - General Cargo Carrier
- Lecture 12 - Bulk Carrier
- Lecture 13 - Structural Details
- Lecture 14 - Container Ship
- Lecture 15 - RO-RO Ship
- Lecture 16 - Oil Tanker
- Lecture 17 - Structural Alignment & Continuity
- Lecture 18 - Steel Material Preparation
- Lecture 19 - Shot Blasting
- Lecture 20 - Acid Pickling
- Lecture 21 - Plate Cutting
- Lecture 22 - Plate & Section Forming - I
- Lecture 23 - Plate & Section Forming - II
- Lecture 24 - Line Heating
- Lecture 25 - Fusion Welding & Power Source
- Lecture 26 - Welding Parameters & their Effects
- Lecture 27 - Welding Methods
- Lecture 28 - Shielded Metal Arc Welding
- Lecture 29 - Gas Metal Arc Welding - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gas Metal Arc Welding - II
- Lecture 31 - Gas Tungsten Arc Welding
- Lecture 32 - Submerged Arc Welding
- Lecture 33 - Electroslag Welding
- Lecture 34 - Electrogas Welding
- Lecture 35 - Friction Stir Welding
- Lecture 36 - FSW Metallurgy
- Lecture 37 - Welding Defects & NDT
- Lecture 38 - Welding Distortions
- Lecture 39 - Distortion Mechanism & Types of Distortion
- Lecture 40 - Distortion Control & Mitigation
- Lecture 41 - Welding Sequence

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Marine Hydrodynamics

Subject Co-ordinator - Dr. T. Sahoo

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Marine Hydrodynamics
- Lecture 2 - Law of Conservation of Mass - Continuity of Equation
- Lecture 3 - Streamlines and Flow Direction
- Lecture 4 - Worked Examples on Various Types of Flow
- Lecture 5 - Equation of Motion (Law of Conservation of Momentum)
- Lecture 6 - Applications of Equations of Motion
- Lecture 7 - Applications of Equations of Motion (Continued...)
- Lecture 8 - Two Dimensional Flows
- Lecture 9 - Two Dimensional Flows (Continued...)
- Lecture 10 - Source, Sink and Doublet
- Lecture 11 - Worked Examples on Two Dimensional Flows
- Lecture 12 - Conformal Mapping and Joukowski Transformation
- Lecture 13 - Uniform Flow Past an Elliptic Cylinder
- Lecture 14 - Aerofoil theory
- Lecture 15 - Aerofoil theory (Continued...)
- Lecture 16 - Aerofoil theory (Continued...)
- Lecture 17 - Schwarz - Christoffel Transformation
- Lecture 18 - Motion of a cylinder
- Lecture 19 - Vertex Motion
- Lecture 20 - Irrotational Flow - A Bird's eyeview
- Lecture 21 - Introduction to Water Waves
- Lecture 22 - Basic Equation and Conditions of Water Waves
- Lecture 23 - Water particle kinematics in wave motion
- Lecture 24 - Capillary Gravity Waves
- Lecture 25 - Linearised Long Wave Equation
- Lecture 26 - Linearised Long Wave Equation (Continued...)
- Lecture 27 - Wave motion in two layer fluids
- Lecture 28 - Worked Examples on Wave Motion
- Lecture 29 - Worked Examples on Wave Motion (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gravity wave transformation and energy rotation
- Lecture 31 - Gravity wave transformation and energy rotation (Continued...)
- Lecture 32 - Gravity wave transformation and energy rotation (Continued...)
- Lecture 33 - Navier - Stokes equation of motion
- Lecture 34 - Analysis of Basic Flow Problems
- Lecture 35 - Analysis of Basic Flow Problems (Continued...)
- Lecture 36 - Unsteady unidirectional flows
- Lecture 37 - Unsteady unidirectional flows (Continued...)
- Lecture 38 - An introduction to Boundary Layer Theory
- Lecture 39 - Solution methods for Boundary Layer Equations
- Lecture 40 - Solutions Methods for Boundary Layer Equations (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Seakeeping and Manoeuvring

Subject Co-ordinator - Prof. Debabrata Sen

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Regular Water Waves - I
- Lecture 2 - Regular Water Waves - II
- Lecture 3 - Definition of Ship Motions & Encounter Frequency
- Lecture 4 - Single Degree of Freedom Motions in Regular Waves
- Lecture 5 - Uncoupled Heave, Pitch and Roll - I
- Lecture 6 - Uncoupled Heave, Pitch and Roll - II
- Lecture 7 - Uncoupled Heave, Pitch and Roll - III
- Lecture 8 - Uncoupled Heave, Pitch and Roll - IV
- Lecture 9 - Uncoupled Heave, Pitch and Roll - V
- Lecture 10 - Coupled Motions
- Lecture 11 - Irregular Waves
- Lecture 12 - Description of Irregular Waves by Spectrum
- Lecture 13 - Theoretical Wave Spectrum
- Lecture 14 - Ship Motion in Irregular Waves - I
- Lecture 15 - Ship Motion in Irregular Waves - II
- Lecture 16 - Ship Motion in Irregular Waves - III
- Lecture 17 - Description of Short-Crested Sea
- Lecture 18 - Motions in Short-Crested Sea
- Lecture 19 - Derived Responses & Dynamic Effects - I
- Lecture 20 - Derived Responses & Dynamic Effects - II
- Lecture 21 - Derived Responses & Dynamic Effects - III
- Lecture 22 - Seakeeping Considerations in Design
- Lecture 23 - Manoeuvring
- Lecture 24 - Dynamic Equations of Motion - I
- Lecture 25 - Dynamic Equations of Motion - II
- Lecture 26 - Hydrodynamic Derivatives
- Lecture 27 - Controls-Fixed Stability
- Lecture 28 - Stability & Cotrollability
- Lecture 29 - Definitive Manoeuvres - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Definitive Manoeuvres - II
- Lecture 31 - Definitive Manoeuvres - III
- Lecture 32 - Non-linear Equations of Motion
- Lecture 33 - Non-linear Equations & Model Tests
- Lecture 34 - Captive Model Tests and Experimental Determination of Hydrodynamic Derivatives
- Lecture 35 - PMM Tests - I
- Lecture 36 - PMM Tests - II
- Lecture 37 - Rudder & Control Surfaces - I
- Lecture 38 - Rudder & Control Surfaces - II
- Lecture 39 - Theoretical Determination of Hydrodynamic Derivatives - I
- Lecture 40 - Theoretical Determination of Hydrodynamic Derivatives - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Applied Thermodynamics for Marine Systems

Subject Co-ordinator - Prof. P.K. Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction & Some Definitions
- Lecture 2 - First Law of Thermodynamics (Closed System)
- Lecture 3 - First Law of Thermodynamics (Open System)
- Lecture 4 - Second Law of Thermodynamics
- Lecture 5 - Second Law and Carnot Principle
- Lecture 6 - Property of Pure Substance, Steam Table
- Lecture 7 - Ideal Gas Laws, Different Processes
- Lecture 8 - Introduction to Vapour Power Cycle
- Lecture 9 - Vapour Power Cycle
- Lecture 10 - Steam Power Cycle, Steam Nozzle
- Lecture 11 - Basic Concept of Turbine, Velocity Diagram
- Lecture 12 - Steam Turbine-Impulse
- Lecture 13 - Reaction Turbine Compounding
- Lecture 14 - Comparison of Different Staging Arrangement
- Lecture 15 - Basics Laws of Fluid Mechanics
- Lecture 16 - Pipe Friction, Major Loss, Minor Loss
- Lecture 17 - Pipeline & Pipe Network
- Lecture 18 - Refrigeration Vapour Compression Cycle
- Lecture 19 - Psychometrics
- Lecture 20 - Psychometrics (Continued...)
- Lecture 21 - Psychometric Processes
- Lecture 22 - Psychometric Processes (Continued...), Air Conditioning
- Lecture 23 - Summer & Winter Air Conditioning
- Lecture 24 - Gas Power Cycles, Cycles for IC Engines
- Lecture 25 - Gas Turbine Cycles
- Lecture 26 - Modification of Brayton Cycle
- Lecture 27 - Introduction to Convective Heat Transfer Forced & Free Convection

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Performance of Marine Vehicles at Sea

Subject Co-ordinator - Prof. Debabrata Sen, Prof. S.C. Misra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Components of Resistance - I
- Lecture 2 - Components of Resistance - II
- Lecture 3 - Dimensional Analysis
- Lecture 4 - Frictional Resistance
- Lecture 5 - Wave Making Resistance
- Lecture 6 - Other Components of Resistance
- Lecture 7 - Model Experiments
- Lecture 8 - Shallow Water Effects
- Lecture 9 - Ship hull form and Resistance
- Lecture 10 - Propeller Geometry - Part I
- Lecture 11 - Propeller Geometry - Part II
- Lecture 12 - Introduction to High Speed Crafts - Part I
- Lecture 13 - Introduction to High Speed Crafts - Part II
- Lecture 14 - Propeller in Open Water - Part I
- Lecture 15 - Propeller in Open Water - Part II
- Lecture 16 - Propeller 'behind' a ship
- Lecture 17 - Propeller experiments
- Lecture 18 - Propeller theories - Part I
- Lecture 19 - Propeller Theories
- Lecture 20 - Cavitation
- Lecture 21 - Regular Sea Waves - I
- Lecture 22 - Regular Sea Waves - II
- Lecture 23 - Irregular sea Waves - I
- Lecture 24 - Irregular Sea Waves - II
- Lecture 25 - Ship Motion in Regular Waves - I
- Lecture 26 - Ship Motion in Regular Waves - II
- Lecture 27 - Ship Motion in Regular Waves - III
- Lecture 28 - Ship Motion in irregular Waves - I
- Lecture 29 - Ship Motion in irregular Waves - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ship Motion in irregular Waves - III
- Lecture 31 - Motion in Short Crested Sea, Coupled Motions
- Lecture 32 - Derived Responses
- Lecture 33 - Ship Controllability
- Lecture 34 - Equation of Motion in Horizontal Plane
- Lecture 35 - Hydrodynamic Derivatives and Stability
- Lecture 36 - Hydrodynamic Derivatives and Stability
- Lecture 37 - Ship Trials and Maneuvers - I
- Lecture 38 - Ship Trials and Maneuvers - II
- Lecture 39 - Heel During Turn, IMO Requirements
- Lecture 40 - Rudder Hydrodynamics



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Strength and Vibration of Marine Structures

Subject Co-ordinator - Prof. S.K. Satsangi, Prof. A.H. Sheikh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Ship Structures - I
- Lecture 2 - Introduction to Ship Structures - II
- Lecture 3 - Deflection of Structure Beam - I
- Lecture 4 - Deflection of Structure Beam - II
- Lecture 5 - Deflection of Structure Beam - III
- Lecture 6 - Deflection of Structure Beam - IV
- Lecture 7 - Statically Indeterminate Structures - I
- Lecture 8 - Statically Indeterminate Structures - II
- Lecture 9 - Statically Indeterminate Structures - III
- Lecture 10 - Statically Indeterminate Structures - IV
- Lecture 11 - Statically Indeterminate Structures - V
- Lecture 12 - Statically Indeterminate Structures - VI
- Lecture 13 - Longitudinal Bending of Hull Girder - I
- Lecture 14 - Longitudinal Bending of Hull Girder - II
- Lecture 15 - Longitudinal Bending of Hull Grider - III
- Lecture 16 - Theory of Column - I
- Lecture 17 - Theory of Column - II
- Lecture 18 - Theory of Column - III
- Lecture 19 - Theory of Column - IV
- Lecture 20 - Calculation of Momentum of Inertia of Main Section
- Lecture 21 - Bending in Inclined Condition
- Lecture 22 - Calculation of Deflection/Shear Stress
- Lecture 23 - Ship Vibration - I
- Lecture 24 - Ship Vibration - II
- Lecture 25 - Ship Vibration - III
- Lecture 26 - Ship Vibration - IV
- Lecture 27 - Ship Vibration - V
- Lecture 28 - Propeller Induced Vibration & Hull Frequency Estimation
- Lecture 29 - Hull Frequency Estimation from Basic Group (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Analysis of Bulkhead - I
- Lecture 31 - Analysis of Bulkhead - II
- Lecture 32 - Stress Concentration/Structural Discontinuities
- Lecture 33 - Composite Construction
- Lecture 34 - Method of Plastic Analysis
- Lecture 35 - Calculation of Natural Frequency of Hull Girder
- Lecture 36 - Hull Resonance Diagram

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Water Economics and Governance

Subject Co-ordinator - Prof. Manoj Kumar Tiwari

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Global Water Availability and Uses

Lecture 3 - Water Availability and Uses in India

Lecture 4 - Surface Water and Ground Water Resources

Lecture 5 - Water Use Practices and Major Challenges

Lecture 6 - Background to Water Rights

Lecture 7 - Water Rights

Lecture 8 - Right to Sanitation

Lecture 9 - Rights to Water and Sanitation - Underline Principals and Implementation

Lecture 10 - Water Rights

Lecture 11 - Water Sustainability

Lecture 12 - The Dublin Statement on Water Sustainability

Lecture 13 - Action Agenda in the Dublin Statement on Water Sustainability

Lecture 14 - Water Sustainability

Lecture 15 - Water Sustainability

Lecture 16 - Valuing Water

Lecture 17 - Valuing Water

Lecture 18 - Valuing Water

Lecture 19 - Valuing Water

Lecture 20 - Valuing Water

Lecture 21 - Pricing Water

Lecture 22 - Pricing Water

Lecture 23 - Pricing Water

Lecture 24 - Pricing Water

Lecture 25 - Pricing Water

Lecture 26 - Water Pricing

Lecture 27 - Conflicts in Water Pricing

Lecture 28 - Conflicts in Water Pricing

Lecture 29 - Conflicts in Water Pricing

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Water Pricing Case Studies
- Lecture 31 - Economics of Water Projects
- Lecture 32 - Economics of Water Projects
- Lecture 33 - Economics of Water Projects
- Lecture 34 - Economics of Water Projects
- Lecture 35 - Economics of Demand and Sectoral Allocation
- Lecture 36 - Economics Evaluation of Water Projects
- Lecture 37 - Evaluation of Water Projects
- Lecture 38 - Evaluation of Water Projects
- Lecture 39 - Evaluation of Water Projects
- Lecture 40 - Evaluation of Water Projects
- Lecture 41 - Evaluation of Water Projects
- Lecture 42 - Evaluation of Water Projects
- Lecture 43 - Water Governance
- Lecture 44 - Elements, Dimensions and Principles of Water Governance
- Lecture 45 - Principles of Water Governance
- Lecture 46 - Principles of Water Governance and Effective Water Governance Schemes
- Lecture 47 - Effective Water Governance Schemes and its Benchmarking
- Lecture 48 - Decision Making and Implementation in Water Governance and its Benchmarking
- Lecture 49 - Water Governance in India
- Lecture 50 - Water Governance in India
- Lecture 51 - Water Governance in India
- Lecture 52 - Water Governance in India
- Lecture 53 - Water Governance in India
- Lecture 54 - Water Dispute Management
- Lecture 55 - Water Dispute Management
- Lecture 56 - Water Dispute Management
- Lecture 57 - Water Dispute Management
- Lecture 58 - Global Water Diplomacy
- Lecture 59 - Global Water Diplomacy
- Lecture 60 - Global Water Diplomacy
- Lecture 61 - Course Summary
- Lecture 62 - Course Summary (Continued...)
- Lecture 63 - Live Session-1
- Lecture 64 - Live Session-2
- Lecture 65 - Live Session-2 (April 20, 2018)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Marine Propulsion

Subject Co-ordinator - Prof. Anirban Bhattacharyya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Propeller Geometry
- Lecture 3 - Propeller Geometry (Continued...)
- Lecture 4 - Propeller Theory - I
- Lecture 5 - Propeller Theory - II
- Lecture 6 - Propeller Theory - III
- Lecture 7 - Propeller Theory - IV
- Lecture 8 - Propeller Theory - V
- Lecture 9 - Propeller Theory - VI
- Lecture 10 - Propeller Theory - VII
- Lecture 11 - Propeller in Open Water
- Lecture 12 - Dimensional Analysis and Similarity
- Lecture 13 - Propeller Open Water Characteristics
- Lecture 14 - Propeller Open Water Characteristics (Continued...)
- Lecture 15 - Methodical Propeller Series
- Lecture 16 - Hull-Propeller Interaction
- Lecture 17 - Hull-Propeller Interaction (Continued...)
- Lecture 18 - Ship Powering and Efficiency Components
- Lecture 19 - Engine-Propeller Matching - Part I
- Lecture 20 - Engine-Propeller Matching - Part II
- Lecture 21 - Propeller Model Tests - Part I
- Lecture 22 - Propeller Model Tests - Part II
- Lecture 23 - Propeller Model Tests - Part III
- Lecture 24 - Propeller Cavitation - Part I
- Lecture 25 - Propeller Cavitation - Part II
- Lecture 26 - Propeller Strength - Part I
- Lecture 27 - Propeller Strength - Part II
- Lecture 28 - Propeller Design - Part I
- Lecture 29 - Propeller Design - Part II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Propeller Design - Part III
- Lecture 31 - Controllable Pitch Propeller
- Lecture 32 - Ducted Propeller
- Lecture 33 - Ducted Propeller (Continued...)
- Lecture 34 - Problems on Propeller Performance
- Lecture 35 - Surface Piercing Propeller, Podded Propeller, Thruster
- Lecture 36 - Waterjet Propulsion
- Lecture 37 - Unconventional Propulsors
- Lecture 38 - Unconventional Propulsors (Continued...)
- Lecture 39 - Miscellaneous Topics
- Lecture 40 - Energy Saving Devices

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Numerical Ship and Offshore Hydrodynamics

Subject Co-ordinator - Prof. Ranadev Datta

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction to Seakeeping - 1  
Lecture 3 - Introduction to Seakeeping - 2  
Lecture 4 - Seakeeping - 3  
Lecture 5 - Seakeeping - 4  
Lecture 6 - Seakeeping - 5  
Lecture 7 - Seakeeping - 6  
Lecture 8 - Seakeeping - 7  
Lecture 9 - Hydrodynamics - 1  
Lecture 10 - Hydrodynamics - 2  
Lecture 11 - Wave and Wave Effect  
Lecture 12 - Waves - 2  
Lecture 13 - Waves - 3  
Lecture 14 - Introduction to BEM  
Lecture 15 - Introduction to BEM (Continued...)  
Lecture 16 - Lower Order Panel Method  
Lecture 17 - Lower Order Panel Method (Continued...)  
Lecture 18 - Case Study - Part 1  
Lecture 19 - Case Study - Part 2  
Lecture 20 - Demonstration of Panel Method Code  
Lecture 21 - Frequency Domain Panel Method  
Lecture 22 - Frequency Domain Panel Method (Continued...)  
Lecture 23 - Frequency Domain Panel Method (Continued...)  
Lecture 24 - Frequency Domain Panel Method (Continued...)  
Lecture 25 - Frequency Domain Panel Method (Continued...)  
Lecture 26 - Frequency Domain Panel Method (Continued...)  
Lecture 27 - Frequency Domain Panel Method (Continued...)  
Lecture 28 - Frequency Domain Panel Method (Continued...)  
Lecture 29 - Cummins Equation

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - IRF Based Solution - Part 1
- Lecture 31 - IRF Based Solution - Part 2
- Lecture 32 - Time Domain Solution Using IRF
- Lecture 33 - Time Domain Solution Using IRF (Continued...)
- Lecture 34 - Numerical Computation of IRF Based Method
- Lecture 35 - Numerical Computation of IRF Based Method (Continued...)
- Lecture 36 - Forward Speed Effects
- Lecture 37 - Strip Theory - Part 1
- Lecture 38 - Strip Theory - Part 2
- Lecture 39 - Strip Theory - Part 3
- Lecture 40 - Strip Theory - Part 4
- Lecture 41 - Strip Theory - Part 5
- Lecture 42 - Strip Theory - Part 6
- Lecture 43 - Strip Theory - Part 7
- Lecture 44 - Time Domain Panel Method
- Lecture 45 - Time Domain Panel Method (Continued...)
- Lecture 46 - Time Domain Panel Method (Continued...)
- Lecture 47 - Time Domain Panel Method (Continued...)
- Lecture 48 - Time Domain Panel Method (Continued...)
- Lecture 49 - Non Linear Time Domain Panel Method
- Lecture 50 - Non Linear Time Domain Panel Method (Continued...)
- Lecture 51 - Time Domain Panel Method - Code Development
- Lecture 52 - Ship Hydroelasticity
- Lecture 53 - Hydroelasticity
- Lecture 54 - Hydroelasticity (Continued...)
- Lecture 55 - Hydroelasticity (Continued...)
- Lecture 56 - Semi Analytic Method
- Lecture 57 - Semi Analytic Method (Continued...)
- Lecture 58 - Including Non linear Forces in BEM Code
- Lecture 59 - Including Non linear Forces in BEM Code (Continued...)
- Lecture 60 - Closer



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Design of Offshore Structures

Subject Co-ordinator - Dr. S. Nallayarasu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Loads On Offshore Structures - 1  
Lecture 2 - Loads On Offshore Structures - 2  
Lecture 3 - Loads On Offshore Structures - 3  
Lecture 4 - Loads On Offshore Structures - 4  
Lecture 5 - Loads On Offshore Structures - 5  
Lecture 6 - Loads On Offshore Structures - 6  
Lecture 7 - Loads On Offshore Structures - 7  
Lecture 8 - Concepts of Fixed Offshore Platform Deck and Jacket - 1  
Lecture 9 - Concepts of Fixed Offshore Platform Deck and Jacket - 2  
Lecture 10 - Concepts of Fixed Offshore Platform Deck and Jacket - 3  
Lecture 11 - Concepts of Fixed Offshore Platform Deck and Jacket - 4  
Lecture 12 - Concepts of Fixed Offshore Platform Deck and Jacket - 5  
Lecture 13 - Steel Tubular Member Design - 1  
Lecture 14 - Steel Tubular Member Design - 2  
Lecture 15 - Steel Tubular Member Design - 3  
Lecture 16 - Steel Tubular Member Design - 4  
Lecture 17 - Steel Tubular Member Design - 5  
Lecture 18 - Tubular Joint Design for Static and Cyclic Loads - 1  
Lecture 19 - Tubular Joint Design for Static and Cyclic Loads - 2  
Lecture 20 - Tubular Joint Design for Static and Cyclic Loads - 3  
Lecture 21 - Tubular Joint Design for Static and Cyclic Loads - 4  
Lecture 22 - Tubular Joint Design for Static and Cyclic Loads - 5  
Lecture 23 - Tubular Joint Design for Static and Cyclic Loads - 6  
Lecture 24 - Tubular Joint Design for Static and Cyclic Loads - 7  
Lecture 25 - Tubular Joint Design for Static and Cyclic Loads - 8  
Lecture 26 - Tubular Joint Design for Static and Cyclic Loads - 9  
Lecture 27 - Tubular Joint Design for Static and Cyclic Loads - 10  
Lecture 28 - Tubular Joint Design for Static and Cyclic Loads - 11  
Lecture 29 - Tubular Joint Design for Static and Cyclic Loads - 12

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30	- Jackup RIGS-Analysis and Design	- 1
Lecture 31	- Jackup RIGS-Analysis and Design	- 2
Lecture 32	- Jackup RIGS-Analysis and Design	- 3
Lecture 33	- Jackup RIGS-Analysis and Design	- 4
Lecture 34	- Jackup RIGS-Analysis and Design	- 5
Lecture 35	- Design Against Accidental Loads	- 1
Lecture 36	- Design Against Accidental Loads	- 2
Lecture 37	- Design Against Accidental Loads	- 3
Lecture 38	- Design Against Accidental Loads	- 4
Lecture 39	- Design Against Accidental Loads	- 5
Lecture 40	- Design Against Accidental Loads	- 6
Lecture 41	- Design Against Accidental Loads	- 7
Lecture 42	- Design Against Accidental Loads	- 8

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Foundation for Offshore Structures

Subject Co-ordinator - Dr. S. Nallayarasu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basics of Soil Mechanics - I  
Lecture 2 - Basics of Soil Mechanics - II  
Lecture 3 - Basics of Soil Mechanics - III  
Lecture 4 - Basics of Soil Mechanics - IV  
Lecture 5 - Basics of Soil Mechanics - V  
Lecture 6 - Basics of Soil Mechanics - VI  
Lecture 7 - Basics of Soil Mechanics - VII  
Lecture 8 - Bearing Capacity of Foundations - I  
Lecture 9 - Bearing Capacity of Foundations - II  
Lecture 10 - Pile Foundation - I  
Lecture 11 - Pile Foundation - II  
Lecture 12 - Pile Foundation - III  
Lecture 13 - Pile Foundation - IV  
Lecture 14 - Pile Foundation - V  
Lecture 15 - Pile Foundation - VI  
Lecture 16 - Pile Installation - I  
Lecture 17 - Pile Installation - II  
Lecture 18 - Pile Driveability Analysis - I  
Lecture 19 - Pile Driveability Analysis - II  
Lecture 20 - Pile Driveability Analysis - III  
Lecture 21 - Pile Driveability Analysis - IV  
Lecture 22 - Pile Driveability Analysis - V  
Lecture 23 - Onbottom Stability of Jackets - I  
Lecture 24 - Onbottom Stability of Jackets - II  
Lecture 25 - Pile Load Test - I  
Lecture 26 - Pile Load Test - II  
Lecture 27 - Pile Load Test - III  
Lecture 28 - Special Topics  
Lecture 29 - Special Foundations - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Special Foundations - II
- Lecture 31 - Special Foundations - III
- Lecture 32 - Pile Group Effects
- Lecture 33 - Two Pile Group Effect For Axial Load

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Health, Safety and Environmental Management in  
Petroleum and Offshore Engineering

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Terminologies
- Lecture 2 - Introduction to HSE
- Lecture 3 - Safety assurance and assessment
- Lecture 4 - Safety assurance and assessment (Continued...)
- Lecture 5 - Safety in design and operations
- Lecture 6 - Organizing for safety
- Lecture 7 - Hazard classification and assessment, Hazard evaluation and hazard control
- Lecture 8 - HaZOP
- Lecture 9 - HaZOP (Continued...)
- Lecture 10 - Hazard evaluation and hazard control
- Lecture 11 - Hazard Identification and Management in Oil & Gas Industry using HAZOP
- Lecture 12 - FMEA
- Lecture 13 - FMEA (Continued...)
- Lecture 14 - Environmental Issues and Management
- Lecture 15 - Impact of Oil and Gas Industry on Marine Environment
- Lecture 16 - Oil Hydrocarbon in Marine Environment
- Lecture 17 - Chemicals and Wastes from Offshore and Oil Industry
- Lecture 18 - Dispersion Models & Atmospheric Pollution
- Lecture 19 - Atmospheric Pollution (Continued...)
- Lecture 20 - Hazard Assessment and Accident Scenario
- Lecture 21 - Dose Assessment, Safety Regulation
- Lecture 22 - Toxic Release and Dispersion Modeling
- Lecture 23 - Chemical Exposure Index (CEI)
- Lecture 24 - Chemical Exposure Index (Continued.)
- Lecture 25 - Quantitative Risk Assessment
- Lecture 26 - Quantitative Risk Assessment (Liquid Release Models Case Study - Continued...)
- Lecture 27 - Fire and Explosion Modeling
- Lecture 28 - Fire and Explosion Modeling Flammability Diagrams

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 29 - Explosion Modeling
- Lecture 30 - Fire and Explosion Preventive Measures
- Lecture 31 - Probabilistic Risk Analysis
- Lecture 32 - Safety Measures in Design and Process Operations
- Lecture 33 - Case Studies
- Lecture 34 - Case Studies (Continued...)
- Lecture 35 - Software Used in HSE an Over View

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Port and Harbour Structures

Subject Co-ordinator - Prof. R. Sundaravadivelu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Layout of ports
- Lecture 2 - Continuation of layout of ports
- Lecture 3 - Visakhapatnam port
- Lecture 4 - Ships and size of ships
- Lecture 5 - Port planning
- Lecture 6 - Harbour layout
- Lecture 7 - Site characteristics & navigation channel
- Lecture 8 - Bathymetric survey
- Lecture 9 - Tide, surge, tsunami and wave
- Lecture 10 - Wave rose diagram
- Lecture 11 - Breakwater
- Lecture 12 - Design of breakwater - Part-1
- Lecture 13 - Design of breakwater - Part-2
- Lecture 14 - Berm breakwater
- Lecture 15 - Dredging & methods of disposal
- Lecture 16 - Berthing structures modelling
- Lecture 17 - Berthing structures - analyses
- Lecture 18 - Loads
- Lecture 19 - Types of berthing structures
- Lecture 20 - Design of berthing, structures-1
- Lecture 21 - Design of offshore berthing, structures-1
- Lecture 22 - Estimation of mooring, berthing and seismic forces
- Lecture 23 - Estimation seismic forces
- Lecture 24 - Active and passive earth pressure and differential water pressure
- Lecture 25 - Load combinations and design
- Lecture 26 - Fenders
- Lecture 27 - Mechanical handling system
- Lecture 28 - Single buoy mooring and open sea jetty - Part 1
- Lecture 29 - Single buoy mooring and open sea jetty - Part 2

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Slipway, drydock, floating dock, shiplift
- Lecture 31 - Soil structure interaction
- Lecture 32 - Calculation of fixity depth
- Lecture 33 - Pile load test
- Lecture 34 - Ground improvement techniques
- Lecture 35 - Analysis of pile with spring support
- Lecture 36 - UPV, Half cell potential, Low high Integrity Test
- Lecture 37 - Mooring Dolphin at KPT
- Lecture 38 - Coastal structures and environmental management
- Lecture 39 - BOQ and Cost Estimate
- Lecture 40 - Proposed Mega Terminal Chennai
- Lecture 41 - Preliminary Project Report on Shipyard
- Lecture 42 - Procedures & clearances before implementation of a project
- Lecture 43 - Detailed project report
- Lecture 44 - Environmental studies of a project
- Lecture 45 - Design of pile
- Lecture 46 - Design and construction of diaphragm wall
- Lecture 47 - Empirical relationship between spt and several soil properties
- Lecture 48 - Model studies for a deep water port\_case study



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Ship Resistance and Propulsion

Subject Co-ordinator - Dr. P. Krishnankutty, Prof. V. Anantha Subramanian

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Syllabus and Introduction

Lecture 2 - Seaway Effects on Resistance

Lecture 3 - Ship Types and Powering Aspects

Lecture 4 - Frictional Resistance and Turbulence Stimulation

Lecture 5 - Wave Making Resistance

Lecture 6 - Bulbous Bow on Ship Resistance

Lecture 7 - Air and Wind Resistance Dimensional Analysis - I

Lecture 8 - Dimensional Analysis - II, Model Tests and Ship Resistance Prediction Methods - I

Lecture 9 - Model Tests and Ship Resistance Prediction Methods - II

Lecture 10 - Model Tests and Ship Resistance Prediction Methods - III

Lecture 11 - Resistance in Shallow Water

Lecture 12 - Canal Effects on Resistance Holtrap-Mennen Method for Ship Resistance Prediction

Lecture 13 - Ship Resistance Prediction Methods - I

Lecture 14 - Ship Resistance Prediction Methods - II

Lecture 15 - Resistance of Advanced Marine Vehicles - I

Lecture 16 - Resistance of Advanced Marine Vehicles - II

Lecture 17 - Resistance of Advanced Marine Vehicles - III

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Coastal Engineering

Subject Co-ordinator - Prof. V. Sundar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Wave deformation - I
- Lecture 2 - Wave deformation - II
- Lecture 3 - wave deformation (problems - I)
- Lecture 4 - wave deformation (problems - II)
- Lecture 5 - wave deformation (problems - III)
- Lecture 6 - Sediment charecteristics - I
- Lecture 7 - Sediment charecteristics - II
- Lecture 8 - Radiation stresses - I
- Lecture 9 - Radiation stresses - II
- Lecture 10 - Longshore sediment transport - I
- Lecture 11 - Longshore sediment transport - II
- Lecture 12 - Longshore sediment transport (problems - I)
- Lecture 13 - Longshore sediment transport (problems - II)
- Lecture 14 - Coastal erosion protection measures - I
- Lecture 15 - Coastal erosion protection measures - II
- Lecture 16 - Coastal erosion protection measures - III
- Lecture 17 - Coastal erosion protection measures - IV
- Lecture 18 - Coastal erosion protection measures - V
- Lecture 19 - Coastal erosion protection measures - VI
- Lecture 20 - Coastal erosion protection measures - VII
- Lecture 21 - Coastal erosion protection measures - VIII
- Lecture 22 - Coastal erosion protection measures - IX
- Lecture 23 - Coastal erosion protection measures - X
- Lecture 24 - Cheaper CEP methods - XI
- Lecture 25 - Geosynthetics - I
- Lecture 26 - Geosynthetics - II
- Lecture 27 - Breakwaters - I
- Lecture 28 - Breakwaters - II
- Lecture 29 - Breakwaters - III

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Breakwaters - IV
- Lecture 31 - Forces on coastal structures - I
- Lecture 32 - Forces on coastal structures - II
- Lecture 33 - Scour under marine structures
- Lecture 34 - Physical modelling of coastal structures - I
- Lecture 35 - Physical modelling of coastal structures - II
- Lecture 36 - Tsunami - I
- Lecture 37 - Tsunami - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Wave Hydrodynamics

Subject Co-ordinator - Prof. V. Sundar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Fluid Dynamics - I  
Lecture 2 - Basic Fluid Dynamics - II  
Lecture 3 - Introduction  
Lecture 4 - Wave Motion - I  
Lecture 5 - Wave Motion - II  
Lecture 6 - Wave Motion - III  
Lecture 7 - Wave Motion Problems  
Lecture 8 - Standing Wave Theory  
Lecture 9 - Wave Deformation - I  
Lecture 10 - Wave Deformation - II  
Lecture 11 - Wave Deformation and Problems  
Lecture 12 - Random Waves  
Lecture 13 - Random Waves and Problems - I  
Lecture 14 - Random Waves and Problems - II  
Lecture 15 - Random Waves and Problems - III  
Lecture 16 - Simulation of Random Waves  
Lecture 17 - Directional waves  
Lecture 18 - Wave Loads on Structures - I  
Lecture 19 - Wave Loads on Structures - II  
Lecture 20 - Wave Loads on Structures and Problems - I  
Lecture 21 - Wave Loads on Structures and Problems - II  
Lecture 22 - Wave loads on Large Boides  
Lecture 23 - Finite Amplitude Wave Theories  
Lecture 24 - Hydrodynamic Testing Facility  
Lecture 25 - Hydrodynamic Testing Facility at IITM

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Ocean Structures and Materials

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and objectives  
Lecture 2 - Fixed type offshore structures  
Lecture 3 - Compliant type offshore structures - I  
Lecture 4 - Compliant type offshore structures - II  
Lecture 5 - Drill ships and basics of drilling  
Lecture 6 - Subsea production systems  
Lecture 7 - Environmental loads - I  
Lecture 8 - Environmental loads - II  
Lecture 9 - Types of coastal structures - I  
Lecture 10 - Types of coastal structures - II  
Lecture 11 - Summary of coastal structures  
Lecture 12 - Tutorials on Module - I  
Lecture 13 - Outline of planning of ocean structures  
Lecture 14 - Introduction to design  
Lecture 15 - Construction techniques  
Lecture 16 - Dredging - I  
Lecture 17 - Dredging - II  
Lecture 18 - Uncertainties in analysis and design  
Lecture 19 - Design adequacy - Example I  
Lecture 20 - Design adequacy - Example II  
Lecture 21 - Dredging equipments' specifications  
Lecture 22 - Ocean Pollution  
Lecture 23 - Foundation and sea bed anchors  
Lecture 24 - Introduction to materials - I  
Lecture 25 - Introduction to materials - II  
Lecture 26 - Concrete in marine environment  
Lecture 27 - Concrete  
Lecture 28 - Repair materials for marine structures  
Lecture 29 - Corrosion in concrete - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Corrosion in concrete - II
- Lecture 31 - Material sin repair and rehabilitation
- Lecture 32 - Materials for special repair
- Lecture 33 - New materials for coastal embankments - I
- Lecture 34 - New materials for coastal embankments - II
- Lecture 35 - Non-destructive testing
- Lecture 36 - Structural health monitoring
- Lecture 37 - Wireless sensor networking
- Lecture 38 - Repair and rehabilitation-Fenders

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Dynamics of Ocean Structures

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to different types of ocean structures - I
- Lecture 2 - Introduction to different types of ocean structures - II
- Lecture 3 - Introduction to different types of ocean structures - III
- Lecture 4 - Types of Compliant towers
- Lecture 5 - New Generation offshore and Coastal structures
- Lecture 6 - Environmental forces
- Lecture 7 - Wave forces, Current
- Lecture 8 - Introduction to Structural dynamics
- Lecture 9 - Characteristics of single degree - of - freedom model
- Lecture 10 - Methods of writing equation of motion
- Lecture 11 - Free and forced vibration of single degree - of - freedom systems
- Lecture 12 - Undamped and damped systems - I
- Lecture 13 - Undamped and damped systems - II
- Lecture 14 - Undamped and damped systems - III
- Lecture 15 - Comparison of methods
- Lecture 16 - Examples
- Lecture 17 - Numerical problems in single degree - of - freedom systems
- Lecture 18 - Two degrees - of - freedom systems
- Lecture 19 - Eigenvalues and Eigenvectors
- Lecture 20 - Orthogonality of modes
- Lecture 21 - Study of Multi degrees - of - freedom systems
- Lecture 22 - Equations of motion
- Lecture 23 - Natural frequencies and mode shapes
- Lecture 24 - Stodla, Rayleigh - Ritz and influence coefficient methods, Dunkerley
- Lecture 25 - Continuous system
- Lecture 26 - Structural action of offshore structures
- Lecture 27 - Fluid - Structure interaction - I
- Lecture 28 - Fluid - Structure interaction - II Dynamic analysis of offshore jacket platforms
- Lecture 29 - Steps of analysis using software

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Steps of analysis using software (Continued...)
- Lecture 31 - Dynamic analysis of articulated towers
- Lecture 32 - Iterative frequency domain - I
- Lecture 33 - Iterative frequency domain - II
- Lecture 34 - Multi - legged articulated towers
- Lecture 35 - Response control of multi-legged articulated towers using tuned mass dampers Experimental and an
- Lecture 36 - Development of Tension Leg Platforms and geometric optimization
- Lecture 37 - Dynamic analyses of TLPs
- Lecture 38 - Development of Mass, stiffness and damping matrices of TLP from first principles
- Lecture 39 - Estimate of classical damping
- Lecture 40 - TLPs under seismic excitation
- Lecture 41 - Direct Integration method
- Lecture 42 - Development of new generation offshore structures
- Lecture 43 - Introduction to stochastic dynamics of ocean structures
- Lecture 44 - Response spectrum
- Lecture 45 - Narrow band process
- Lecture 46 - Return period, Fatigue prediction
- Lecture 47 - Modal response method, Modal mass contribution
- Lecture 48 - Missing mass correction, Example problems
- Lecture 49 - Duhamel's integral



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Advanced Marine Structures

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Scope
- Lecture 2 - Fixed type structures
- Lecture 3 - Compliant type structures
- Lecture 4 - New generation marine structures
- Lecture 5 - Environmental loads - I
- Lecture 6 - Environmental loads - II
- Lecture 7 - Environmental loads - III
- Lecture 8 - Environmental loads - IV
- Lecture 9 - Other loads - I
- Lecture 10 - Other loads - II
- Lecture 11 - Ultimate load design principles - I
- Lecture 12 - Ultimate Limit State - I
- Lecture 13 - Ultimate Limit State - II
- Lecture 14 - Ultimate Limit State - III
- Lecture 15 - Partial safety factor
- Lecture 16 - Plastic design - I
- Lecture 17 - Plastic design - II
- Lecture 18 - Plastic design - III
- Lecture 19 - Plastic design - IV - Example problems - I
- Lecture 20 - Plastic analysis - Example problems - II
- Lecture 21 - Plastic analysis - Example problems - III
- Lecture 22 - Theories of failure - I
- Lecture 23 - Theories of failure - II
- Lecture 24 - Theories of failure - III
- Lecture 25 - Theories of failure - IV
- Lecture 26 - Shear centre - I
- Lecture 27 - Shear centre - II - Examples
- Lecture 28 - Plastic capacity of sections under combined loads - I
- Lecture 29 - Plastic capacity of sections under combined loads - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Impact analysis- fundamentals - I
- Lecture 31 - Impact analysis- fundamentals - II
- Lecture 32 - Ultimate capacity of tubular joints
- Lecture 33 - Fluid structure interaction - I
- Lecture 34 - Fluid structure interaction - II
- Lecture 35 - Fluid induced vibration - I
- Lecture 36 - Fluid induced vibration - II
- Lecture 37 - Flow through perforated members - I
- Lecture 38 - Flow through perforated members - numerical studies - II
- Lecture 39 - Flow through perforated members - III - Analytical studies
- Lecture 40 - Introduction to Reliability - I
- Lecture 41 - Introduction to Reliability - II
- Lecture 42 - Introduction to Reliability - III
- Lecture 43 - Reliability framework in Marine structures
- Lecture 44 - Ultimate Limit state and Reliability approach - I
- Lecture 45 - Ultimate limit state and Reliability approach - II
- Lecture 46 - Levels of Reliability
- Lecture 47 - FOSM and AFOSM methods of Reliability
- Lecture 48 - Fracture and Fatigue
- Lecture 49 - Fatigue failure
- Lecture 50 - Fatigue loading and fatigue analysis
- Lecture 51 - Deterministic fatigue analysis
- Lecture 52 - Spectral fatigue analysis
- Lecture 53 - Stress concentration and fatigue analysis

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Dynamics of Ocean Structures

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Offshore structures
- Lecture 2 - Introduction to Offshore structures (Continued...)
- Lecture 3 - Environmental Loads
- Lecture 4 - Structural action of Ocean structures
- Lecture 5 - Single Degree of Freedom
- Lecture 6 - Equations of Motion
- Lecture 7 - Free Vibration of SDOF systems
- Lecture 8 - Damped and Undamped Forced Vibration
- Lecture 9 - Damped Forced Vibration
- Lecture 10 - Response building
- Lecture 11 - Numerical Example (SDOF)
- Lecture 12 - Numerical Example II
- Lecture 13 - Numerical Example
- Lecture 14 - Numerical Example - MDOF
- Lecture 15 - Numerical Example - Eigen value problems
- Lecture 16 - Orthogonality of modes - MDOF system models
- Lecture 17 - Numerical Methods for MDOF systems
- Lecture 18 - Influence Coefficient Method - MDOF
- Lecture 19 - STODLA Method - MDOF
- Lecture 20 - Stodla Method - Examples
- Lecture 21 - Rayleighs Method
- Lecture 22 - Modal Response Analysis for MDOF
- Lecture 23 - Rayleigh Damping
- Lecture 24 - Caughey Damping
- Lecture 25 - Damping Matrix by Super Positioning Method
- Lecture 26 - Duhamels Integral
- Lecture 27 - Modal superposition and truncation
- Lecture 28 - Modal participation and missing mass corrections
- Lecture 29 - Fluid Structure Interaction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fluid Structure Interaction - II
- Lecture 31 - Retrofitting and Rehabilitation - Application through Dynamics
- Lecture 32 - Drag and Earthquake Forces
- Lecture 33 - Articulated Towers
- Lecture 34 - Fluid Structure Interaction Application in Ocean Structure
- Lecture 35 - Response Control of Compliant Structures (MLAT)
- Lecture 36 - MLATs with Passive Dampers
- Lecture 37 - Tension Leg Platforms
- Lecture 38 - Tension Leg Platforms - II
- Lecture 39 - Fluid Structure Interaction.
- Lecture 40 - Dynamic Analysis of TLPs under Springing and Ringing Waves
- Lecture 41 - Numerical Integration
- Lecture 42 - Dynamic Analysis of Offshore Triceratops
- Lecture 43 - Stochastic Process
- Lecture 44 - Stochastic Process (Continued...)
- Lecture 45 - Response Spectrum - I
- Lecture 46 - Response Spectrum - II
- Lecture 47 - Return Period and Fatigue Damage

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Health, Safety and Environmental Management in Offshore and Petro

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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Lecture 30  
Lecture 31  
Lecture 32  
Lecture 33  
Lecture 34  
Lecture 35  
Lecture 36  
Lecture 37

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Risk and Reliability of offshore structures

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Uncertainties  
Lecture 3 - Uncertainties - II  
Lecture 4 - Probability and Plausibility  
Lecture 5 - Rules of Probability  
Lecture 6 - Plausible Reasoning - I  
Lecture 7 - Plausible Reasoning - Quantitative rules  
Lecture 8 - Quantitative Rules  
Lecture 9 - Probability Distribution  
Lecture 10 - Random Variables  
Lecture 11 - Random Variables - II  
Lecture 12 - Sampling Estimates  
Lecture 13 - Modelling of Environmental Loads  
Lecture 14 - Exercises - I  
Lecture 15 - Introduction  
Lecture 16 - Components of Reliability analysis  
Lecture 17 - Levels of Reliability  
Lecture 18 - Error Estimation  
Lecture 19 - Reliability methods - I  
Lecture 20 - Reliability methods - II  
Lecture 21 - Reliability methods - III  
Lecture 22 - Reliability methods - IV  
Lecture 23 - System Reliability - I  
Lecture 24 - System Reliability - II  
Lecture 25 - System Reliability - III  
Lecture 26 - Failure domains  
Lecture 27 - Failure domains II  
Lecture 28 - Application Problem - I  
Lecture 29 - Application Problem - I (Continued...)

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- Lecture 30 - Application Problem II
- Lecture 31 - Application Problem II (Continued...)
- Lecture 32 - Application Problem II (Continued...)
- Lecture 33 - Risk and Reliability
- Lecture 34 - Reliability analysis of structural systems
- Lecture 35 - Codes on structural reliability
- Lecture 36 - Variables in Reliability analysis
- Lecture 37 - Mechanical models in Reliability analysis
- Lecture 38 - Mechanical modes in Reliability analysis - II
- Lecture 39 - Stochastic Process - I
- Lecture 40 - Stochastic Process - II
- Lecture 41 - Fatigue Reliability
- Lecture 42 - Design SN curve
- Lecture 43 - Simplified Fatigue Assessment
- Lecture 44 - Short term fatigue damage
- Lecture 45 - Behaviour of tubular joints
- Lecture 46 - Tubular Joints - Experimental studies on T-Joints
- Lecture 47 - Risk Assessment
- Lecture 48 - Logical Risk analysis
- Lecture 49 - Risk analysis of Mechanical Systems
- Lecture 50 - FMEA II
- Lecture 51 - Design FMEA for Offshore Triceratops
- Lecture 52 - Fault Tree Analysis
- Lecture 53 - Event Tree Analysis
- Lecture 54 - Consequence Analysis
- Lecture 55 - Risk Acceptability
- Lecture 56 - Risk and Hazard assessment
- Lecture 57 - Risk Picture
- Lecture 58 - Risk Management



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:HSE for offshore and petroleum engineers-Practices

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Drilling Operation and Consequences  
Lecture 3 - Drilling Accidents  
Lecture 4 - Oil Spills  
Lecture 5 - Ecological Monitoring  
Lecture 6 - Pollution Modeling - I  
Lecture 7 - Pollution Modeling - II  
Lecture 8 - Pollution Modeling - III  
Lecture 9 - Hazard Management  
Lecture 10 - Introduction  
Lecture 11 - HSE Practices  
Lecture 12 - Lessons learnt from accidents  
Lecture 13 - HSE guidelines  
Lecture 14 - HSE lessons  
Lecture 15 - Risk Assessment - I  
Lecture 16 - Financing Risk  
Lecture 17 - Financing Risk Example Problem  
Lecture 18 - Risk Assessment and Accident Analysis  
Lecture 19 - Accident analysis  
Lecture 20 - Hazard assessment - I  
Lecture 21 - Hazard Analysis - I  
Lecture 22 - Hazop - I  
Lecture 23 - Hazop - II  
Lecture 24 - Hazop - III  
Lecture 25 - Hazop - IV  
Lecture 26 - Hazop - V  
Lecture 27 - Hazop (Case study)  
Lecture 28 - Accidents in offshore platforms  
Lecture 29 - Hazard Control

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- Lecture 30 - FMEA
- Lecture 31 - FMEA Example
- Lecture 32 - FMEA Example - II
- Lecture 33 - Excercises
- Lecture 34 - Dose Response Assessment
- Lecture 35 - Flammability characteristics
- Lecture 36 - Flammability diagram
- Lecture 37 - Explosions
- Lecture 38 - Chemical Explosions
- Lecture 39 - Fire and Explosion Prevention - I
- Lecture 40 - Explosion and Prevention
- Lecture 41 - Fire Prevention Practices
- Lecture 42 - Industrial Hygiene control
- Lecture 43 - Chemical Risk Analysis
- Lecture 44 - Chemical Risk Analysis - II
- Lecture 45 - CEI - Examples
- Lecture 46 - QRA Application
- Lecture 47 - Hazard Identification Practices
- Lecture 48 - Risk in Marine Systems - I
- Lecture 49 - Risk in Marine Systems - II
- Lecture 50 - Safety measures in design and operation
- Lecture 51 - Safety measures in design and operation - II
- Lecture 52 - Safety factors for confined spaces - I
- Lecture 53 - Safety practices for confined spaces - II
- Lecture 54 - Safety practices for Fire protection
- Lecture 55 - Process safety management

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Offshore Structures Under Special Loads Including Fire Resistance

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Novelty of fixed platforms
- Lecture 3 - Novelty of compliant platforms
- Lecture 4 - Novelty of floating platforms
- Lecture 5 - New generation offshore platforms - I
- Lecture 6 - New generation offshore platforms - II
- Lecture 7 - Offshore Triceratops
- Lecture 8 - Offshore Regasification platforms
- Lecture 9 - Environmental loads - I
- Lecture 10 - Environmental loads - II
- Lecture 11 - Wind loads
- Lecture 12 - Ice loads - I
- Lecture 13 - Ice loads - II
- Lecture 14 - Response spectrum - I
- Lecture 15 - Response spectrum - II
- Lecture 16 - Uncertainties
- Lecture 17 - Earthquake loads - I
- Lecture 18 - Earthquake loads - II
- Lecture 19 - Earthquake loads - III
- Lecture 20 - General design requirements
- Lecture 21 - Impact and Non-impact wave loads - I
- Lecture 22 - Impact and Non-impact wave loads - II
- Lecture 23 - Unsymmetrical bending - I
- Lecture 24 - Unsymmetrical bending - II
- Lecture 25 - Unsymmetrical bending - III
- Lecture 26 - Shear centre - I
- Lecture 27 - Shear centre - II
- Lecture 28 - Shear centre - III
- Lecture 29 - Shear centre - IV

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Curved beams - I
- Lecture 31 - Curved beams - II
- Lecture 32 - Curved beams - III
- Lecture 33 - Curved beams - IV
- Lecture 34 - Curved beams - V
- Lecture 35 - Rings and chain links - I
- Lecture 36 - Rings and chain links - II
- Lecture 37 - Marine risers
- Lecture 38 - Marine risers under VIM
- Lecture 39 - Fire safety overview
- Lecture 40 - Explosion - I
- Lecture 41 - Explosion and fire protection - I
- Lecture 42 - Explosion and fire protection - II
- Lecture 43 - Blast Resistance - I
- Lecture 44 - Blast Resistance - II
- Lecture 45 - Blast Resistance - III
- Lecture 46 - Blast Resistance - IV
- Lecture 47 - Material Strength - I
- Lecture 48 - Material Strength - II
- Lecture 49 - Material Strength - III
- Lecture 50 - Fire resistant design overview
- Lecture 51 - Types of fire
- Lecture 52 - Design Approach - I
- Lecture 53 - Design Approach - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Computer Methods Of Structural Analysis of Offshore Structures

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to structural analysis - Part 1  
Lecture 2 - Introduction to structural analysis - Part 2  
Lecture 3 - System of linear equations - Part 1  
Lecture 4 - System of linear equations - Part 2  
Lecture 5 - Matrices - Part 1  
Lecture 6 - Matrices - Part 2  
Lecture 7 - Beam Element 1 - Part 1  
Lecture 8 - Beam Element 1 - Part 2  
Lecture 9 - Beam Element 2 - Part 1  
Lecture 10 - Beam Element 2 - Part 2  
Lecture 11 - Stiffness matrix of beam element - Part 1  
Lecture 12 - Stiffness matrix of beam element - Part 2  
Lecture 13 - Stiffness method of analysis of planar orthogonal structures - Part 1  
Lecture 14 - Stiffness method of analysis of planar orthogonal structures - Part 2  
Lecture 15 - Example on continuous beam - Part 1  
Lecture 16 - Example on continuous beam - Part 2  
Lecture 17 - Example - II - Part 1  
Lecture 18 - Example - II - Part 2  
Lecture 19 - Example - II (Continued...)  
Lecture 20 - Example - III - Part 1  
Lecture 21 - Example - III - Part 2  
Lecture 22 - Planar non-orthogonal frame - Part 1  
Lecture 23 - Planar non-orthogonal frame - Part 2  
Lecture 24 - Non-orthogonal structures - II  
Lecture 25 - Planar non-orthogonal frame  
Lecture 26 - Non-orthogonal structures - III - Part 1  
Lecture 27 - Non-orthogonal structures - III - Part 2  
Lecture 28 - Example problem  
Lecture 29 - Example problem

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Planar non-orthogonal frame using computer code - Part 1
- Lecture 31 - Planar non-orthogonal frame using computer code - Part 2
- Lecture 32 - Planar non-orthogonal frame - Example 3 - Part 1
- Lecture 33 - Planar non-orthogonal frame - Example 3 - Part 2
- Lecture 34 - Planar truss system
- Lecture 35 - Planar truss system examples - Part 1
- Lecture 36 - Planar truss system examples - Part 2
- Lecture 37 - 3D structures - analysis by stiffness method - Part 1
- Lecture 38 - 3D structures - analysis by stiffness method - Part 2
- Lecture 39 - 3D structures - transformation matrix - Part 1
- Lecture 40 - 3D structures - transformation matrix - Part 2
- Lecture 41 - Y-Z-X transformation for 3d analysis
- Lecture 42 - Z-Y-X transformation for 3d analysis - Part 1
- Lecture 43 - Z-Y-X transformation for 3d analysis - Part 2
- Lecture 44 - Analysis of space frames - Example 1 - Part 1
- Lecture 45 - Analysis of space frames - Example 1 - Part 2
- Lecture 46 - Analysis of space frames - Example 1 - Part 3
- Lecture 47 - Analysis of space frame structures
- Lecture 48 - 3d analysis of space frames - Example 1 - Part 1
- Lecture 49 - 3d analysis of space frames - Example 1 - Part 2
- Lecture 50 - 3d analysis - Example 2 - Part 1
- Lecture 51 - 3d analysis - Example 2 - Part 2
- Lecture 52 - 3d truss analysis
- Lecture 53 - Special elements
- Lecture 54 - Non-prismatic members - Part 1
- Lecture 55 - Non-prismatic members - Part 2
- Lecture 56 - Offshore structures - 1 - Part 1
- Lecture 57 - Offshore structures - 1 - Part 2
- Lecture 58 - Offshore structures - 2 - Part 1
- Lecture 59 - Offshore structures - 2 - Part 2
- Lecture 60 - Offshore structures - 3 - Part 1
- Lecture 61 - Offshore structures - 3 - Part 2
- Lecture 62 - Offshore compliant structures - 1 - Part 1
- Lecture 63 - Offshore compliant structures - 1 - Part 2
- Lecture 64 - Offshore compliant structures - 2 - Part 1
- Lecture 65 - Offshore compliant structures - 2 - Part 2
- Lecture 66 - New generation platforms - Part 1
- Lecture 67 - New generation platforms - Part 2
- Lecture 68 - Environmental loads - 1 - Part 1

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- Lecture 69 - Environmental loads - 1 - Part 2
- Lecture 70 - Wave spectra - Part 1
- Lecture 71 - Wave spectra - Part 2
- Lecture 72 - Wind loads - Part 1
- Lecture 73 - Wind loads - Part 2
- Lecture 74 - Wind loads - 2 - Part 1
- Lecture 75 - Wind loads - 2 - Part 2
- Lecture 76 - Ice load and Earthquake load - Part 1
- Lecture 77 - Ice load and Earthquake load - Part 2
- Lecture 78 - Dynamic analysis - 1 - Part 1
- Lecture 79 - Dynamic analysis - 1 - Part 2
- Lecture 80 - Dynamic analysis - 2 - Part 1
- Lecture 81 - Dynamic analysis - 2 - Part 2
- Lecture 82 - Dynamic analysis - 3 - Part 1
- Lecture 83 - Dynamic analysis - 3 - Part 2
- Lecture 84 - Computer methods of dynamic analysis - Part 1
- Lecture 85 - Computer methods of dynamic analysis - Part 2
- Lecture 86 - Damping estimate - Part 1
- Lecture 87 - Damping estimate - Part 2
- Lecture 88 - Damping estimate - 2 - Part 1
- Lecture 89 - Damping estimate - 2 - Part 2
- Lecture 90 - Newmark's method - Part 1
- Lecture 91 - Newmark's method - Part 2
- Lecture 92 - Articulated towers - Part 1
- Lecture 93 - Articulated towers - Part 2
- Lecture 94 - Tension leg platforms - Part 1
- Lecture 95 - Tension leg platforms - Part 2
- Lecture 96 - Tension leg platforms - 2 - Part 1
- Lecture 97 - Tension leg platforms - 2 - Part 2
- Lecture 98 - New generation offshore structures - Part 1
- Lecture 99 - New generation offshore structures - Part 2
- Lecture 100 - Triceratops-2 - Part 1
- Lecture 101 - Triceratops-2 - Part 2
- Lecture 102 - Random process - 1 - Part 1
- Lecture 103 - Random process - 1 - Part 2
- Lecture 104 - Random process - 2 - Part 1
- Lecture 105 - Random process - 2 - Part 2
- Lecture 106 - Response spectrum - Part 1
- Lecture 107 - Response spectrum - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 108 - Return period and Stochastic process - Part 1
- Lecture 109 - Return period and Stochastic process - Part 2
- Lecture 110 - Stochastic modelling - Part 1
- Lecture 111 - Stochastic modelling - Part 2
- Lecture 112 - Fatigue damage - 1 - Part 1
- Lecture 113 - Fatigue damage - 1 - Part 2
- Lecture 114 - Fatigue damage - 2 - Part 1
- Lecture 115 - Fatigue damage - 2 - Part 2
- Lecture 116 - Fatigue estimate of offshore platform - Part 1
- Lecture 117 - Fatigue estimate of offshore platform - Part 2
- Lecture 118 - Live Session



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Structural Health Monitoring

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to SHM - Part 1
- Lecture 2 - Introduction to SHM - Part 2
- Lecture 3 - Necessity of SHM - Part 1
- Lecture 4 - Necessity of SHM - Part 2
- Lecture 5 - Components of SHM - Part 1
- Lecture 6 - Components of SHM - Part 2
- Lecture 7 - Challenges in SHM - Part 1
- Lecture 8 - Challenges in SHM - Part 2
- Lecture 9 - Advantages of SHM - Part 1
- Lecture 10 - Advantages of SHM - Part 2
- Lecture 11 - Components of SHM process - Part 1
- Lecture 12 - Components of SHM process - Part 2
- Lecture 13 - SHM issues applied to concrete structures - Part 1
- Lecture 14 - SHM issues applied to concrete structures - Part 2
- Lecture 15 - Level of uncertainties in SHM process - Part 1
- Lecture 16 - Level of uncertainties in SHM process - Part 2
- Lecture 17 - Short term and long term Structural Health Monitoring (SHM) - Part 1
- Lecture 18 - Short term and long term Structural Health Monitoring (SHM) - Part 2
- Lecture 19 - Local and Global Health Monitoring
- Lecture 20 - Data Evaluation and Assessment
- Lecture 21 - Estimation of Structural Health i.e. Structural Health Monitoring (SHM)
- Lecture 22 - Estimation of Structural Health using Static SHM
- Lecture 23 - Structural Health Monitoring (SHM) Planning and Management - Part 1
- Lecture 24 - Structural Health Monitoring (SHM) Planning and Management - Part 2
- Lecture 25 - Vibration based health monitoring scheme - Part 1
- Lecture 26 - Vibration based health monitoring scheme - Part 2
- Lecture 27 - Structural Health monitoring methods
- Lecture 28 - Structural Health monitoring methods
- Lecture 29 - Damage identification using lumped mass and Element modal stiffness - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Damage identification using lumped mass and Element modal stiffness - Part 2
- Lecture 31 - Damage identification by visual Inspection method - Part 1
- Lecture 32 - Damage identification by visual Inspection method - Part 2
- Lecture 33 - Various vibration based method in SHM-1 - Part 1
- Lecture 34 - Various vibration based method in SHM-1 - Part 2
- Lecture 35 - Comparison of Damage Detection Method - II
- Lecture 36 - Damage Detection Method - II
- Lecture 37 - Structural Health Monitoring (SHM) and Statistical Pattern Recognition (SPR)
- Lecture 38 - Long term SHM (Structural Health Monitoring)
- Lecture 39 - Non-Destructive evaluation - I - Part 1
- Lecture 40 - Non-Destructive evaluation - I - Part 2
- Lecture 41 - Non-Destructive evaluation - II
- Lecture 42 - Non-Destructive evaluation - III
- Lecture 43 - Crack detection in Composites
- Lecture 44 - Various sensor technologies - Part 1
- Lecture 45 - Various sensor technologies - Part 2
- Lecture 46 - Fibre Optic sensors - Part 1
- Lecture 47 - Fibre Optic sensors - Part 2
- Lecture 48 - Smart sensing for SHM - Part 1
- Lecture 49 - Smart sensing for SHM - Part 2
- Lecture 50 - Sensing requirements in special structures
- Lecture 51 - The sensor requirements and Data acquisition - Part 1
- Lecture 52 - The sensor requirements and Data acquisition - Part 2
- Lecture 53 - Acquisition system and Networking for SHM - Part 1
- Lecture 54 - Acquisition system and Networking for SHM - Part 2
- Lecture 55 - Wireless Sensor Networking (WSN) - Part 1
- Lecture 56 - Wireless Sensor Networking (WSN) - Part 2
- Lecture 57 - SHM layout design of offshore structures
- Lecture 58 - Vibration Based damage detection
- Lecture 59 - SHM design - Part 1
- Lecture 60 - SHM design - Part 2
- Lecture 61 - Artificial Intelligence (AI) in structural health monitoring (SHM)
- Lecture 62 - Plausibility of errors in SHM
- Lecture 63 - Artificial Neural Network (ANN) in the SHM process.
- Lecture 64 - Damage detection
- Lecture 65 - Application of SHM in Infrastructure Engineering - Part 1
- Lecture 66 - Application of SHM in Infrastructure Engineering - Part 2
- Lecture 67 - Design of sensor layout for SHM - Part 1
- Lecture 68 - Design of sensor layout for SHM - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - SHM applied to BSLRP - Part 1
- Lecture 70 - SHM applied to BSLRP - Part 2
- Lecture 71 - SHM design for BSLRP - Part 1
- Lecture 72 - SHM design for BSLRP - Part 2
- Lecture 73 - SHM design-2 for BSLRP - Part 1
- Lecture 74 - SHM design-2 for BSLRP - Part 2
- Lecture 75 - SHM design by experimental investigations for lab scale model of TLP-I - Part 1
- Lecture 76 - SHM design by experimental investigations for lab scale model of TLP-I - Part 2
- Lecture 77 - SHM design by experimental investigations for lab scale model of TLP-II - Part 1
- Lecture 78 - SHM design by experimental investigations for lab scale model of TLP-II - Part 2
- Lecture 79 - Structural Health Monitoring (SHM) of lab scale model of TLP-III - Part 1
- Lecture 80 - Structural Health Monitoring (SHM) of lab scale model of TLP-III - Part 2
- Lecture 81 - Structural Health Monitoring (SHM) of lab scale model of TLP-IV - Part 1
- Lecture 82 - Structural Health Monitoring (SHM) of lab scale model of TLP-IV - Part 2
- Lecture 83 - Future Scope of SHM - Part 1
- Lecture 84 - Future Scope of SHM - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Advanced Design of Steel Structures

Subject Co-ordinator - Prof. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Form-dominant design - I  
Lecture 2 - Form-dominant design - II  
Lecture 3 - Failure theories - 1  
Lecture 4 - Failure theories - 2  
Lecture 5 - Failure theories - 3  
Lecture 6 - Material properties - 1  
Lecture 7 - Material properties - 2  
Lecture 8 - Material properties - 3  
Lecture 9 - FGM  
Lecture 10 - FGM for marine application - 1  
Lecture 11 - FGM for marine application - 2  
Lecture 12 - Design methods - 1  
Lecture 13 - Design methods - 2  
Lecture 14 - Load combinations  
Lecture 15 - Dynamic material strength  
Lecture 16 - Material properties variations  
Lecture 17 - Plastic design - 1  
Lecture 18 - Plastic design - 2  
Lecture 19 - Plastic design - 3  
Lecture 20 - Shape factor examples  
Lecture 21 - Plastic analysis - 1  
Lecture 22 - Plastic analysis - 2  
Lecture 23 - Plastic design - 1  
Lecture 24 - Plastic design - 2  
Lecture 25 - Plastic design - 2  
Lecture 26 - Structural Stability  
Lecture 27 - Euler's load  
Lecture 28 - Rotation coefficients for stability functions  
Lecture 29 - Stability functions - 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Stability functions - 2
- Lecture 31 - Stability functions - 3
- Lecture 32 - Buckling and stability
- Lecture 33 - Critical buckling load- Numerical examples
- Lecture 34 - Stability problems- numerical examples
- Lecture 35 - Stability of shells
- Lecture 36 - Unsymmetric bending - 1
- Lecture 37 - Unsymmetric bending - example problems
- Lecture 38 - Shear center - 1
- Lecture 39 - Shear center - 2
- Lecture 40 - Shear center - 3
- Lecture 41 - Curved section
- Lecture 42 - Shear center for curved sections
- Lecture 43 - Shear center for unsymmetric section
- Lecture 44 - Curved beam - 1
- Lecture 45 - Curved beam with large curvature - 1
- Lecture 46 - Curved beam with large curvature - 2
- Lecture 47 - Modified area factor for curved section
- Lecture 48 - M factor for curved beams
- Lecture 49 - Crane hook
- Lecture 50 - Thin-walled section
- Lecture 51 - Open thin-walled section
- Lecture 52 - Lateral torsional buckling
- Lecture 53 - Design for LTB-1
- Lecture 54 - Design check for LTB-2
- Lecture 55 - LTB example problem
- Lecture 56 - Ice loads
- Lecture 57 - Ice spectrum
- Lecture 58 - Blast resistant design - 1
- Lecture 59 - Blast resistant design - 2
- Lecture 60 - Blast-resistant design - 3
- Lecture 61 - Blast-resistant design - 4
- Lecture 62 - Fire-resistant design - 1
- Lecture 63 - Fire-resistant design - 2
- Lecture 64 - Analysis under impact loads

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Marine Instrumentation - Laboratory

Subject Co-ordinator - Prof. Tharun

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Oscilloscope, Function Generator and Tilt meter

Lecture 2 - Strain Gauges and Load Cells

Lecture 3 - Wheatstone Bridge Circuit and RC Circuits on a Breadboard Design and Testing of Wheat - 1

Lecture 4 - Wheatstone Bridge Circuit and RC Circuits on a Breadboard Passive Low Pass RC Filter - 2

Lecture 5 - Wheatstone Bridge Circuit and RC Circuits on a Breadboard Rc High Pass Filter Lab - 3

Lecture 6 - Opamps, Differentiator and Integrator Circuits Design and Testing Integrator and Differ - 1

Lecture 7 - Opamps, Differentiator and Integrator Circuits Design and Testing Integrated and Differ - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - NOC:Surface Facilities for Oil and Gas Handling

Subject Co-ordinator - Prof. Abdus Samad

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Oil and Gas - 1  
Lecture 2 - Introduction to Oil and Gas - 2  
Lecture 3 - Drilling and Completion - 1  
Lecture 4 - Drilling and Completion - 2  
Lecture 5 - Well Completion  
Lecture 6 - Basics of Surface Facilities  
Lecture 7 - Fluid Properties  
Lecture 8 - Introduction to Separators - 1  
Lecture 9 - Introduction to Separators - 2  
Lecture 10 - Flow Control - 1  
Lecture 11 - Flow Control - 2  
Lecture 12 - Principle of Separation - 1  
Lecture 13 - Principle of Separation - 2  
Lecture 14 - Heat calculations for separation  
Lecture 15 - Fluid Properties and Two-Phase Separator - 1  
Lecture 16 - Fluid Properties and Two-Phase Separator - 2  
Lecture 17 - Introduction to Separators  
Lecture 18 - Horizontal Separator and Sizing - 1  
Lecture 19 - Horizontal Separator and Sizing - 2  
Lecture 20 - Horizontal Separator and Sizing: Numerical  
Lecture 21 - Three Phase Separation - 1  
Lecture 22 - Three Phase Separation - 2  
Lecture 23 - Vertical Separator Sizing - 1  
Lecture 24 - Vertical Separator Sizing - 2  
Lecture 25 - Horizontal and Vertical Separator: Numerical  
Lecture 26 - Heater Treater - 1  
Lecture 27 - Heater Treater - 2  
Lecture 28 - Gunbarrel  
Lecture 29 - Gunbarrel: Numericals

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Heat Calculation - 1
- Lecture 31 - Heat Calculation - 2
- Lecture 32 - Introduction to Electrostatic Treater - 1
- Lecture 33 - Introduction to Electrostatic Treater - 2
- Lecture 34 - Heater Treater and Gunbarrel - 1
- Lecture 35 - Heater Treater and Gunbarrel - 2
- Lecture 36 - Heater Treater and Gunbarrel: Numerical - Part 1
- Lecture 37 - Heater Treater and Gunbarrel: Numerical - Part 2
- Lecture 38 - Desalting of Crude Oil - 1
- Lecture 39 - Desalting of Crude Oil - 2
- Lecture 40 - Water Treatment - 1
- Lecture 41 - Water Treatment - 2
- Lecture 42 - Produced Water Treatment - 1
- Lecture 43 - Produced Water Treatment - 2
- Lecture 44 - Produced Water Treatment - 3
- Lecture 45 - Produced Water Treatment: Numerical
- Lecture 46 - Natural Gas Processing - 1
- Lecture 47 - Natural Gas Processing - 2
- Lecture 48 - Acid Gas Treating
- Lecture 49 - Amine System for Gas Sweetening - 1
- Lecture 50 - Amine System for Gas Sweetening - 2
- Lecture 51 - Gas Dehydration
- Lecture 52 - Crude Oil Storage Facilities - 1
- Lecture 53 - Crude Oil Storage Facilities - 2
- Lecture 54 - Crude Oil Storage Facilities - 3
- Lecture 55 - Flow Measurement Techniques - 1
- Lecture 56 - Flow Measurement Techniques - 2
- Lecture 57 - Heat Transfer Mechanisms
- Lecture 58 - Thermodynamic Laws
- Lecture 59 - Introduction to Heat Exchanger - 1
- Lecture 60 - Introduction to Heat Exchanger - 2
- Lecture 61 - Introduction to Heat Exchanger - 3
- Lecture 62 - Introduction to Heat Exchanger - 4
- Lecture 63 - Pressure Vessel - 1
- Lecture 64 - Pressure Vessel - 2
- Lecture 65 - Pressure Vessel - 3
- Lecture 66 - Wall Thickness Criteria
- Lecture 67 - Introduction to Pumps - 1
- Lecture 68 - Introduction to Pumps - 2

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- Lecture 69 - Introduction to Pumps - 3
- Lecture 70 - Introduction to Reciprocating Pumps
- Lecture 71 - Introduction to Compressor
- Lecture 72 - Introduction to IC/CI Engine - 1
- Lecture 73 - Introduction to IC/CI Engine - 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Electromagnetic Theory (Prof. D.K. Ghosh)

Subject Co-ordinator - Prof. D.K. Ghosh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Scalar field and its Gradient  
Lecture 2 - Line and Surface Integrals  
Lecture 3 - Divergence and Curl of Vector Fields  
Lecture 4 - Conservative Field, Stoke's Theorem  
Lecture 5 - Laplacian  
Lecture 6 - Electric Field Potential  
Lecture 7 - Gauss's Law, Potential  
Lecture 8 - Electric Field and Potential  
Lecture 9 - Potential and Potential Energy - I  
Lecture 10 - Potential and Potential Energy - II  
Lecture 11 - Potential and Potential Energy - III  
Lecture 12 - Coefficients of Potential and Capacitance  
Lecture 13 - Poission and Laplace Equation  
Lecture 14 - Solutions of Laplace Equation - I  
Lecture 15 - Solutions of Laplace Equation - II  
Lecture 16 - Solutions of Laplace Equation - III  
Lecture 17 - Special Techniques - I  
Lecture 18 - Special Techniques - II  
Lecture 19 - Special Techniques - III  
Lecture 20 - Dielectrics - I  
Lecture 21 - Dielectrics - II  
Lecture 22 - Dielectrics - III  
Lecture 23 - Equation of Continuity  
Lecture 24 - a) Force between current loops b) Magnetic Vector Potential  
Lecture 25 - Magnetic Vector Potential  
Lecture 26 - Boundary Conditions  
Lecture 27 - Magnetized Material  
Lecture 28 - Magentostatics (Continued...), Time Varying Field (Introduction)  
Lecture 29 - Faraday's Law and Inductance

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Maxwell's Equations
- Lecture 31 - Maxwell's Equations and Conservation Laws
- Lecture 32 - Conservation Laws
- Lecture 33 - a) Angular Momentum Conservation b) Electromagnetic Waves
- Lecture 34 - Electromagnetic Waves
- Lecture 35 - Propagation of Electromagnetic Waves in a metal
- Lecture 36 - Waveguides - I
- Lecture 37 - Waveguides - II
- Lecture 38 - Resonating Cavity
- Lecture 39 - Radiation - I
- Lecture 40 - Radiation - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Special Theory of Relativity

Subject Co-ordinator - Prof. Shiva Prasad

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Problem with Classical Physics

Lecture 2 - Michelson-Morley Experiment

Lecture 3 - Postulates of Special Theory of Relativity and Galilean Transformation

Lecture 4 - Look out for a New Transformation

Lecture 5 - Lorentz Transformation

Lecture 6 - Length Contraction and Time Dilation

Lecture 7 - Examples of Length Contraction and Time Dilation

Lecture 8 - Velocity Transformation and Examples

Lecture 9 - A Three Event Problem

Lecture 10 - A Problem involving Light and Concept of Casuality

Lecture 11 - Problems involving Casuality and Need to Redefine Momentum

Lecture 12 - Minkowski Space and Four Vectors

Lecture 13 - Proper Time a Four Scalar

Lecture 14 - Velocity Four Vector

Lecture 15 - Momentum Energy Four Vector

Lecture 16 - Relook at Collision Problems

Lecture 17 - Zero Rest Mass Particle and Photon

Lecture 18 - Doppler Effect in Light

Lecture 19 - Example in C-Frame

Lecture 20 - Force in Relativity

Lecture 21 - Force Four-Vector

Lecture 22 - Electric & Magnetic Field Transformation

Lecture 23 - Example of EM Field Transformation

Lecture 24 - Current Density Four Vector and Maxwell Equation

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Quantum Information and Computing

Subject Co-ordinator - Prof.Dipan Ghosh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Why Quantum Computing?
- Lecture 2 - Postulates of Quantum Mechanics - I
- Lecture 3 - Postulates of Quantum Mechanics - II
- Lecture 4 - Qubit - The smallest unit
- Lecture 5 - Qubit - Bloch sphere representation
- Lecture 6 - Multiple Qubit States and Quantum Gates
- Lecture 7 - Quantum Gates
- Lecture 8 - Quantum Circuits
- Lecture 9 - No-Cloning Theorem and Quantum Teleportation
- Lecture 10 - Super Dense Coding
- Lecture 11 - Density Matrix - I
- Lecture 12 - Density Matrix - II
- Lecture 13 - Bloch Sphere and Density Matrix
- Lecture 14 - Measurement Postulates - I
- Lecture 15 - Measurement Postulates - II
- Lecture 16 - Simple Algorithms-Deutsch Algorithm
- Lecture 17 - Deutsch-Josza and Bernstein - Vazirani Algorithms
- Lecture 18 - Simon Problem
- Lecture 19 - Grover's Search Algorithm - I
- Lecture 20 - Grover's Search Algorithm - II
- Lecture 21 - Grover's Search Algorithm - III
- Lecture 22 - Grover's Search Algorithm - IV
- Lecture 23 - Quantum Fourier Transform
- Lecture 24 - Period Finding and QFT
- Lecture 25 - Implementing QFT
- Lecture 26 - Implementing QFT-3 qubits (and more)
- Lecture 27 - Shor's Factorization Algorithm
- Lecture 28 - Shor's Factorization Algorithm-Implementation
- Lecture 29 - Shor's Algorithm-Continued Fraction

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- Lecture 30 - Quantum Error Correction - I
- Lecture 31 - Quantum Error Correction - II Three Qubit Code
- Lecture 32 - Quantum Error Correction - III Shor's 9 Qubit Code - I
- Lecture 33 - Quantum Error Correction - IV Shor's 9 Qubit Code - II
- Lecture 34 - Classical Information Theory
- Lecture 35 - Shannon Entropy
- Lecture 36 - Shannon's Noiseless Coding Theorem
- Lecture 37 - Von Neumann Entropy
- Lecture 38 - EPR and Bell's Inequalities - I
- Lecture 39 - EPR and Bell's Inequalities - II
- Lecture 40 - EPR and Bell's Inequalities - III
- Lecture 41 - Cryptography-RSA Algorithm - I
- Lecture 42 - Cryptography-RSA Algorithm - II
- Lecture 43 - Quantum Cryptography - I
- Lecture 44 - Quantum Cryptography - II
- Lecture 45 - Experimental Aspects of Quantum Computing - I
- Lecture 46 - Experimental Aspects of Quantum Computing - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Theory of Groups for Physics Applications

Subject Co-ordinator - Prof. Urjit A. Yajnik

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Algebraic Preliminaries
- Lecture 3 - Basic Group Concepts and Low Order Groups - I
- Lecture 4 - Basic Group Concepts and Low Order Groups - II
- Lecture 5 - Lagrange's Theorem and Cayley's Theorem - I
- Lecture 6 - Lagrange's Theorem and Cayley's Theorem - II
- Lecture 7 - Factor Group Conjugacy Classes - I
- Lecture 8 - Factor Group Conjugacy Classes - II
- Lecture 9 - Cycle Structures and Molecular Notation - I
- Lecture 10 - Cycle Structures and Molecular Notation - II
- Lecture 11 - Cycle Structures and Classification - I
- Lecture 12 - Cycle Structures and Classification - II
- Lecture 13 - Point Group Notation and Factor Group - I
- Lecture 14 - Point Group Notation and Factor Group - II
- Lecture 15 - Representation Theory - I
- Lecture 16 - Representation Theory - II
- Lecture 17 - Representation Theory - III
- Lecture 18 - Representation Theory - IV
- Lecture 19 - Schur's Lemma and Orthogonality Theorem - I
- Lecture 20 - Schur's Lemma and Orthogonality Theorem - II
- Lecture 21 - Orthogonality For Characters - I
- Lecture 22 - Orthogonality For Characters - II
- Lecture 23 - Character Tables and Molecular Applications - I
- Lecture 24 - Character Tables and Molecular Applications - II
- Lecture 25 - Preliminaries About The Continuum - I
- Lecture 26 - Preliminaries About The Continuum - II
- Lecture 27 - Classical Groups - I
- Lecture 28 - Classical Groups - II
- Lecture 29 - Classical Groups-Topology - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Classical Groups-Topology - II
- Lecture 31 -  $SO(3)$  And Matrix Exponent - I
- Lecture 32 -  $SO(3)$  And Matrix Exponent - II
- Lecture 33 - Generators, Discussion Of Lie's Theorems - I
- Lecture 34 - Generators, Discussion Of Lie's Theorems - II
- Lecture 35 - Group Algebras;  $SO(3)$ - $SU(2)$  Correspondence - I
- Lecture 36 - Group Algebras;  $SO(3)$ - $SU(2)$  Correspondence - II
- Lecture 37 -  $SO(3)$ ,  $SU(2)$  Representations - I
- Lecture 38 -  $SO(3)$ ,  $SU(2)$  Representations - II
- Lecture 39 - Representation On Function Spaces - I
- Lecture 40 - Representation On Function Spaces - II
- Lecture 41 - Lorentz Boosts,  $SO(3,1)$  Algebra - I
- Lecture 42 - Lorentz Boosts,  $SO(3,1)$  Algebra - II
- Lecture 43 - Representation Of Lorentz Group And Clifford Algebra - I
- Lecture 44 - Representation Of Lorentz Group And Clifford Algebra - II
- Lecture 45 -  $SU(3)$  And Lie's Classification - I
- Lecture 46 -  $SU(3)$  And Lie's Classification - II
- Lecture 47 - Fundamental Symmetries Of Physics - I
- Lecture 48 - Fundamental Symmetries Of Physics - II



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Quantum Mechanics-I

Subject Co-ordinator - Prof. Ramadevi

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Quantum Mechanics - I  
Lecture 2 - Introduction to Quantum Mechanics - II  
Lecture 3 - Review of Particle in Box, Potential Well, Barrier, Harmonic Oscillator - I  
Lecture 4 - Review of Particle in Box, Potential Well, Barrier, Harmonic Oscillator - II  
Lecture 5 - Tutorial 1 - Part I  
Lecture 6 - Tutorial 1 - Part II  
Lecture 7 - Bound States - I  
Lecture 8 - Bound States - II  
Lecture 9 - Conditions and Solutions for one Dimensional Bound States - I  
Lecture 10 - Conditions and Solutions for one Dimensional Bound States - II  
Lecture 11 - Tutorial 2  
Lecture 12 - Linear Vector Space (LVS) - I  
Lecture 13 - Linear Vector Space (LVS) - II  
Lecture 14 - Linear Vector Space (LVS) - III  
Lecture 15 - Basis for Operators and States in LVS - I  
Lecture 16 - Basis for Operators and States in LVS - II  
Lecture 17 - Tutorial 3 - Part I  
Lecture 18 - Tutorial 3 - Part II  
Lecture 19 - Function Spaces - I  
Lecture 20 - Function Spaces - II  
Lecture 21 - Postulates of Quantum Mechanics - I  
Lecture 22 - Postulates of Quantum Mechanics - II  
Lecture 23 - Tutorial 4 - Part I  
Lecture 24 - Tutorial 4 - Part II  
Lecture 25 - Classical vs Quantum Mechanics - I  
Lecture 26 - Classical vs Quantum Mechanics - II  
Lecture 27 - Compatible vs Incompatible Observable - I  
Lecture 28 - Compatible vs Incompatible Observable - II  
Lecture 29 - Tutorial 5 - Part I

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial 5 - Part II
- Lecture 31 - Tutorial 5 - Part III
- Lecture 32 - Schrodinger and Heisenberg Pictures - I
- Lecture 33 - Schrodinger and Heisenberg Pictures - II
- Lecture 34 - Solutions to other Coupled Potential Energies - I
- Lecture 35 - Solutions to other Coupled Potential Energies - II
- Lecture 36 - Tutorial 6 - Part I
- Lecture 37 - Tutorial 6 - Part II
- Lecture 38 - Hydrogen Atom and Wave Functions, Angular Momentum Operators, Identical Particles - I
- Lecture 39 - Hydrogen Atom and Wave Functions, Angular Momentum Operators, Identical Particles - II
- Lecture 40 - Identical Particles and Quantum Computer - I
- Lecture 41 - Identical Particles and Quantum Computer - II
- Lecture 42 - Tutorial 7 - Part I
- Lecture 43 - Tutorial 7 - Part II
- Lecture 44 - Harmonic Oscillator - I
- Lecture 45 - Harmonic Oscillator - II
- Lecture 46 - Ladder Operators - I
- Lecture 47 - Ladder Operators - II
- Lecture 48 - Tutorial 8 - Part I
- Lecture 49 - Tutorial 8 - Part II
- Lecture 50 - Stern-Gerlach Experiment - I
- Lecture 51 - Stern-Gerlach Experiment - II
- Lecture 52 - Oscillator Algebra
- Lecture 53 - Tutorial 9 - Part I
- Lecture 54 - Tutorial 9 - Part II
- Lecture 55 - Angular Momentum - I
- Lecture 56 - Angular Momentum - II
- Lecture 57 - Rotations Groups - I
- Lecture 58 - Rotations Groups - II
- Lecture 59 - Tutorial 10 - Part I
- Lecture 60 - Tutorial 10 - Part II
- Lecture 61 - Addition of Angular Momentum - I
- Lecture 62 - Addition of Angular Momentum - II
- Lecture 63 - Clebsch-Gordan Coefficients - I
- Lecture 64 - Clebsch-Gordan Coefficients - II
- Lecture 65 - Tutorial 11 - Part I
- Lecture 66 - Tutorial 11 - Part II
- Lecture 67 - Clebsch-Gordan Coefficients - III
- Lecture 68 - Tensor Operators and Wigner-Eckart Theorem - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Tensor Operators and Wigner-Eckart Theorem - II
- Lecture 70 - Tensor Operators and Wigner-Eckart Theorem - III
- Lecture 71 - Tutorial 12

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Path Integral and Functional Methods in Quantum Field Theory

Subject Co-ordinator - Prof. Urjit A. Yajnik

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Quantum Theory Fundamental Quantisation - I
- Lecture 2 - Quantum Theory Fundamental Quantisation - II
- Lecture 3 - Path Integral Formulation - I
- Lecture 4 - Path Integral Formulation - II
- Lecture 5 - Path Integral Formulation - III
- Lecture 6 - Path Integral Formulation - IV
- Lecture 7 - Correlation Functions - I
- Lecture 8 - Correlation Functions - II
- Lecture 9 - Generating Functional, Forced Harmonic Oscillator - I
- Lecture 10 - Generating Functional, Forced Harmonic Oscillator - II
- Lecture 11 - Generating Function in Field Theory - I
- Lecture 12 - Generating Function in Field Theory - II
- Lecture 13 - Effective Potential - I
- Lecture 14 - Effective Potential - II
- Lecture 15 - Effective Potential - III
- Lecture 16 - Effective Potential - IV
- Lecture 17 - Asymptotic Theory - I
- Lecture 18 - Asymptotic Theory - II
- Lecture 19 - Asymptotic Condition Kallen-Lehmann representation - I
- Lecture 20 - Asymptotic Condition Kallen-Lehmann representation - II
- Lecture 21 - Gauge Invariance - Minimal Coupling
- Lecture 22 - Gauge Invariance - Geometric Picture
- Lecture 23 - Gauge Invariance - Abelian Case
- Lecture 24 - Gauge Invariance - Non-abelian case
- Lecture 25 - Yang Mills Theory - Coupling to Matter
- Lecture 26 - Yang Mills Theory - Physical Content
- Lecture 27 - Yang Mills Theory Constraint Dynamics - I
- Lecture 28 - Yang Mills Theory Constraint Dynamics - II
- Lecture 29 - Gauge Fixing and Faddeev Popov Ghosts - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Gauge Fixing and Faddeev Popov Ghosts - II
- Lecture 31 - Topological Vacuum of Yang Mills Theories - I
- Lecture 32 - Topological Vacuum of Yang Mills Theories - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Physics of Biological Systems

Subject Co-ordinator - Prof. Mithun Mitra

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - DNA packing and structure
- Lecture 3 - Shape and function
- Lecture 4 - Numbers and sizes
- Lecture 5 - Spatial scales and System variation
- Lecture 6 - Timescales in Biology
- Lecture 7 - Random walks and Passive diffusion
- Lecture 8 - Random walks to model Biology
- Lecture 9 - Derivation of FRAP equations
- Lecture 10 - Drift-diffusion equations
- Lecture 11 - Solutions of the drift-diffusion equations
- Lecture 12 - The cell signaling problem
- Lecture 13 - Cell Signalling and Capture Probability of absorbing sphere
- Lecture 14 - Capture probability of reflecting sphere
- Lecture 15 - Mean capture time
- Lecture 16 - Introduction to fluids, viscosity and reynolds number
- Lecture 17 - Introduction to the navier stokes equation
- Lecture 18 - Understanding reynolds number
- Lecture 19 - Life at low reynolds number
- Lecture 20 - Various phenomena at low reynolds number
- Lecture 21 - Bacterial flagellar motion
- Lecture 22 - Rotating flagellum
- Lecture 23 - Energy and equilibrium
- Lecture 24 - Binding problems
- Lecture 25 - Transcription and translation
- Lecture 26 - Internal states of macromolecules
- Lecture 27 - Protein modification problem
- Lecture 28 - Haemoglobin-Oxygen binding problem
- Lecture 29 - Freely jointed polymer model

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- Lecture 30 - Entropic springs and persistence length
- Lecture 31 - Freely rotating chain model and radius of gyration
- Lecture 32 - The hierarchical chromatin packing model
- Lecture 33 - FISH and DNA looping
- Lecture 34 - Nucleosomes as barriers, Hi-C, and contact probabilities
- Lecture 35 - Deriving the full force extension curve
- Lecture 36 - Random walk models for proteins
- Lecture 37 - Hydrophobic polar protein model
- Lecture 38 - Diffusion in crowded environments
- Lecture 39 - Depletion interactions
- Lecture 40 - Examples and implications of depletion interactions
- Lecture 41 - Introduction to Biological dynamics
- Lecture 42 - Introduction to rate equations
- Lecture 43 - Separation of timescales in enzyme kinetics
- Lecture 44 - Structure and treadmilling of actins and microtubules
- Lecture 45 - Average length of polymers in equilibrium
- Lecture 46 - Growth rate of polymers
- Lecture 47 - Dynamic treadmilling in microtubules
- Lecture 48 - Introduction to molecular motors
- Lecture 49 - Force generation by molecular motors
- Lecture 50 - Models of motor motion
- Lecture 51 - molecular motors
- Lecture 52 - Free energies of motor for stepping
- Lecture 53 - Two state models
- Lecture 54 - cooperative transport of cargo
- Lecture 55 - Cytoskeleton as a motor
- Lecture 56 - translocation ratchet
- Lecture 57 - Spatial pattern in biology
- Lecture 58 - Some common spatial patterns in biology
- Lecture 59 - reaction diffusion and spatial pattern
- Lecture 60 - Pattern formation in reaction diffusion system with stability
- Lecture 61 - Condition for destabilization in pattern formation
- Lecture 62 - Schnakenberg kinetics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Group Theory Methods in Physics

Subject Co-ordinator - Prof. Ramadevi

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction - I
- Lecture 2 - Introduction - II
- Lecture 3 - Normal subgroup, Coset, Conjugate group
- Lecture 4 - Factor group, Homomorphism, Isomorphism
- Lecture 5 - Factor group, Homomorphism, Isomorphism
- Lecture 6 - Conjugacy Classes
- Lecture 7 - Permutation Groups
- Lecture 8 - Cycle Structure
- Lecture 9 - Cycle Structure (Continued...)
- Lecture 10 - Young Diagram and Molecular Symmetry
- Lecture 11 - Point Groups
- Lecture 12 - Symmetries of Molecules, Schoenflies Notation
- Lecture 13 - Symmetries of Molecules, Stereographic Projection
- Lecture 14 - Examples of Molecular Symmetries and Proof of Cayley Theorem
- Lecture 15 - Matrix Representation of Groups - I
- Lecture 16 - Matrix Representation of Groups - II
- Lecture 17 - Reducible and Irreducible Representation - I
- Lecture 18 - Reducible and Irreducible Representation - II
- Lecture 19 - Great Orthogonality Theorem and Character Table - I
- Lecture 20 - Great Orthogonality Theorem and Character Table - II
- Lecture 21 - Mulliken Notation, Character Table and Basis
- Lecture 22 - Tensor Product of Representation
- Lecture 23 - Tensor Product and Projection Operator - I
- Lecture 24 - Tensor Product and Projection Operator - II
- Lecture 25 - Tensor Product and Projection Operator with an example
- Lecture 26 - Binary Basis and Observables
- Lecture 27 - Selection Rules
- Lecture 28 - Selection Rules and Molecular Vibrations
- Lecture 29 - Molecular vibration normal modes

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- Lecture 30 - Molecular vibration normal modes
- Lecture 31 - Molecular vibration modes using projection operator
- Lecture 32 - Vibrational representation of character
- Lecture 33 - Infrared Spectra and Raman Spectra
- Lecture 34 - Introduction to continuous group
- Lecture 35 - Generators of translational and rotational transformation
- Lecture 36 - Generators of Lorentz transformation
- Lecture 37 - Introduction to  $O(3)$  and  $SO(3)$  group
- Lecture 38 -  $SO(n)$  and Lorentz group
- Lecture 39 - Generalised orthogonal group and Lie algebra
- Lecture 40 - Subalgebra of Lie algebra
- Lecture 41 -  $gl(2,C)$  and  $sl(2,C)$  group
- Lecture 42 -  $U(n)$  and  $SU(n)$  group
- Lecture 43 - Symplectic group
- Lecture 44 -  $SU(2)$  and  $SU(3)$  groups
- Lecture 45 - Rank, weight and weight vector
- Lecture 46 - Weight vector, root vector, comparison between  $SU(2)$  and  $SU(3)$  algebra
- Lecture 47 - Root diagram, simple roots, adjoint representation
- Lecture 48 -  $SU(2)$  sub-algebra, Dynkin diagrams
- Lecture 49 - Fundamental weights, Young diagrams, dimension of irreducible representation
- Lecture 50 - Young diagrams and tensor products
- Lecture 51 - Tensor product, Wigner - Eckart theorem
- Lecture 52 - Tensor product of irreducible representation 1
- Lecture 53 - Tensor product of irreducible representation 2
- Lecture 54 - Clebsch - Gordan coefficients
- Lecture 55 - 1) Quadrupole moment tensor (Wigner-Eckart theorem) 2) Decimet Baryon wavefunction
- Lecture 56 - Higher dimensional multiplets in the quark model
- Lecture 57 - Symmetry breaking in continuous groups
- Lecture 58 - Dynamical symmetry in hydrogen atom
- Lecture 59 - Hydrogen atom energy spectrum and degeneracy using Runge-Lenz vector

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Neutron Scattering for Condensed Matter Studies

Subject Co-ordinator - Prof. Saibal Basu

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Neutrons as Probe of Condensed Matter

Lecture 2 - Sources for thermal neutrons used in neutron scattering

Lecture 3

Lecture 4 - Calculating Neutron Scattering cross-section

Lecture 5

Lecture 6 - Scattering theory and introducing dynamics in the formalism

Lecture 7 - Scattering theory and introducing dynamics in the formalism

Lecture 8 - Scattering theory and introducing dynamics in the formalism

Lecture 9 - Scattering law's correlation with double-Fourier transform of real space correlation function

Lecture 10 - Scattering law's correlation with double-Fourier transform of real space correlation function

Lecture 11 - Correlation function to resolution and accessible( $Q, \tilde{A} \cdot \hat{a}^\circ$ ). Introducing experimental facilities

Lecture 12 - Correlation function to resolution and accessible( $Q, \tilde{A} \cdot \hat{a}^\circ$ ). Introducing experimental facilities

Lecture 13 - Correlation function to resolution and accessible( $Q, \tilde{A} \cdot \hat{a}^\circ$ ). Introducing experimental facilities

Lecture 14 - Correlation function to resolution and accessible( $Q, \tilde{A} \cdot \hat{a}^\circ$ ). Introducing experimental facilities

Lecture 15 - Introducing resolution and components of neutron scattering facilities.

Lecture 16 - Introducing resolution and components of neutron scattering facilities.

Lecture 17 - Continue with neutron scattering set up and its components like collimators, filters, detectors

Lecture 18 - Continue with neutron scattering set up and its components like collimators, filters, detectors

Lecture 19 - Describe the operation of various kinds of neutron detectors

Lecture 20 - Describe the operation of various kinds of neutron detectors

Lecture 21 - Introducing neutron choppers, velocity selectors and polarizers, some important components of be

Lecture 22 - Introducing neutron choppers, velocity selectors and polarizers, some important components of be

Lecture 23 - Neutron polarizers and spin-flippers

Lecture 24 - Neutron polarizers and spin-flippers

Lecture 25 - Diffraction at various length scales at a reactor and at a spallation neutron source

Lecture 26 - Diffraction at various length scales at a reactor and at a spallation neutron source

Lecture 27 - Application of neutron crystallography

Lecture 28 - Application of neutron crystallography

Lecture 29 - Magnetism in solids

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- Lecture 30 - Magnetism in solids
- Lecture 31 - Magnetic interaction in solids and magnetic neutron diffraction
- Lecture 32 - Magnetic interaction in solids and magnetic neutron diffraction
- Lecture 33 - Magnetic interaction in solids and magnetic neutron diffraction
- Lecture 34 - Magnetic neutron diffraction
- Lecture 35 - Magnetic neutron diffraction
- Lecture 36 - Neutron diffraction from liquid and amorphous systems
- Lecture 37 - Neutron diffraction from liquid and amorphous systems
- Lecture 38 - Small Angle Neutron Scattering (SANS) for mesoscopic structure
- Lecture 39 - Small Angle Neutron Scattering (SANS) for mesoscopic structure
- Lecture 40 - Small Angle Neutron Scattering (SANS) for mesoscopic structure
- Lecture 41 - Small Angle Neutron Scattering (SANS) for mesoscopic structure
- Lecture 42 - SANS for soft condensed matter
- Lecture 43 - SANS for soft condensed matter
- Lecture 44 - SANS for polymers, biological systems, nanoparticle aggregates, rocks, Superconducting vortex lattice
- Lecture 45 - SANS for polymers, biological systems, nanoparticle aggregates, rocks, Superconducting vortex lattice
- Lecture 46 - Neutron reflectometry for thin films
- Lecture 47 - Neutron reflectometry for thin films
- Lecture 48 - Neutron reflectometry for thin films
- Lecture 49 - Details formalism to evaluate specular neutron reflectivity and comparison with x-ray reflectometry
- Lecture 50 - Details formalism to evaluate specular neutron reflectivity and comparison with x-ray reflectometry
- Lecture 51 - Neutron reflectometry data analysis and reflectometers at various sources
- Lecture 52 - Neutron reflectometry data analysis and reflectometers at various sources
- Lecture 53 - Neutron reflectometry data analysis and reflectometers at various sources
- Lecture 54 - Examples of PNR with and without spin analysis and introduction to off-specular reflectometry
- Lecture 55 - Examples of PNR with and without spin analysis and introduction to off-specular reflectometry
- Lecture 56 - Examples of PNR with and without spin analysis and introduction to off-specular reflectometry
- Lecture 57 - Off-specular neutron reflectometry and introduction to inelastic neutron scattering
- Lecture 58 - Off-specular neutron reflectometry and introduction to inelastic neutron scattering
- Lecture 59 - Off-specular neutron reflectometry and introduction to inelastic neutron scattering
- Lecture 60 - Phonon measurements with neutrons
- Lecture 61 - Phonon measurements with neutrons
- Lecture 62 - Phonon measurements; single crystals
- Lecture 63
- Lecture 64 - Phonon: Density of States measurements
- Lecture 65 - Stochastic dynamics with neutrons
- Lecture 66 - Stochastic motion and various types of diffusion
- Lecture 67 - Stochastic motion and various types of diffusion
- Lecture 68 - Spin echo spectrometer, Summary of the course

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Spin echo spectrometer, Summary of the course

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Accelerator Physics

Subject Co-ordinator - Prof. Rajni Pande, Prof. Amalendu Sharma, Prof. Pitamber Singh

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Why accelerators

Lecture 2 - Accelerator as a microscope

Lecture 3 - Charging and Discharging of capacitors

Lecture 4 - Charging and Discharging of capacitors (Continued...)

Lecture 5 - Introduction to DC accelerators

Lecture 6 - Cockcroft Walton Accelerator (1929)

Lecture 7 - Van-de-Graaff accelerator and Tandem and Pelletron accelerators

Lecture 8 - Van-de-Graaff accelerator and Tandem and Pelletron accelerators

Lecture 9 - Voltage measurement and stabilisation

Lecture 10 - Voltage measurement and stabilisation

Lecture 11 - Beam energy calibration/measurement

Lecture 12 - Beam energy calibration/measurement

Lecture 13 - Beam focussing using electrostatic and magnetic lenses and beam optics

Lecture 14 - Beam focussing using electrostatic and magnetic lenses and beam optics

Lecture 15 - Beam focussing using electrostatic and magnetic lenses and beam optics

Lecture 16 - Ion Sources

Lecture 17 - Ion Sources

Lecture 18 - Introduction and Basic concepts of linear accelerators

Lecture 19 - Introduction and Basic concepts of linear accelerators

Lecture 20 - RF Acceleration - 1

Lecture 21 - RF Acceleration - 1

Lecture 22 - RF Acceleration - 2

Lecture 23 - RF Acceleration - 2

Lecture 24 - RF Acceleration - 3 - Waveguides and cavities

Lecture 25 - RF Acceleration - 3 - Waveguides and cavities

Lecture 26 - Accelerating structures - Pillbox cavity and DTL

Lecture 27 - Accelerating structures - Pillbox cavity and DTL

Lecture 28 - Accelerating structures - Travelling wave linacs and periodic accelerating structures

Lecture 29 - Accelerating structures - Travelling wave linacs and periodic accelerating structures

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Superconducting cavities
- Lecture 31 - Superconducting cavities
- Lecture 32 - Transverse Dynamics - 1
- Lecture 33 - Transverse Dynamics - 1
- Lecture 34 - Transverse Dynamics - 2
- Lecture 35 - Transverse Dynamics - 2
- Lecture 36 - Transverse Dynamics - 3
- Lecture 37 - Transverse Dynamics - 3
- Lecture 38 - Longitudinal Dynamics - 1
- Lecture 39 - Longitudinal Dynamics - 1
- Lecture 40 - Longitudinal Dynamics - 2
- Lecture 41 - Longitudinal Dynamics - 2
- Lecture 42 - Radio Frequency Quadrupole
- Lecture 43 - Radio Frequency Quadrupole
- Lecture 44 - Cyclic accelerators: Some basic principles
- Lecture 45 - Cyclic accelerators: Some basic principles
- Lecture 46 - About the cyclotron
- Lecture 47 - About the cyclotron
- Lecture 48 - Microtron
- Lecture 49 - Equation of motion, Focusing
- Lecture 50 - Equation of motion, Focusing
- Lecture 51 - Strong focusing, Edge focusing, AG principle
- Lecture 52 - Strong focusing, Edge focusing, AG principle
- Lecture 53 - Matrix methods
- Lecture 54 - Matrix methods
- Lecture 55 - Hill's equation and parameterization - 1
- Lecture 56 - Hill's equation and parameterization - 1
- Lecture 57 - Hill's equation and parameterization - 2
- Lecture 58 - Hill's equation and parameterization - 2
- Lecture 59 - Hill's equation and parameterization - 3
- Lecture 60 - Hill's equation and parameterization - 3
- Lecture 61
- Lecture 62
- Lecture 63
- Lecture 64
- Lecture 65
- Lecture 66
- Lecture 67 - Proton synchrotron for spallation source
- Lecture 68 - Proton synchrotron for spallation source

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Colliders

Lecture 70 - Colliders

Lecture 71 - Laser Plasma accelerators and Accelerator Driven Systems (ADS)

Lecture 72 - Laser Plasma accelerators and Accelerator Driven Systems (ADS)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Electronics

Subject Co-ordinator - Prof. D.C. Dube

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - p-n diode
- Lecture 2 - p-n Junction/Diode (Continued...)
- Lecture 3 - p-n diode (Continued...)
- Lecture 4 - Diode Application
- Lecture 5 - Transistors
- Lecture 6 - Reverse - bias (Continued...)
- Lecture 7 - Transistors (Continued...)
- Lecture 8 - Transistors (Continued...)
- Lecture 9 - Biasing a transistor unit 2 (Continued...)
- Lecture 10 - Biasing of transistor
- Lecture 11 - H and R Parameters and their use in small amplifiers
- Lecture 12 - Small signal amplifiers analysis using H - Parameters
- Lecture 13 - Small signal amplifiers analysis using R - Parameters
- Lecture 14 - R - analysis (Continued...)
- Lecture 15 - Common Collector(CC) amplifier (Continued...)
- Lecture 16 - Feedback in amplifiers, Feedback Configurations and multi stage amplifiers
- Lecture 17 - Reduction in non-linear distortion
- Lecture 18 - Input/Output impedances in negative feedback amplifiers (Continued...)
- Lecture 19 - RC Coupled Amplifiers
- Lecture 20 - RC Coupled Amplifiers (Continued...)
- Lecture 21 - RC Coupled Amplifiers (Continued...)
- Lecture 22 - FETs ans MOSFET
- Lecture 23 - FETs ans MOSFET (Continued...)
- Lecture 24 - Depletion - MOSFET
- Lecture 25 - Drain and transfer characteristic of E - MOSFET
- Lecture 26 - Self Bias (Continued...) Design Procedure
- Lecture 27 - FET/MOSFET Amplifiers and their Analysis
- Lecture 28 - CMOS Inverter
- Lecture 29 - CMOS Inverter (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Power Amplifier
- Lecture 31 - Power Amplifier (Continued...)
- Lecture 32 - Power Amplifier (Continued...)
- Lecture 33 - Power Amplifier (Continued...)
- Lecture 34 - Differential and Operational Amplifier
- Lecture 35 - Differential and Operational Amplifier (Continued...) dc and ac analysis
- Lecture 36 - Differential and Operational Amplifier dc and ac analysis (Continued...)
- Lecture 37 - Operational Amplifiers
- Lecture 38 - Operational amplifiers in open loop (Continued...)
- Lecture 39 - Summing Amplifiers
- Lecture 40 - Frequency response of an integration
- Lecture 41 - Filters
- Lecture 42 - Specification of OP Amplifiers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Plasma Physics: Fundamentals and Applications

Subject Co-ordinator - Prof. Vijayshri, Prof. V.K. Tripathi

Co-ordinating Institute - IIT - Delhi | IGNOU - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Plasmas
- Lecture 2 - Plasma Response to fields
- Lecture 3 - DC Conductivity and Negative Differential Conductivity
- Lecture 4 - RF Conductivity of Plasma
- Lecture 5 - RF Conductivity of Plasma (Continued...)
- Lecture 6 - Hall Effect, Cowling Effect and Cyclotron Resonance Heating
- Lecture 7 - Electromagnetic Wave Propagation in Plasma
- Lecture 8 - Electromagnetic Wave Propagation in Plasma (Continued...)
- Lecture 9 - Electromagnetic Wave Propagation Inhomogeneous Plasma
- Lecture 10 - Electrostatic Waves in Plasmas
- Lecture 11 - Energy Flow with an Electrostatic Wave
- Lecture 12 - Two Stream Instability
- Lecture 13 - Relativistic electron Beam- Plasma Interaction
- Lecture 14 - Cerenkov Free Electron Laser
- Lecture 15 - Free Electron Laser
- Lecture 16 - Free Electron Laser
- Lecture 17 - Free Electron Laser
- Lecture 18 - Weibel Instability
- Lecture 19 - Rayleigh Taylor Instability
- Lecture 20 - Single Particle Motion in Static Magnetic and Electric Fields
- Lecture 21 - Plasma Physics Grad B and Curvature Drifts
- Lecture 22 - Adiabatic Invariance of Magnetic Moment and Mirror confinement
- Lecture 23 - Mirror machine
- Lecture 24 - Thermonuclear fusion
- Lecture 25 - Tokamak
- Lecture 26 - Tokamak operation
- Lecture 27 - Auxiliary heating and current drive in tokamak
- Lecture 28 - Electromagnetic waves propagation in magnetise plasma
- Lecture 29 - Longitudinal electromagnetic wave propagation cutoffs, resonances and faraday rotation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Electromagnetic propagation at oblique angles to magnetic field in a plasma
- Lecture 31 - Low frequency EM waves magnetized plasma
- Lecture 32 - Electrostatic waves in magnetized plasma
- Lecture 33 - Ion acoustic, ion cyclotron and magneto sonic waves in magnetized plasma
- Lecture 34 - Vlasov theory of plasma waves
- Lecture 35 - Landau damping and growth of waves
- Lecture 36 - Landau damping and growth of waves (Continued...)
- Lecture 37 - Anomalous resistivity in a plasma
- Lecture 38 - Diffusion in plasma
- Lecture 39 - Diffusion in magnetized plasma
- Lecture 40 - Surface plasma wave
- Lecture 41 - Laser interaction with plasmas embedded with clusters
- Lecture 42 - Current trends and epilogue

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Quantum Electronics

Subject Co-ordinator - Prof. K. Thyagarajan

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Anisotropic Media  
Lecture 3 - Anisotropic Media (Continued...)  
Lecture 4 - Anisotropic Media (Continued...)  
Lecture 5 - Nonlinear optical effects and nonlinear polarization  
Lecture 6 - Non - Linear Optics (Continued...)  
Lecture 7 - Non - Linear Optics (Continued...)  
Lecture 8 - Non - Linear Optics (Continued...)  
Lecture 9 - Non - Linear Optics (Continued...)  
Lecture 10 - Non - Linear Optics - Quasi Phase Matching  
Lecture 11 - Non - Linear Optics  
Lecture 12 - Non Linear Optics (Continued...)  
Lecture 13 - Non Linear Optics (Continued...)  
Lecture 14 - Non Linear Optics (Continued...)  
Lecture 15 - Non Linear Optics (Continued...)  
Lecture 16 - Non Linear Optics (Continued...)  
Lecture 17 - Non Linear Optics (Continued...)  
Lecture 18 - Non Linear Optics (Continued...)  
Lecture 19 - Non Linear Optics (Continued...)  
Lecture 20 - Third Order Non - Linear Effects  
Lecture 21 - Third Order Non - Linear Effects (Continued...)  
Lecture 22 - Third Order Non - Linear Effects (Continued...)  
Lecture 23 - Third Order Non - Linear Effects (Continued...)  
Lecture 24 - Review of Quantum Mechanics  
Lecture 25 - Review of Quantum Mechanics (Continued...)  
Lecture 26 - Review of Quantum Mechanics (Continued...)  
Lecture 27 - Quantization of EM Field  
Lecture 28 - Quantization of EM Field (Continued...)  
Lecture 29 - Quantization of EM Field (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quantum States of EM Field
- Lecture 31 - Quantum States of EM Field (Continued...)
- Lecture 32 - Quantization of EM Field (Continued...)
- Lecture 33 - Quantization of EM Field (Continued...)
- Lecture 34 - Quantization of EM Field (Continued...)
- Lecture 35 - Quantization of EM Field (Continued...)
- Lecture 36 - Quantization of EM Field (Continued...)
- Lecture 37 - Beam Splitter
- Lecture 38 - Beam Splitter (Continued...)
- Lecture 39 - Beam Splitter and Balanced Homodyning
- Lecture 40 - Balanced Homodyning
- Lecture 41 - Quantum Picture of Parametric Down Conversion
- Lecture 42 - Questions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Quantum Mechanics and Applications

Subject Co-ordinator - Prof. Ajoy Ghatak

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Quantum Mechanics I
- Lecture 2 - Basic Quantum Mechanics II
- Lecture 3 - Dirac Delta Function & Fourier Transforms
- Lecture 4 - The Free Particle
- Lecture 5 - Physical Interpretation of The Wave Function
- Lecture 6 - Expectation Values & The Uncertainty Principle
- Lecture 7 - The Free Particle (Continued...)
- Lecture 8 - Interference Experiment & The Particle in a Box Problem
- Lecture 9 - On Eigen Values and Eigen Functions of the 1 Dimensional Schrodinger Equation
- Lecture 10 - Linear Harmonic Oscillator
- Lecture 11 - Linear Harmonic Oscillator (Continued...1)
- Lecture 12 - Linear Harmonic Oscillator (Continued...2)
- Lecture 13 - Linear Harmonic Oscillator (Continued...3)
- Lecture 14 - Tunneling through a Barrier
- Lecture 15 - The 1-Dimensional Potential Wall & Particle in a Box
- Lecture 16 - Particle in a Box and Density of States
- Lecture 17 - The Angular Momentum Problem
- Lecture 18 - The Angular Momentum Problem (Continued...)
- Lecture 19 - The Hydrogen Atom Problem
- Lecture 20 - The Two Body Problem
- Lecture 21 - TheTwo Body Problem
- Lecture 22 - Two Body Problem
- Lecture 23 - 3d Oscillator & Dirac's Bra and Ket Algebra
- Lecture 24 - Dirac's Bra and Ket Algebra
- Lecture 25 - Dirac's Bra and Ket Algebra
- Lecture 26 - The Linear Harmonic Oscillator using Bra and Ket Algebra (Continued...)
- Lecture 27 - The Linear Harmonic Oscillator
- Lecture 28 - Coherent State and Relationship with the Classical Oscillator
- Lecture 29 - Angular Momentum Problem using Operator Algebra

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Angular Momentum Problem (Continued...)
- Lecture 31 - Pauli Spin Matrices and The Stern Gerlach Experiment
- Lecture 32 - The Larmor Precession and NMR Spherical Harmonics using Operator Algebra
- Lecture 33 - Addition of Angular Momentum
- Lecture 34 - Clebsch Gordon Coefficients
- Lecture 35 - The JWKB Approximation
- Lecture 36 - The JWKB Approximation
- Lecture 37 - The JWKB Approximation
- Lecture 38 - The JWKB Approximation
- Lecture 39 - The JWKB Approximation
- Lecture 40 - Time Independent Perturbation Theory
- Lecture 41 - Time Independent Perturbation Theory (Continued...1)
- Lecture 42 - Time Independent Perturbation Theory (Continued...2)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Semiconductor Optoelectronics

Subject Co-ordinator - Prof. M.R. Shenoy

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Context and Scope of the Course
- Lecture 2 - Energy Bands in Solids
- Lecture 3 - E-K Diagram
- Lecture 4 - The Density of States
- Lecture 5 - The Density of States (Continued...)
- Lecture 6 - The Density of states in a Quantum well Structure
- Lecture 7 - Occupation Probability and Carrier Concentration
- Lecture 8 - Carrier Concentration and Fermi Level
- Lecture 9 - Quasi Fermi Levels
- Lecture 10 - Semiconductor Materials
- Lecture 11 - Semiconductor Hetrostructures-Lattice-Matched Layers
- Lecture 12 - Strained -Layer Epitaxy and Quantum Well Structures
- Lecture 13 - Bandgap Engineering
- Lecture 14 - Hetrostructure p-n junctions
- Lecture 15 - Schottky Junction and Ohmic Contacts
- Lecture 16 - Fabrication of Heterostructure Devices
- Lecture 17 - Interaction od Photons with Electrons and Holes in a Semiconductor
- Lecture 18 - Optical Joint Density of States
- Lecture 19 - Rates of Emission and Absorption
- Lecture 20 - Amplication by Stimulated Emission
- Lecture 21 - The Semiconductor (Laser) Amplifier
- Lecture 22 - Absorption Spectrum of Semiconductor
- Lecture 23 - Gain and Absorption Spectrum of Quantum Well Structures
- Lecture 24 - Electro-absorption Modulator
- Lecture 25 - Electro-absorption Modulator - II Device Configuration
- Lecture 26 - Mid-Term Revision Question and Discussion
- Lecture 27 - Part - III Semiconductor Light Sources
- Lecture 28 - Light Emitting Diode-I Device Structure and Parameters
- Lecture 29 - Light Emitting Diode-II Device Chracteristics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Light Emitting Diode-III Output Characteristics
- Lecture 31 - Light Emitting Diode-IV Modulation Bandwidth
- Lecture 32 - Light Emitting Diode-V materials and Applications
- Lecture 33 - Laser Basics
- Lecture 34 - Semiconductor Laser-I Device Structure
- Lecture 35 - Semiconductor Laser-II Output Characteristics
- Lecture 36 - Semiconductor Laser-III Single Frequency Lasers
- Lecture 37 - Vertical Cavity Surface Emitting Laser (VCSEL)
- Lecture 38 - Quantum Well Laser
- Lecture 39 - Practical Laser Diodes and Handling
- Lecture 40 - General Characteristics of Photodetectors
- Lecture 41 - Responsivity and Impulse Response
- Lecture 42 - Photoconductors
- Lecture 43 - Semiconductor Photo-Diodes
- Lecture 44 - Semiconductor Photo-Diodes-II
- Lecture 45 - Other Photodectors
- Lecture 46 - Photonic Integrated Circuits

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Semiconductor Optoelectronics

Subject Co-ordinator - Prof. M. R. Shenoy

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Context, Scope and Contents of the Course
- Lecture 2 - Energy Bands in Solids
- Lecture 3 - E-k Diagram - The Band Structure
- Lecture 4 - The Density of States
- Lecture 5 - The Density of States  $\rho(k)$ ,  $\rho(E)$
- Lecture 6 - Density of States in a Quantum Well Structure
- Lecture 7 - Occupation Probability and Carrier Concentration
- Lecture 8 - Carrier Concentration and Fermi Level
- Lecture 9 - Quasi Fermi Levels
- Lecture 10 - Semiconductor Materials
- Lecture 11 - Semiconductor Heterostructures-Lattice-Matched Layers
- Lecture 12 - Strained-Layer Epitaxy and Quantum Well Structures
- Lecture 13 - Bandgap Engineering
- Lecture 14 - Heterostructure p-n junctions
- Lecture 15 - Schottky Junctions and Ohmic Contacts
- Lecture 16 - Fabrication of Heterostructure Devices
- Lecture 17 - Interaction of Photons with Electrons and Holes in a Semiconductor
- Lecture 18 - Optical Joint Density of States, and Probabilities of Emission and Absorption
- Lecture 19 - Rates of Emission and Absorption
- Lecture 20 - Amplification by Stimulated Emission
- Lecture 21 - The Semiconductor (Laser) Amplifier
- Lecture 22 - Absorption Spectrum of Semiconductors
- Lecture 23 - Gain and Absorption Spectrum of Quantum Well Structures
- Lecture 24 - Electro-absorption Modulator-I Principle of Operation
- Lecture 25 - Electro-absorption Modulator-II Device Configuration
- Lecture 26 - Injection Electroluminescence
- Lecture 27 - Light emitting diode-I Device structure and parameters
- Lecture 28 - Light emitting diode-II Device Characteristics
- Lecture 29 - Light emitting diode-III Output Characteristics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Light emitting diode-IV Modulation Bandwidth
- Lecture 31 - Light emitting diode-V Material and Applications
- Lecture 32 - Laser Basics
- Lecture 33 - Semiconductor Laser-I Device Structure
- Lecture 34 - Semiconductor Laser-II Output Characteristics
- Lecture 35 - Semiconductor Laser-III Single Frequency Lasers
- Lecture 36 - Vertical cavity Surface Emitting Laser (VCSEL)
- Lecture 37 - Quantum Well Laser
- Lecture 38 - Practical Laser Diodes and Handling
- Lecture 39 - General Characteristics of Photodetectors
- Lecture 40 - Responsivity and Impulse Response
- Lecture 41 - Photoconductors
- Lecture 42 - Semiconductor Photo-Diodes-I
- Lecture 43 - Semiconductor Photo-Diodes-II
- Lecture 44 - Other Photodetectors
- Lecture 45 - Photonic Integrated Circuits

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Introduction to LASER

Subject Co-ordinator - Unknown

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General Introduction, Scope and Contents
- Lecture 2 - Interaction of Radiation with Matter
- Lecture 3 - The Einstein Coefficients
- Lecture 4 - Atomic Lineshape Function,  $g(\nu)$
- Lecture 5 - Amplification by Stimulated Emission
- Lecture 6 - Line Broadening Mechanisms - 1
- Lecture 7 - Line Broadening Mechanisms - 2
- Lecture 8 - Laser Rate Equations: 2-Level System
- Lecture 9 - Laser Rate Equations: 3-Level System
- Lecture 10 - Laser Rate Equations: 4-Level System
- Lecture 11 - Laser Amplifiers
- Lecture 12 - Er-Doped Fiber Amplifier
- Lecture 13 - Resonance Frequencies
- Lecture 14 - Spectral Response of an Optical Resonator
- Lecture 15 - Resonator Loss and Cavity Lifetime
- Lecture 16 - Spherical Mirror Resonators
- Lecture 17 - Resonator Stability Condition
- Lecture 18 - Ray Paths in Spherical Mirror Resonators
- Lecture 19 - Transverse Modes of a Spherical Mirror Resonator
- Lecture 20 - Gaussian Mode of the Spherical Mirror Resonator
- Lecture 21 - Longitudinal Modes of a Spherical Mirror Resonator
- Lecture 22 - Laser Oscillations and The Threshold Condition
- Lecture 23 - Spectral Hole Burning
- Lecture 24 - Variation of Laser Power around Threshold
- Lecture 25 - Optimum Output Coupling
- Lecture 26 - Laser Output Characteristics
- Lecture 27 - Laser Beam Properties
- Lecture 28 - Ultimate Linewidth of a Laser
- Lecture 29 - Pulsed Lasers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Q-Switching
- Lecture 31 - Mode Locking
- Lecture 32 - Methods of Mode Locking
- Lecture 33 - Some Common Lasers
- Lecture 34 - Fiber Lasers
- Lecture 35 - Semiconductor Lasers
- Lecture 36 - Lasers and Laser Amplifiers in Optical Fiber Communication
- Lecture 37 - Lasers in Nonlinear Optics
- Lecture 38 - Laser Safety

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Nuclear and Particle Physics

Subject Co-ordinator - Dr. P. Poullose

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Nuclear Properties  
Lecture 3 - Properties of Nuclear Force  
Lecture 4 - Deuteron  
Lecture 5 - Nucleons Scattering  
Lecture 6 - Nuclear Models - I  
Lecture 7 - Nuclear Models - II  
Lecture 8 - Radioactive Decay - General Properties  
Lecture 9 - Nuclear Alpha Decay  
Lecture 10 - Nuclear Beta decay  
Lecture 11 - Beta-decay details  
Lecture 12 - Gamma decay  
Lecture 13 - Nuclear Scattering - Preliminaries  
Lecture 14 - Types of Reactions  
Lecture 15 - Particle Accelerators - I  
Lecture 16 - Particle Accelerators - II  
Lecture 17 - Detectors  
Lecture 18 - Elementary Particles - Introduction and Overview  
Lecture 19 - Quark Model - I  
Lecture 20 - Quark Model - II  
Lecture 21 - Quark Model - III  
Lecture 22 - Structure of the Hadron - Nucleus  
Lecture 23 - Structure of the Hadron - Proton  
Lecture 24 - Deep Inelastic Scattering  
Lecture 25 - Relativistic Kinematics  
Lecture 26 - Klein-Gordon Equation  
Lecture 27 - Interaction of charged scalar with EM field  
Lecture 28 - Relativistic Electrodynamics  
Lecture 29 - Quantum Electrodynamics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Interaction between charged scalars
- Lecture 31 - Dirac Equation - 1
- Lecture 32 - Dirac Equation - 2
- Lecture 33 - Interacting charged fermions - 1
- Lecture 34 - Interacting charged fermions - 2
- Lecture 35 - Interacting charged fermions - 3
- Lecture 36 - Scattering Cross Section Revisited - 1
- Lecture 37 - Scattering Cross Section Revisited - 2
- Lecture 38 - Weak Interactions - 1
- Lecture 39 - Weak Interactions - 2
- Lecture 40 - Lagrangian Framework
- Lecture 41 - Gauge Symmetry - U(1)
- Lecture 42 - Electroweak Theory - 1
- Lecture 43 - Electroweak Theory - 2
- Lecture 44 - SSB and the Higgs Mechanism

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Advanced Condensed Matter Physics

Subject Co-ordinator - Dr. Saurabh Basu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Propagators - I
- Lecture 2 - Propagators - II
- Lecture 3 - Second quantization - I
- Lecture 4 - Second quantization - II
- Lecture 5 - Second quantized Hamiltonian
- Lecture 6 - Tight Binding Hamiltonian, Hubbard model
- Lecture 7 - Magnetism
- Lecture 8 - Singlet and Triplet State
- Lecture 9 - Antiferromagnetism in Hubbard model
- Lecture 10 - Green's function and representations in quantum mechanics
- Lecture 11 - S matrix and free electron Green's function
- Lecture 12 - Wick's theorem and normal ordering
- Lecture 13 - Green's function and Feynman diagrams
- Lecture 14 - Feynman diagram
- Lecture 15 - phonon Green' function and Hartree Fock approximation
- Lecture 16 - Finite temperature Green's function and Matsubara frequencies
- Lecture 17 - Dyson's equation and disorder in electronic systems
- Lecture 18 - Introduction to electrodynamics, Meissner effect
- Lecture 19 - London penetration depth, Type I and II superconductors
- Lecture 20 - Cooper's problem, BCS gap equation
- Lecture 21 - BCS theory, Transition temperature
- Lecture 22 - Ginzburg Landau Theory, Coherence length and penetration depth
- Lecture 23 - Quantum Hall Effect
- Lecture 24 - Spin Hall effect, 2D topological insulator
- Lecture 25 - Bose-Einstein condensation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Advanced Quantum Mechanics with Applications

Subject Co-ordinator - Dr. Saurabh Basu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Postulates of Quantum Mechanics
- Lecture 2 - Stern Gerlach Experiment, Spin Quantization, Young's Double Slit Experiment
- Lecture 3 - The Mathematical Formalism of Quantum Mechanics, Uncertainty Principle
- Lecture 4 - The Density Matrix Formalism, Expectation values of Operators
- Lecture 5 - Quantum Harmonic Oscillator, Creation and annihilation Operators
- Lecture 6 - Coherent States and their Properties
- Lecture 7 - Applications of Coherent States, squeezed states
- Lecture 8 - Symmetries and Conservation Principles in Quantum Mechanics
- Lecture 9 - Rotation Operator and Invariance of Angular Momentum, Parity
- Lecture 10 - Spherically Symmetric System and Applications to quantum dots
- Lecture 11 - Spin Angular Momentum, Addition of Angular Momentum, Clebsch Gordan coefficients
- Lecture 12 - Magnetic Hamiltonian, Heisenberg Model
- Lecture 13 - Nuclear Magnetic Resonance (NMR)
- Lecture 14 - Applications of NMR, time evolution of Magnetic Moments
- Lecture 15 - Introduction to Quantum Computing
- Lecture 16 - Qubits, EPR Paradox
- Lecture 17 - Quantum Entanglement (QE)
- Lecture 18 - Teleportation, Quantum Teleportation for one spin
- Lecture 19 - Entangled state for two spins
- Lecture 20 - Quantum Gates, Walsh Hadamard Transformation, No cloning theorem
- Lecture 21 - Perturbation Theory
- Lecture 22 - Stark Effect
- Lecture 23 - Stark Effect
- Lecture 24 - Variational method, Variation of constants, Upper bound on ground state energy
- Lecture 25 - Application of Variational method, Hydrogen, Helium atom, Comparison with perturbation theory
- Lecture 26 - WKB Approximation, Bohr Sommerfeld quantization condition
- Lecture 27 - Summary of Approximation methods, Time dependent Perturbation Theory
- Lecture 28 - Time dependent Perturbation Theory, Fermi's Golden rule, Einstein's A and B coefficients
- Lecture 29 - Scattering Theory

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear Response Theory
- Lecture 31 - Quantum Dynamics
- Lecture 32 - Examples
- Lecture 33 - Interaction of Radiation with matter, Landau levels

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:A Brief Course on Superconductivity

Subject Co-ordinator - Dr. Saurabh Basu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Historical introduction of superconductivity
- Lecture 2 - Meissner effect, Electrodynamics of Superconductors, coherence length and penetration depth
- Lecture 3 - Electron Pairing, Basics of BCS Theory
- Lecture 4 - BCS ground state, variational calculation, expression for  $T_c$
- Lecture 5 - Order parameter, Free energy functional, Ginzburg-Landau (GL) Theory, GL equations
- Lecture 6 - London Equations, Flux quantization
- Lecture 7 - Thermodynamic properties of superconductors, specific heat
- Lecture 8 - Experimental determination of Superconducting properties
- Lecture 9 - Unconventional Superconductivity, Uemura plot, High- $T_c$  superconductivity, d-wave pairing, ARPES
- Lecture 10 - Singlet and triplet states of two  $s = 1/2$ , magnetic Hamiltonian
- Lecture 11 - t-J model, discrete symmetry groups, example square lattice
- Lecture 12 - Cuprate Superconductors, electron vs hole doped superconductors
- Lecture 13 - Non-Fermi Liquid Theory, Adiabatic continuity
- Lecture 14 - Quasiparticle lifetime, breakdown of Fermi Liquid Theory in cuprate superconductors
- Lecture 15 - Josephson junctions, Josephson equations
- Lecture 16 - Numerical Differentiation
- Lecture 17 - Richardson's extrapolation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Introduction to Statistical Mechanics

Subject Co-ordinator - Prof.Girish S. Setlur

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Prerequisites and Introduction
- Lecture 2 - Combinatorics and Entropy
- Lecture 3 - Method of steepest descent
- Lecture 4 - Bose and Fermi gases
- Lecture 5 - Maxwell Boltzmann distribution
- Lecture 6 - Thermodynamic potentials
- Lecture 7 - Legendre transformation
- Lecture 8 - Specific heats of quantum gases
- Lecture 9 - Low and high temperature equations of state
- Lecture 10 - Chandrasekhar Limit
- Lecture 11 - Radiation thermodynamics
- Lecture 12 - Thermodynamics of black holes
- Lecture 13 - Van der Waals fluid
- Lecture 14 - Landau Diamagnetism
- Lecture 15 - Relations between ensembles and Pauli paramagnetism
- Lecture 16 - Ferromagnetism
- Lecture 17 - Correlations and Mean Field
- Lecture 18 - Theories of Specific Heat of Solids
- Lecture 19 - Tutorial - I
- Lecture 20 - Tutorial - II
- Lecture 21 - Tutorial - III
- Lecture 22 - Tutorial - IV
- Lecture 23 - Tutorial - V
- Lecture 24 - RG method Ising model
- Lecture 25 - Introduction to Second Quantisation
- Lecture 26 - Quantum Theory of EM Field - I
- Lecture 27 - Quantum Theory of EM Field - II
- Lecture 28 - Creation and Annihilation in Fock Space - I
- Lecture 29 - Creation and Annihilation in Fock Space - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Green functions in many particle systems
- Lecture 31 - Second quantised hamiltonians
- Lecture 32 - Current algebra

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Numerical Methods and Simulation Techniques for Scientists and Engineers

Subject Co-ordinator - Dr. Saurabh Basu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Error analysis and estimates, significant digits, convergence
- Lecture 2 - Roots of Non-linear equations, Bisection method
- Lecture 3 - Newton Raphson method, Secant method
- Lecture 4 - Newton Raphson Method
- Lecture 5 - Newton Raphson Method (example), Curve fitting and interpolation of data
- Lecture 6 - Newton's interpolation formula, statistical interpolation of data
- Lecture 7 - Linear and Polynomial regression
- Lecture 8 - Numerical differentiation
- Lecture 9 - Numerical differentiation, Error analysis
- Lecture 10 - Numerical integration, Trapezoidal rule
- Lecture 11 - Simpson's 1/3rd rule
- Lecture 12 - Simpson's 1/3rd rule, Gaussian integration
- Lecture 13 - Ordinary Differential equations
- Lecture 14 - Solution of differential equation, Taylor series and Euler method
- Lecture 15 - Heun's method
- Lecture 16 - Runge Kutta method
- Lecture 17 - Examples of differential equation
- Lecture 18 - Introduction to Monte Carlo technique
- Lecture 19 - Details of the Monte Carlo method
- Lecture 20 - Importance sampling
- Lecture 21 - Applications
- Lecture 22 - Introduction to Molecular Dynamics
- Lecture 23 - Verlet algorithm
- Lecture 24 - Applications of Molecular dynamics

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Theoretical Mechanics

Subject Co-ordinator - Dr. Charudatt Y. Kadolkar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, Constraints
- Lecture 2 - Generalized Coordinates, Configuration Space
- Lecture 3 - Principle of Virtual Work
- Lecture 4 - D'Alembert's Principle
- Lecture 5 - Lagrange's Equations
- Lecture 6 - Hamilton's Principle
- Lecture 7 - Variational Calculus, Lagrange's Equations
- Lecture 8 - Conservation Laws and Symmetries
- Lecture 9 - Velocity Dependent Potentials, Non-holonomic Constraints
- Lecture 10 - An Example
- Lecture 11 - Phase Space
- Lecture 12 - Legendre Transforms
- Lecture 13 - Hamilton's Equations
- Lecture 14 - Conservation Laws, Routh's procedure
- Lecture 15 - An Example
- Lecture 16 - Canonical Transformations
- Lecture 17 - Symplectic Condition
- Lecture 18 - Canonical Invariants, Harmonic Oscillator
- Lecture 19 - Poisson Bracket Formulation
- Lecture 20 - Infinitesimal Canonical Transformations
- Lecture 21 - Symmetry Groups of Mechanical Systems
- Lecture 22 - Hamilton Jacobi Theory
- Lecture 23 - Action-Angle Variables
- Lecture 24 - Separation of Variables and Examples
- Lecture 25 - Continuous Systems and Fields
- Lecture 26 - The Stress-Energy Tensor
- Lecture 27 - Hamiltonian Formulation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Solar Energy Engineering and Technology

Subject Co-ordinator - Prof. Pankaj Kalita

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Energy Scenarios
- Lecture 2 - Overview of solar energy conversion devices and applications
- Lecture 3 - Physics of propagation of solar radiation from the sun to the earth
- Lecture 4 - Solar radiation and sunshine measuring instruments
- Lecture 5 - Geometry, angles and measurement - I
- Lecture 6 - Geometry, angles and measurement - II
- Lecture 7 - Estimation of radiation under different climatic conditions
- Lecture 8 - Estimation of radiation in horizontal and inclined surface
- Lecture 9 - Fundamentals of PV cells
- Lecture 10 - Semiconductor physics
- Lecture 11 - Performance characterization of PV cells
- Lecture 12 - Photovoltaic modules and arrays
- Lecture 13 - Components of standalone PV system
- Lecture 14 - Design of standalone PV system
- Lecture 15 - Functioning and components of PV system
- Lecture 16 - Design of a grid connected PV system
- Lecture 17 - Performance analysis of a grid connected PV system
- Lecture 18 - Basics of thermal collectors
- Lecture 19 - Basics of heat transfer
- Lecture 20 - Solar collector losses and loss estimation
- Lecture 21 - Analysis of flat plate collector
- Lecture 22 - Influence of various parameters on the performance of LFPC
- Lecture 23 - Testing and application of LFPC
- Lecture 24 - Basics and performance analysis of solar air heaters
- Lecture 25 - Testing and application of solar air heaters
- Lecture 26 - Fundamentals of concentrating collectors
- Lecture 27 - Concentrating collector technologies and working principle
- Lecture 28 - Tutorial
- Lecture 29 - Sensible heat, latent heat and thermochemical energy storage

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Solar pond
- Lecture 31 - Tutorial
- Lecture 32 - Emerging technologies
- Lecture 33 - Solar energy applications in cooking, desalination, refrigeration and electricity generation
- Lecture 34 - Tutorial

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Quantum Technology and Quantum Phenomena in Macroscopic Systems

Subject Co-ordinator - Prof. Amarendra Kumar Sarma

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and Basic Quantum Mechanics
- Lecture 2 - Problem Solving Session - 1
- Lecture 3 - Two-level System - I
- Lecture 4 - Bloch Sphere: Supplementary Lecture - I
- Lecture 5 - Two-level Systems - II
- Lecture 6 - Two-level Systems - III
- Lecture 7 - Dressed States;Introduction to Density Matrix
- Lecture 8 - Problem Solving Session - 2
- Lecture 9 - Density-matrix formalism
- Lecture 10 - Quantum Harmonic Oscillators
- Lecture 11 - Quantization of Electromagnetic Radiation
- Lecture 12 - Quantization of Standing EM Waves;Quantum States of Radiation Fields - I
- Lecture 13 - Problem Solving Session - 3
- Lecture 14 - Quantum States of Radiation Fields-II: Squeezed States
- Lecture 15 - Problem Solving Session - 4
- Lecture 16 - Introduction and Basics of Superconductivity
- Lecture 17 - Cooper Pair Box as TLS;Introduction to Transmission Line
- Lecture 18 - Quantization of Transmission Line - I
- Lecture 19 - Quantization of Transmission Line - II
- Lecture 20 - The Jaynes Cummings Model - I
- Lecture 21 - Problem Solving Session - 5
- Lecture 22 - The Jaynes Cummings Model - II
- Lecture 23 - Josephson Junctions - I
- Lecture 24 - Josephson Junctions - II
- Lecture 25 - Problem Solving Session - 6
- Lecture 26 - Transmon;Introduction to Dissipation in Quantum Systems
- Lecture 27 - Quantum Master Equation
- Lecture 28 - Pure dephasing and Dissipative Bloch Equations
- Lecture 29 - Derivation of Fermi-Golden Rule

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Introduction to Cavity Optomechanics; Fabry-Perot Cavity
- Lecture 31 - Cavity Optomechanics: Basic Physics - I
- Lecture 32 - Problem Solving Session - 7
- Lecture 33 - Cavity Optomechanics: Basic Physics - II
- Lecture 34 - Classical Regime - I
- Lecture 35 - Classical Regime - II; Classical Langevin Equation
- Lecture 36 - Problem Solving Session - 8
- Lecture 37 - Langevin Equation
- Lecture 38 - Quantum Langevin Noise
- Lecture 39 - Problem Solving Session - 9
- Lecture 40 - Input-Output Relation
- Lecture 41 - Cavity Quantum Optomechanics
- Lecture 42 - Linearized Cavity Optomechanics; Ground state cooling
- Lecture 43 - Normal-Mode Splitting
- Lecture 44 - Quantum Optomechanics: Squeezed States

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Dynamics of Classical and Quantum Fields

Subject Co-ordinator - Prof. Girish S. Setlur

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Lagrangian Formalism  
Lecture 3 - Hamiltonian Mechanics  
Lecture 4 - Flows and Symmetries  
Lecture 5 - Examples of Continuum Systems  
Lecture 6 - Symmetries and Noether's Theorem  
Lecture 7 - Dynamical Symmetries  
Lecture 8 - Symmetries in Field Theories  
Lecture 9 - The Relativistic Electromagnetic Field  
Lecture 10 - Stress-Energy (Energy-Momentum) Tensor  
Lecture 11 - Green's Theorem and Green's Functions  
Lecture 12 - Diffraction Theory  
Lecture 13 - Introduction to Elasticity Theory  
Lecture 14 - Solution of the rubber band problem  
Lecture 15 - The Stress Function Method  
Lecture 16 - Strain Energy  
Lecture 17 - The Euler Equation  
Lecture 18 - Bernoulli's Principle  
Lecture 19 - Matter, Momentum and Energy Transport  
Lecture 20 - Stokes' Drag - I  
Lecture 21 - Stokes' Drag - II  
Lecture 22 - Towards Quantum Fields  
Lecture 23 - Right and Left Movers  
Lecture 24 - Functional Integration - I  
Lecture 25 - Functional Integration - II  
Lecture 26 - Perturbation theory  
Lecture 27 - Quantum Mechanics using Lagrangians  
Lecture 28 - Path Integrals - Formalism  
Lecture 29 - Path Integrals - Free particles

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Path Integrals - Harmonic oscillator
- Lecture 31 - Creation and annihilation operators - Excitations
- Lecture 32 - Creation and annihilation operators - Photons
- Lecture 33 - Creation and annihilation operators - Many-body physics
- Lecture 34 - Particle and Hole Green functions
- Lecture 35 - Current Algebra
- Lecture 36 - Tight Binding Models - I
- Lecture 37 - Tight Binding Models - II
- Lecture 38 - Order Parameters
- Lecture 39 - Schrieffer Wolff Transformation
- Lecture 40 - Matsubara Green functions - I
- Lecture 41 - Matsubara Green functions - II
- Lecture 42 - Self Energy and Spectral Functions
- Lecture 43 - S-Matrix Perturbation Theory
- Lecture 44 - Keldysh Contour
- Lecture 45 - Bosonic Coherent States
- Lecture 46 - Fermionic Coherent States
- Lecture 47 - Nonlocal particle hole operators - Bosons
- Lecture 48 - Nonlocal particle hole operators - Fermions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Quantum Hall Effects

Subject Co-ordinator - Prof. Saurabh Basu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Conductance in Nanostructures
- Lecture 2 - S-Matrix, Reflection and Transmission
- Lecture 3 - Introduction to Classical and Quantum Hall Effect
- Lecture 4 - Quantum Hall Effect
- Lecture 5 - Landau Levels
- Lecture 6 - Degenracy of Landau levels
- Lecture 7 - Shubnikov de Haas Oscillations
- Lecture 8 - Kubo Formula
- Lecture 9 - Symmetric gauge
- Lecture 10 - Tight binding model, Hofstadter Butterfly
- Lecture 11 - Topological Invariant, Chern number
- Lecture 12 - Electronic structure of Graphene
- Lecture 13 - Low energy Dispersion
- Lecture 14 - Dirac Hamiltonian, Hofstadter Butterfly
- Lecture 15 - QHE, Landau Levels
- Lecture 16 - Properties of Spin angular Momentum, Spin Hall Effect
- Lecture 17 - Quantum spin Hall insulator, Kane-Mele Model
- Lecture 18 - Kane-Mele Model
- Lecture 19 - Landau gauge in fractional quantum Hall effect
- Lecture 20 - Laughlin States, Properties
- Lecture 21 - Plasma analogy
- Lecture 22 - Composite Fermions, Hierarchy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Quantum Entanglement: Fundamentals, Measures and Applications

Subject Co-ordinator - Prof. Amarendra Kumar Sarma

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Review of Quantum Mechanics

Lecture 3 - Mathematical Tools: Density Matrix - Part 1

Lecture 4 - Mathematical Tools: Density Matrix - Part 2

Lecture 5 - Problem solving session - 1

Lecture 6 - Basic Technical Introduction to Quantum Entanglement

Lecture 7 - Schmidt Decomposition Method

Lecture 8 - The EPR Paradox and Bell Inequalities

Lecture 9 - Problem solving session - 2

Lecture 10 - Quantum Measurements

Lecture 11 - Properties of Quantum Entanglement

Lecture 12 - Quantum Entanglement Measures - I

Lecture 13 - Problem solving session - 3

Lecture 14 - Quantum Entanglement Measures - II

Lecture 15 - Applications of Quantum Entanglement - I

Lecture 16 - Applications of Quantum Entanglement - II

Lecture 17 - Problem solving session - 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Topology and Condensed Matter Physics

Subject Co-ordinator - Prof. Saurabh Basu

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Topology
- Lecture 2 - Topological invariant, Berry phase
- Lecture 3 - Second quantization
- Lecture 4 - Ten Fold Classification
- Lecture 5 - Symmetries and SSH - model
- Lecture 6 - SSH - model, Introduction to superconductivity
- Lecture 7 - Kitaev model
- Lecture 8 - Introduction to Classical and Quantum Hall effect
- Lecture 9 - Quantum Hall Effect
- Lecture 10 - Landau Levels
- Lecture 11 - Properties of Landau Levels
- Lecture 12 - Edge modes of Landau levels, Incompressibility of Quantum Hall States
- Lecture 13 - Kubo formula
- Lecture 14 - Hall quantization and Topological invariant
- Lecture 15 - Electronic structure of Graphene
- Lecture 16 - Symmetries and QHE in Graphene
- Lecture 17 - Haldane model
- Lecture 18 - Anomalous quantum Hall effect in Haldane model
- Lecture 19 - Introduction of spin Hall effect
- Lecture 20 - Spin current, quantum spin Hall effect
- Lecture 21 - Quantum spin Hall insulator, Kane Mele model
- Lecture 22 - Kane Mele model with Rashba spin-orbit coupling, spin Hall conductivity
- Lecture 23 - Symmetric gauge in FQHE
- Lecture 24 - Laughlin States
- Lecture 25 - Plasma analogy
- Lecture 26 - Composite Fermions, Hierarchy picture
- Lecture 27 - Topological Consideration of FQHE
- Lecture 28 - 3D Topological Insulators

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Nuclear Physics: Fundamentals and Applications

Subject Co-ordinator - Prof. H.C. Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Brief Overview of the course

Lecture 2 - Nuclear Size

Lecture 3 - Nuclear Size (Continued...)

Lecture 4 - Nuclear Size (Continued...)

Lecture 5 - Semi empirical Mass Formula

Lecture 6 - Semi empirical Mass Formula (Continued...)

Lecture 7 - Semi empirical Mass Formula (Continued...)

Lecture 8 - Semi empirical Mass Formula (Continued...)

Lecture 9 - Semi empirical Mass Formula (Continued...)

Lecture 10 - How are Neutron stars bound

Lecture 11 - Deuteron

Lecture 12 - Deuteron (Continued...)

Lecture 13 - Deuteron (Continued...)

Lecture 14 - Scattering of nucleons

Lecture 15 - Low energy n-p scattering

Lecture 16 - Theories of nuclear forces

Lecture 17 - Shell model

Lecture 18 - Shell model (Continued...)

Lecture 19 - Shell model (Continued...)

Lecture 20 - Shell model (Continued...)

Lecture 21 - Shell model (Continued...)

Lecture 22 - Collective models

Lecture 23 - Vibrational and Rotational levels

Lecture 24 - Radioactivity, Alpha Decay

Lecture 25 - Alpha decay (Continued...)

Lecture 26 - Beta decay

Lecture 27 - Beta decay (Continued...)

Lecture 28 - Beta decay (Continued...)

Lecture 29 - Gamma decay

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Nuclear Reactions
- Lecture 31 - Nuclear reaction (Continued...)
- Lecture 32 - Nuclear reaction (Continued...)
- Lecture 33 - Nuclear Fission basics
- Lecture 34 - Nuclear fission of uranium
- Lecture 35 - Nuclear Fission Reactor
- Lecture 36 - Nuclear Energy Programme of India
- Lecture 37 - Nuclear Fusion
- Lecture 38 - Nuclear fusion (Continued...)
- Lecture 39 - Thermonuclear fusion reactors
- Lecture 40 - Fusion reactions in Stars and stellar neutrinos
- Lecture 41 - Nucleosynthesis of elements in Stars
- Lecture 42 - Mossbauer Spectroscopy
- Lecture 43 - RBS, PIXE, NAA, Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Introduction to Electromagnetism

Subject Co-ordinator - Prof. Manoj K Harbola

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Coloumb's Law

Lecture 2 - Coloumb's Force due to several Point charges

Lecture 3 - Force due to distribution of Charges

Lecture 4 - What is an Electric Field?

Lecture 5 - Electric Field due to a Charged Distribution

Lecture 6 - Helmholtz's Theorem for Electric Field

Lecture 7 - Divergence of a Field

Lecture 8 - Divergence of Electric Field & Gauss's Law

Lecture 9 - Curl Of a Field - I

Lecture 10 - Curl of a Field - II & Stokes' Theorem

Lecture 11 - Line surface area & volume elements in Cartesian & Cylindrical Coordinates

Lecture 12 - Line surface area & volume elements in Spherical Polar Coordinates

Lecture 13 - Examples of application of the divergence and stokes' theorems

Lecture 14 - Electrostatic Potential

Lecture 15 - Electric field as the gradient of electrostatic potential

Lecture 16 - Laplace's and Poisson's equations for electrostatic potential

Lecture 17 - Elecrostatic potential due to a charge distribution - I; a line charge of finite length

Lecture 18 - Elecrostatic potential due to a charge distribution - II;a ring and a spherical shell of charge

Lecture 19 - Uniqueness of the solution of Laplace's and Poisson's equations

Lecture 20 - Method of images I

Lecture 21 - Method of imagesII

Lecture 22 - Laplaces equations in some other physical phenomena

Lecture 23 - Energy of a charge distribution - I

Lecture 24 - Energy of a charge distribution - II An example

Lecture 25 - Energy of a charge distribution - III Energy density in terms of electric field

Lecture 26 - Electric field and potential in a conductor

Lecture 27 - Reciprocity theorem for conductors - I

Lecture 28 - Reciprocity theorem for conductors - II

Lecture 29 - Electric polarization and bound charges - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Electric polarization and bound charges - II
- Lecture 31 - Electric Displacement
- Lecture 32 - Electrostatics in presence of Dielectric Materials - I
- Lecture 33 - Electrostatics in presence of Dielectric Materials - II
- Lecture 34 - Introduction to Magnetostatics; The BiO-Savart law
- Lecture 35 - Divergence and curl of Magnetic Field
- Lecture 36 - Amperes law for Magnetic Fields
- Lecture 37 - Vector Potential for Magnetic Fields
- Lecture 38 - Calculation of Vector Potential for a given magnetic field
- Lecture 39 - Equation for the Vector Potential in terms of current density
- Lecture 40 - Vector potential from Current Densities - I
- Lecture 41 - Vector potential from Current Densities - II
- Lecture 42 - Magnetic Materials - I
- Lecture 43 - Magnetic Materials - II Bound Current Densities
- Lecture 44 - The Auxiliary Field - H
- Lecture 45 - Solving for Magnetic Field of a magnet - I
- Lecture 46 - Solving for Magnetic Field of a magnet in presence of Magnetic Materials
- Lecture 47 - Faradays Law
- Lecture 48 - Induced Electric field due to changing Magnetic Field
- Lecture 49 - Demonstrations on faradays law, Lenzs law and Nonconservative nature of Induced electric field
- Lecture 50 - Energy stored in a magnetic Field-I
- Lecture 51 - Energy stored in a magnetic Field-I;solved examples
- Lecture 52 - Displacement Current
- Lecture 53 - Quasistatic approximation
- Lecture 54 - Energy transport by electromagnetic fields; The Poynting Vector
- Lecture 55 - The Poynting Vector;solved examples
- Lecture 56 - Linear Momentum and Angular Momentum carried by Electromagnetic Fields
- Lecture 57
- Lecture 58
- Lecture 59
- Lecture 60
- Lecture 61
- Lecture 62
- Lecture 63
- Lecture 64
- Lecture 65
- Lecture 66 - Solution Assignment 1 - Problems 1 to 3
- Lecture 67 - Solution Assignment 1 - Problems 4 to 9
- Lecture 68 - Solution Assignment 2 - Problems 1 to 4

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Solution Assignment 2 - Problems 5 to 11  
Lecture 70 - Solution Assignment 3 - Problems 1 to 5  
Lecture 71 - Solution Assignment 3 - Problems 6 to 10  
Lecture 72 - Solution Assignment 4- Problems 1 to 5  
Lecture 73 - Solution Assignment 4- Problems 6 to 10  
Lecture 74 - Solution Assignment 5- Problems 6 to 11  
Lecture 75 - Solution Assignment 5- Problems 1to 5  
Lecture 76 - Solution Assignment 6- Problems 1 to 4  
Lecture 77 - Solution Assignment 6- Problems 5 to 8  
Lecture 78 - Solution Problem Set 7

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Engineering Mechanics

Subject Co-ordinator - Prof. Manoj K Harbola

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Vectors
- Lecture 2 - Addition and subtraction of vectors
- Lecture 3 - Multiplying vectors
- Lecture 4 - Introduction to vectors
- Lecture 5 - Transformation of vectors under rotation
- Lecture 6 - Vector products and their geometric interpretation
- Lecture 7 - Vector Product
- Lecture 8 - Vector Product
- Lecture 9 - Introduction to vectors
- Lecture 10 - Equilibrium of rigid bodies & Forces and torques
- Lecture 11 - Calculating torques and couple moments - I
- Lecture 12 - Calculating torques and couple moments - II
- Lecture 13 - Finding a force and a couple equivalent to an applied force
- Lecture 14 - Different elements and associated forces and torques - I
- Lecture 15 - Different elements and associated forces and torques - II
- Lecture 16 - Solved examples; equilibrium of bodies & I
- Lecture 17 - Solved examples; equilibrium of bodies & II
- Lecture 18 - Forces in different geometric configuration
- Lecture 19 - Plane trusses I - building a truss and condition for it to be statically determinate
- Lecture 20 - Plane trusses II - calculating forces in a simple truss and different types of trusses
- Lecture 21 - Plane trusses III - calculating forces in a simple truss by method of joints
- Lecture 22 - Plane trusses IV- Solved examples for calculating forces in a simple truss by method of joints
- Lecture 23 - Plane trusses V - Solved examples for calculating forces in a simple truss by method of joints
- Lecture 24 - Plane trusses VI - method of sections for calculating forces in a simple truss
- Lecture 25 - Dry friction I - introduction with an example
- Lecture 26 - Dry friction II - a solved example
- Lecture 27 - Dry friction III - Dry thrust bearing and belt friction with demonstration
- Lecture 28 - Dry friction IV - Screw friction and rolling friction
- Lecture 29 - Dry friction V - Solved examples

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Properties of plane surfaces I - First moment and centroid of an area
- Lecture 31 - Properties of plane surfaces II - Centroid of an area made by joining several plane surfaces
- Lecture 32 - Properties of plane surfaces III - Centroid of a distributed force and its relation with centre
- Lecture 33 - Properties of plane surfaces IV - solved examples of calculation of first moment and centroid of
- Lecture 34 - Properties of plane surfaces V- Second moment and product of an area and radius of gyration
- Lecture 35 - Properties of plane surfaces VI - Parallel axis transfer theorem for second moment and product of
- Lecture 36 - Properties of plane surfaces VII - transformation of second moment and product of an area under
- Lecture 37 - Properties of plane surfaces VIII - second moment and product of an area, solved examples
- Lecture 38 - Method of virtual work I - degrees of freedom, constraints and constraint forces
- Lecture 39 - Method of virtual work II - virtual displacement, virtual work and equilibrium condition in term
- Lecture 40 - Method of virtual work III - solved examples
- Lecture 41 - Motion of a particle in a plane in terms of planar polar coordinates
- Lecture 42 - Planar polar coordinates
- Lecture 43 - Description of motion in cylindrical and spherical coordinate systems
- Lecture 44 - Using planar polar, cylindrical and spherical coordinate systems
- Lecture 45 - Motion with constraints, constraint forces and free body diagram
- Lecture 46 - Motion with constraints  $\hat{A}$  solved examples
- Lecture 47 - Motion with dry friction  $\hat{A}$  solved examples
- Lecture 48 - Motion with drag  $\hat{A}$  solved examples
- Lecture 49 - Equation of motion in terms of linear momentum and the principle of conservation of linear momen
- Lecture 50 - Linear momentum and centre of mass
- Lecture 51 - Momentum transfer, impulse and force due to a stream of particles hitting an object
- Lecture 52 - Momentum and the variable mass problem
- Lecture 53 - Linear momentum  $\hat{A}$  solved examples
- Lecture 54 - Work and energy I - work energy theorem; conservative and non-conservative force fields
- Lecture 55 - Work and energy II - Definition of potential energy for conservative forces; total mechanical en
- Lecture 56 - Work and energy III - Two solved examples using conservation principles
- Lecture 57 - Work and energy IV  $\hat{A}$  Further discussion on potential energy
- Lecture 58 - Work and energy V - Solved examples
- Lecture 59 - Work and energy VI  $\hat{A}$  Applying conservation principles to solve a collision problem
- Lecture 60 - Work and energy VII - Solved examples
- Lecture 61 - Rigid body motion I - degrees of freedom and number of variables required to describe motion of
- Lecture 62 - Rigid body motion II - Equation of motion for a single particle in terms of angular momentum and
- Lecture 63 - Rigid body motion III - Conservation of angular momentum; angular momentum for a collection of p
- Lecture 64 - Rigid body motion IV - applying angular momentum conservation, a solved example
- Lecture 65 - Rigid body motion V (fixed axis rotation) - some demonstrations of conservation of angular momen
- Lecture 66 - Rigid body motion VI (fixed axis rotation) - Some more demonstrations and related problems
- Lecture 67 - Rigid body motion VII (fixed axis rotation) - Kinetic energy and moment of inertia for fixed axi
- Lecture 68 - Rigid body motion VIII (fixed axis rotation) - solved examples for calculating moment of inertia

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Rigid body motion IX (fixed axis rotation) - solved examples
- Lecture 70 - Rigid body motion X - rotation and translation with axis moving parallel to itself
- Lecture 71 - Rigid body motion XI - solved examples for rotation and translation with axis moving parallel to itself
- Lecture 72 - Rigid-body dynamics XII - Some demonstrations on general motion of rigid bodies
- Lecture 73 - Rigid-body dynamics XIII - Infinitesimal angles as vector quantities and change of a vector when rotated
- Lecture 74 - Rigid-body dynamics XIV - Angular velocity and the rate of change of a rotating vector; relating angular velocity to angular displacement
- Lecture 75 - Rigid-body dynamics XV - Relationship between angular momentum and angular velocity  $\hat{A}$  the moment of inertia
- Lecture 76 - Rigid-body dynamics XVI - Solved examples
- Lecture 77 - Rigid body motion XVII  $\hat{A}$  A review of the relation between angular momentum and angular velocity
- Lecture 78 - Rigid body motion XVIII- Solved examples for calculating rate of change of angular momentum and angular velocity
- Lecture 79 - Rigid body dynamics XIX - understanding demonstrations shown earlier using equation of motion (Euler's equations)
- Lecture 80 - Rigid body dynamics XX - understanding demonstrations shown earlier using equation of motion (Euler's equations)
- Lecture 81 - Rigid body dynamics XXI - Euler equations, solved examples
- Lecture 82 - Simple harmonic motion I - expanding potential energy about the equilibrium point and the corresponding frequency
- Lecture 83 - Simple harmonic motion II - solving the equation of motion with given initial conditions
- Lecture 84 - Simple harmonic motion III - solved examples
- Lecture 85 - Simple harmonic motion IV - representing simple harmonic motion on a phasor diagram; energy of a harmonic oscillator
- Lecture 86 - Simple harmonic motion V - solved examples
- Lecture 87 - Simple harmonic motion VI - solving the equation of motion with constant friction in the system
- Lecture 88 - Simple harmonic motion VII - harmonic oscillator with velocity-dependent damping (heavy damping)
- Lecture 89 - Simple harmonic motion VIII - harmonic oscillator with velocity-dependent damping (critical damping)
- Lecture 90 - Simple harmonic motion IX - solved examples
- Lecture 91 - Simple harmonic motion X - harmonic oscillator with velocity-dependent damping (light damping)
- Lecture 92 - Simple harmonic motion XI - solved examples
- Lecture 93 - Simple harmonic motion XII - oscillations of an un-damped harmonic oscillator subjected to an oscillating force
- Lecture 94 - Simple harmonic motion XIII - oscillations of a forced damped harmonic oscillator - I
- Lecture 95 - Simple harmonic oscillator XIV - oscillations of a forced damped harmonic oscillator - II
- Lecture 96 - Simple harmonic oscillator XV - Energy and power in a forced damped harmonic oscillator
- Lecture 97 - Simple harmonic oscillator XVI - Solved examples
- Lecture 98 - Equation of motion in a uniformly accelerating frame
- Lecture 99 - Motion described in a uniformly accelerating frame; solved examples - I
- Lecture 100 - Motion described in a uniformly accelerating frame; solved examples - II



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Computational Science and Engineering Using Python

Subject Co-ordinator - Prof. Mahendra Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lecture 1 - About Computers  
Lecture 2 - Lecture 2 - Python  
Lecture 3 - Lecture 3 - Python  
Lecture 4 - Lecture 4 - Python  
Lecture 5 - Lecture 5A - Python packages; Programming  
Lecture 6 - Lecture 5B - Some suggestions on programming  
Lecture 7 - Lecture 6 - Plotting in Python  
Lecture 8 - Lecture 7 - Errors and Nondimensionalization  
Lecture 9 - Lecture 8 - Data I/O and Mayavi  
Lecture 10 - Lecture 9 - Lagrange interpolation  
Lecture 11 - Lecture 10 - Interpolation II  
Lecture 12 - Lecture 11 - Integration I  
Lecture 13 - Lecture 12 - Integration II  
Lecture 14 - Lecture 13 - Gaussian quadrature continued  
Lecture 15 - Lecture 14 - Numerical Differentiation  
Lecture 16 - Lecture 15 - ODE solvers  
Lecture 17 - Lecture 16 - ODE solvers continued  
Lecture 18 - Lecture 17 - Fourier transform  
Lecture 19 - Lecture 18 - PDE solver  
Lecture 20 - Lecture 19A - PDE solver  
Lecture 21 - Lecture 19B - PDE solver  
Lecture 22 - Lecture 20 - Linear algebra  
Lecture 23 - Lecture 21 - Summary

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC: Introductory Quantum Mechanics

Subject Co-ordinator - Prof. Manoj K Harbola

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Black Body Radiation I - Relevant Definitions and Black Body as cavity
- Lecture 2 - Black Body Radiation II - Intensity of radiation in terms of energy density
- Lecture 3 - Black Body Radiation III - Spectral energy density and radiation pressure inside a black body rad
- Lecture 4 - Black Body Radiation IV - Stephen's Boltzman law
- Lecture 5 - Black Body Radiation V - Wein's Displacement law and analysis for spectral density
- Lecture 6 - Black Body Radiation VI - Wein's distribution law and rayleigh - Jeans distribution law
- Lecture 7 - Black Body Radiation VII - Quantum Hypothesis and plank's distribution Formula
- Lecture 8 - Radiation as a collection of particles called photons
- Lecture 9 - Quantum Hypothesis and specific heat of solids
- Lecture 10 - Bohr's Model of hydrogen spectrum
- Lecture 11 - Wilson Sommerfeld quantum condition I - Harmonic oscillator and particle in a box
- Lecture 12 - Wilson Sommerfeld quantum condition II - Particle moving in a coulomb potential in a plane and r
- Lecture 13 - Wilson Sommerfeld quantum condition III - Particle moving in a coulomb potential in 3D and relat
- Lecture 14 - Quantum conditions and atomic structure, electron spin and Pauli exclusion principle
- Lecture 15 - Interaction of atoms with radiation
- Lecture 16 - Stimulated emission and amplification of light in a LASER
- Lecture 17 - Brief description of a LASER
- Lecture 18 - Introduction to the correspondence principle
- Lecture 19 - General nature of the correspondence principle
- Lecture 20 - Selection rules (for transitions) through the correspondence principle
- Lecture 21 - Applications of the correspondence principle
- Lecture 22 - Heisenberg's formulations of quantum mechanics
- Lecture 23 - Heisenberg's formulation of quantum mechanics
- Lecture 24 - Heisenberg's formulation of the quantum mechanics
- Lecture 25 - Brief introduction to matrix mechanics and the quantum condition in matrix form
- Lecture 26 - Introduction to waves and wave equation
- Lecture 27 - Stationary waves eigen values and eigen functions
- Lecture 28 - Matter waves and their experimental detection
- Lecture 29 - Representing a moving particle by a wave packet

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Stationary-state Schrodinger equation and its solution for a particle in a box
- Lecture 31 - Solution of the stationary-state Schrodinger equation for a simple harmonic oscillator
- Lecture 32 - Equivalence of Heisenberg and the Schrodinger formulations
- Lecture 33 - Equivalence of Heisenberg and Schrodinger formulations
- Lecture 34 - Born interpretation of the wavefunction and expectation values of  $x$  and  $p$  operators
- Lecture 35 - Uncertainty principle and its simple applications
- Lecture 36 - Time dependent Schrodinger equation the probability current density and the continuity equation
- Lecture 37 - Ehrenfest theorem for the expectation values of  $x$  and  $p$  operators
- Lecture 38 - Solution of Schrodinger equation for a particle in one and two delta function potentials
- Lecture 39 - Solution of Schrodinger equation for a particle in a finite well
- Lecture 40 - Numerical solution of a one dimensional Schrodinger equation for bound states - I
- Lecture 41 - Numerical solution of a one dimensional Schrodinger equation for bound states - II
- Lecture 42 - Reflection and transmission of particles across a potential barrier
- Lecture 43 - Quantum-tunneling and its examples
- Lecture 44 - Solution of the Schrodinger for free particles and periodic boundary conditions
- Lecture 45 - Electrons in a metal
- Lecture 46 - Schrodinger equation for particles in spherically symmetric potential, angular momentum operator
- Lecture 47 - Angular momentum operator and its eigenfunctions
- Lecture 48 - Equation for radial component of the wavefunction in spherically symmetric potentials and general
- Lecture 49 - Solution for radial component of the wavefunction for the hydrogen atom
- Lecture 50 - Numerical solution for the radial component of wavefunction for spherically symmetric potentials
- Lecture 51 - Solution of the Schrodinger equation for one dimensional periodic potential
- Lecture 52 - Kroning-Penny model and energy bands
- Lecture 53 - Kroning-Penny model with periodic Dirac delta function and energy bands
- Lecture 54 - Discussion on bands
- Lecture 55 - Summary of the course

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Introduction to Solid State Physics

Subject Co-ordinator - Prof. Satyajit Banerjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Drude's theory of electrons in a metal - Part 1
- Lecture 2 - Introduction to Drude's theory of electrons in a metal - Part 2
- Lecture 3 - Postulates of Drude's theory
- Lecture 4 - Calculating electrical conductivity of metal using Drude's theory of electrons in metal - Part 1
- Lecture 5 - Calculating the electrical conductivity of metal using Drude's Model - Part 2
- Lecture 6 - Introduction to Hall effect in Metals - Part 1
- Lecture 7 - Introduction to Hall effect in metals - Part 2
- Lecture 8 - Introduction to Hall effect in metals - Part 3
- Lecture 9 - Understanding thermal conductivity of a metal using Drude's model - Part 1
- Lecture 10 - Understanding thermal conductivity of a metal using Drude's model - Part 2
- Lecture 11 - Introduction to Sommerfeld's Theory of electrons in a metal - Part 1
- Lecture 12 - Introduction to Sommerfeld's Theory of electrons in a metal - Part 2
- Lecture 13 - Introduction to Sommerfeld's Theory of electrons in a metal - Part 3
- Lecture 14
- Lecture 15
- Lecture 16
- Lecture 17
- Lecture 18
- Lecture 19 - Electronic Contribution to the Specific heat of a Solid - Part 1
- Lecture 20 - Electronic Contribution to the Specific heat of a Solid - Part 2
- Lecture 21 - Electronic Contribution to the Specific heat of a Solid - Part 3
- Lecture 22 - Electronic Contribution to the Specific heat of a Solid - Part 4
- Lecture 23 - Understanding Thermal conductivity of Metals
- Lecture 24 - Introduction to Magnetism in Metal - Part 1
- Lecture 25 - Introduction to Magnetism in Metal - Part 2
- Lecture 26
- Lecture 27 - Introduction to crystals and bonding in crystals
- Lecture 28 - Understanding crystal structure using Bravais Lattice
- Lecture 29 - Bravais Lattice Types - Part 1

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Bravais Lattice Types - Part 2
- Lecture 31 - Introduction to different crystal types - Part 1
- Lecture 32 - Introduction to different crystal types - Part 2
- Lecture 33 - Indexing crystal planes
- Lecture 34 - Scattering of X rays from crystals - Part 1
- Lecture 35 - Scattering of X rays from crystals - Part 2
- Lecture 36 - Reciprocal lattice vectors - Part 1
- Lecture 37 - Reciprocal lattice vectors - Part 2
- Lecture 38 - Reciprocal lattice vectors and Laue's condition for diffraction of waves in crystals - Part 1
- Lecture 39 - Reciprocal lattice vectors and Laue's condition for diffraction of waves in crystals - Part 2
- Lecture 40 - Reciprocal lattice vectors, Laue's condition and Bragg's law for diffraction of waves by a crystal
- Lecture 41 - Wave equation in a continuous medium and generalization to a discrete medium
- Lecture 42 - Derivation of wave equation for motion of atoms in a crystal
- Lecture 43 - Solution of the wave equation for a crystal and the relation between frequency  $\omega$  and wavevector  $k$
- Lecture 44 - Group velocity of waves and speed of sound in a crystal
- Lecture 45 - Waves in a crystal considering interaction among atoms beyond their nearest neighbours
- Lecture 46 - Normal modes in a crystal
- Lecture 47 - Experimental determination of Phonon dispersion curves
- Lecture 48 - Lattice with two atom basis
- Lecture 49 - Displacement of the atoms for the acoustic and optical Phonons
- Lecture 50 - Density of states of phonons
- Lecture 51 - Calculating the density of states of Phonons
- Lecture 52 - Average energy of Phonons at Temperature T
- Lecture 53 - Debye's Model of specific heat of crystals
- Lecture 54 - Anharmonic effects in crystals
- Lecture 55 - Going beyond free electron model
- Lecture 56 - Applying perturbation theory to free electron wavefunctions and nearly free electron model
- Lecture 57 - Applying perturbation theory to free electron wavefunctions and creation of energy gap at zone boundary
- Lecture 58 - Mixing of plane waves to get Bloch Wavefunction - I
- Lecture 59 - Mixing of plane waves to get Bloch Wavefunction - II
- Lecture 60 - Equivalence of wave vectors  $k$  and  $k+G$  and reduced zone scheme
- Lecture 61 - Applying periodic boundary condition to Bloch wavefunction and counting the number of states
- Lecture 62 - Band theory of metals, insulators and semiconductors
- Lecture 63 - Kronig- Penney model
- Lecture 64 - Bloch wavefunction as a linear combination of atomic orbitals
- Lecture 65 - Tight Binding Model - II
- Lecture 66 - Semiclassical dynamics of a particle in a band and Bloch oscillations
- Lecture 67 - Experimental observations of Bloch oscillations
- Lecture 68 - Concept of hole as a current carrier in semiconductors - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Concept of hole as a current carrier in semiconductors - II
- Lecture 70 - Calculating carrier density in semiconductors - I
- Lecture 71 - Calculating carrier density in semiconductors - II
- Lecture 72 - Donor and acceptor energy levels in a semiconductor
- Lecture 73 - charge carrier density in n-type and p-type semiconductors
- Lecture 74 - Electrical conductivity and hall coefficient in semiconductors
- Lecture 75 - Paramagnetism in solids I - Magnetic moment and Lande g factor for atoms
- Lecture 76 - Paramagnetism in solids II - temperature dependence of paramagnetic susceptibility and Curie's I
- Lecture 77 - Hund's rule for calculating the total angular momentum J, orbital angular momentum L and spin an
- Lecture 78 - Examples of performing paramagnetic susceptibility calculations
- Lecture 79 - Diamagnetism in Solids
- Lecture 80 - Understanding quenching of orbital angular momentum in transition metal ions
- Lecture 81 - Ferromagnetism in solids
- Lecture 82 - Introduction to Meissner state of superconductors and levitation
- Lecture 83 - Superconducting materials and Type-I and Type-II superconductors
- Lecture 84 - London's equation for superconductors
- Lecture 85 - Application of London's equation, behavior
- Lecture 86 - A qualitative introduction to BCS theory of superconductivity
- Lecture 87 - Josephson's effect in superconductors and tunneling current across barriers

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Physics of Turbulence

Subject Co-ordinator - Prof. Mahendra Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The turbulence problem
- Lecture 2 - Basic hydrodynamics - Governing equations
- Lecture 3 - Basic hydrodynamics - Vorticity
- Lecture 4 - Basic hydrodynamics - Quadratic quantities
- Lecture 5 - Basic hydrodynamics - Example problems
- Lecture 6 - Fourier space representation - Definitions
- Lecture 7 - Fourier space representation - Flow equations
- Lecture 8 - Fourier space representation - Kinetic energy
- Lecture 9 - Fourier space representation - Vorticity, Kinetic Helicity, and Enstrophy
- Lecture 10 - Fourier space representation - Examples
- Lecture 11 - Fourier space representation - Examples (Continued...)
- Lecture 12 - Craya-Herring Basis
- Lecture 13 - Craya-Herring Basis
- Lecture 14 - Craya-Herring Basis
- Lecture 15 - Thermal Instability
- Lecture 16 - Thermal Instabilities (Continued...)
- Lecture 17 - Rotating Convection
- Lecture 18 - Magnetoconvection
- Lecture 19 - Nonlinear Saturation
- Lecture 20 - Patterns, Chaos, and Turbulence
- Lecture 21 - Energy Transfers
- Lecture 22 - Energy Transfers
- Lecture 23 - Energy Transfers
- Lecture 24 - Energy Transfers
- Lecture 25 - Energy Transfers
- Lecture 26 - Energy Transfers
- Lecture 27 - Kolmogorov's Theory
- Lecture 28 - Kolmogorov's Theory
- Lecture 29 - Kolmogorov's Theory

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Kolmogorov's four-fifth law
- Lecture 31 - Kolmogorov's four-fifth law
- Lecture 32 - Kolmogorov's four-fifth law
- Lecture 33 - Enstrophy Spectrum and Flux
- Lecture 34 - Two-dimensional Turbulence
- Lecture 35 - Helical turbulence
- Lecture 36 - Flow with a scalar
- Lecture 37 - Passive scalar turbulence
- Lecture 38 - Stably stratified turbulence
- Lecture 39 - Turbulent thermal convection
- Lecture 40 - Flow with a vector
- Lecture 41 - MHD Turbulence
- Lecture 42 - MHD Turbulence
- Lecture 43 - MHD Turbulence
- Lecture 44 - MHD Turbulence



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Introduction to Astrophysical Fluids

Subject Co-ordinator - Prof. Supratik Banerjee

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - General introduction
- Lecture 2 - Phase space and Liouville's theorem
- Lecture 3 - Collisionless Boltzmann equation
- Lecture 4 - Boltzmann equation for collisional system - I
- Lecture 5 - Boltzmann equation for collisional system - II
- Lecture 6 - Equilibrium distribution function - I
- Lecture 7 - Equilibrium distribution function - II
- Lecture 8 - Derivation of moment equations - I
- Lecture 9 - Derivation of moment equations - II
- Lecture 10 - Application of moment equations in collisionless systems
- Lecture 11 - Derivation of ideal fluid equations
- Lecture 12 - Macroscopic forces on an ideal fluid
- Lecture 13 - Properties of ideal fluid
- Lecture 14 - Kelvin's vorticity theorem
- Lecture 15 - Conservative form and invariants in ideal fluids
- Lecture 16 - Steady flow, streamlines and stream function
- Lecture 17 - Departure from Maxwellian distribution
- Lecture 18 - Derivation of real fluid equations
- Lecture 19 - Hydrostatics: Model of solar corona
- Lecture 20 - Stellar/solar wind
- Lecture 21 - Accretion disks - I
- Lecture 22 - A small digression: Newtonian fluids
- Lecture 23 - Accretion disk - II
- Lecture 24 - Weak perturbation in a compressible fluid: sound wave
- Lecture 25 - Effect of nonlinearity: shocks
- Lecture 26 - Supernova explosion and spherical blast waves - I
- Lecture 27 - Supernova explosion and spherical blast waves - II
- Lecture 28 - de Laval nozzle and extragalactic jets
- Lecture 29 - Convective instability and Schwarzschild stability criterion

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Rayleigh Benard convection - I
- Lecture 31 - Rayleigh Benard convection - II
- Lecture 32 - Jeans instability
- Lecture 33 - Waves and instabilities in a two-fluid interface - I
- Lecture 34 - Waves and instabilities in a two-fluid interface - II
- Lecture 35 - Oscillations of stars
- Lecture 36 - Oscillation of stars (Continued...)
- Lecture 37 - Rotation in astrofluids and Rayleigh criterion
- Lecture 38 - Fluid dynamics in a rotating frame of reference
- Lecture 39 - Vorticity theorem in rotating frame and Taylor-Proudman theorem
- Lecture 40 - Effect of rotation on a self gravitating mass
- Lecture 41 - Effect of rotation in stars
- Lecture 42 - Introduction to Plasmas
- Lecture 43 - Description of Plasma
- Lecture 44 - Kinetic to fluid picture of plasmas
- Lecture 45 - MHD fluids: magnetic pressure, magnetic tension and plasma beta
- Lecture 46 - Inviscid invariants in MHD
- Lecture 47 - Inviscid invariants in MHD (Continued...)
- Lecture 48 - Elsasser variables in MHD
- Lecture 49 - Linear wave modes in MHD
- Lecture 50 - MHD in space plasmas
- Lecture 51 - Introduction to turbulence in fluids
- Lecture 52 - Richardson-Kolmogorov phenomenology of turbulence
- Lecture 53 - Turbulent diffusion
- Lecture 54 - Turbulent viscosity
- Lecture 55 - Turbulence in MHD fluids
- Lecture 56 - Introduction to astrophysical dynamos
- Lecture 57 - Anti-dynamo theorem and turbulent dynamos

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Introduction to Electromagnetic Theory (Hindi)

Subject Co-ordinator - Prof. Manoj Harbola

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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Lecture 53

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Scientific Computing Using Python

Subject Co-ordinator - Prof. Mahendra K. Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69

Lecture 70

Lecture 71

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Tapestry of Field theory: Classical and Quantum, Equilibrium and Nonequilibrium

Subject Co-ordinator - Prof. Mahendra K. Verma

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Field Theory and Course
- Lecture 2 - Integration using Complex Analysis
- Lecture 3 - Cauchy Principal Value Theorem
- Lecture 4 - Fourier Transform
- Lecture 5 - Green's Function and Examples
- Lecture 6 - Green's Function in Fourier Space
- Lecture 7 - Fourier Transform, Time Frequency
- Lecture 8 - Green's Function for Helmholtz Equation and Wave Equation
- Lecture 9 - Green's Function for Diffusion and Schrodinger Equation
- Lecture 10 - Dimensional Analysis
- Lecture 11 - Functionals - Part 1
- Lecture 12 - Lagrangian Formalism - Part 2
- Lecture 13 - Relativistic Fields
- Lecture 14 - Hamiltonian Formalism
- Lecture 15 - Principle of Least Action
- Lecture 16 - Relativistic Fields and Hamiltonian Formalism
- Lecture 17 - Noether's Theorem and Symmetries
- Lecture 18 - Review of Quantum Mechanics
- Lecture 19 - Second Quantization
- Lecture 20 - Field Operators
- Lecture 21 - Fock Space and Vacuum Energy
- Lecture 22 - Quantization of Bosons and Fermions
- Lecture 23 - Examples
- Lecture 24 - Free Fermi Gas
- Lecture 25 - Propagators and Perturbations
- Lecture 26 - Relativistic Quantum Field Theory
- Lecture 27 - Feynman Propagator
- Lecture 28 - Review of Statistical Mechanics (Partition Function)
- Lecture 29 - Feynman Path Integral

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Diagrammatic Field Theory (Wick's Theorem)
- Lecture 31 - Wick's Theorem (Continued...)
- Lecture 32 - Diagrammatic Perturbation Theory
- Lecture 33 - Green's Function and Correlation Function
- Lecture 34 - Feynman Diagrams
- Lecture 35 - Phase Transition and Landau Theory
- Lecture 36 - Failure of Landau's Theory
- Lecture 37 - Scale Invariance
- Lecture 38 - Renormalization Group - Preliminary
- Lecture 39 - RG Steps
- Lecture 40 - Perturbative Calculations
- Lecture 41 - RG Fixed Points
- Lecture 42 - Relevant and Irrelevant Variables
- Lecture 43 - Behaviour Near Critical Points
- Lecture 44 - Computing Critical Exponents
- Lecture 45 - Mass and Charge Renormalization, Running Coupling const:  $\hat{g}_4$  Theory
- Lecture 46 - Charge and Mass Renormalization: QED and QCD
- Lecture 47 - Breaking a Continuous Symmetry (Goldstone Mode)
- Lecture 48 - Covariant Electrodynamics (Gauge Interactions)
- Lecture 49 - Higgs Mechanism
- Lecture 50 - Introduction to Non-Equilibrium Field Theory (Langevin Equation)
- Lecture 51 - Fluctuation Dissipation Theorem
- Lecture 52 - Kolgomorov's Theory of Turbulence
- Lecture 53 - Equilibrium and Non Equilibrium Solution of Navier Stokes
- Lecture 54 - Energy Flux in Navier Stokes Equation
- Lecture 55 - RG Analysis of Field Theory of Turbulence
- Lecture 56 - Renormalized Viscosity and Discussion
- Lecture 57 - Renormalization of the Coupling Constant for the Shell Model
- Lecture 58 - Flux Computation for the Shell Model of Turbulence
- Lecture 59 - Renormalization Group Analysis of Navier Stokes Equation
- Lecture 60 - Flux Computation for the Navier Stokes Equation
- Lecture 61 - Functional Form of a Dynamical Equation
- Lecture 62 - Surface Growth Phenomena: Introduction
- Lecture 63 - Surface Growth Phenomena: EW Equation
- Lecture 64 - Surface Growth Phenomena: KPZ Equation
- Lecture 65 - Surface Growth Phenomena: KPZ Equation (Continued...)
- Lecture 66 - RG Procedure for KPZ Equation
- Lecture 67 - Noise Renormalization
- Lecture 68 - Fixed Point Solution

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- Lecture 69 - Weak Turbulence Theory using Examples
- Lecture 70 - Weak Turbulence Applications (Rotating Turbulence, Internal and Surface Gravity Waves)
- Lecture 71 - Nonlinear Schrodinger Equation
- Lecture 72 - Field Theory of Passive Scalar Turbulence
- Lecture 73 - Course Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Coherence and Quantum Entanglement

Subject Co-ordinator - Prof. Anand Kumar Jha

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Main differences between classical and quantum mechanics
- Lecture 2 - Introduction to Coherence and Stochastic Processes
- Lecture 3 - The Joint Probability Function used in Classical Optics: The Correlation Functions
- Lecture 4 - Second-order Coherence Theory (Temporal)
- Lecture 5 - Quantifying the Temporal Correlations
- Lecture 6 - Second-order Coherence Theory (Spatial); Spatial Correlations
- Lecture 7 - Quantifying the Spatial Correlations
- Lecture 8 - Second-order Coherence Theory (Angular); Angular Correlations
- Lecture 9 - Second-order Coherence Theory (Polarization)
- Lecture 10 - Degree of Polarization
- Lecture 11 - Coherent Mode Representation of Optical Fields
- Lecture 12 - Review of Quantum Mechanics
- Lecture 13 - Quantum Mechanical Correlation Functions
- Lecture 14 - Basics of Nonlinear Optics
- Lecture 15 - Two-Photon State Produced by Parametric Down-Conversion
- Lecture 16 - Coherence and Quantum Entanglement
- Lecture 17 - Temporal Two-Photon Interference
- Lecture 18 - Some example of Two-Photon Interference Effects
- Lecture 19 - Spatial Two-Photon Interference
- Lecture 20 - Quantum Measurements
- Lecture 21 - Can the Quantum Mechanical Description of Physical Reality be Considered Complete ?
- Lecture 22 - Hidden Variable Interpretation of Quantum Mechanics
- Lecture 23 - Bell Inequalities
- Lecture 24 - Entanglement Verification
- Lecture 25 - Entanglement Quantification and Connection Between Coherence and Entanglement
- Lecture 26 - 84 Quantum Cryptography
- Lecture 27 - Quantum Teleportation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Astrophysics and Cosmology

Subject Co-ordinator - Prof. S. Bharadwaj

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Keplers Law  
Lecture 3 - The Solar System  
Lecture 4 - The Solar System (Continued...)  
Lecture 5 - Binary Systems  
Lecture 6 - Binary Systems (Continued...)  
Lecture 7 - Tidal Forces and the Earth Moon System  
Lecture 8 - Fluid Mechanics  
Lecture 9 - Hydrostatics and the Solar Wind  
Lecture 10 - Radiative Transfer  
Lecture 11 - Radiative Transfer (Continued...)  
Lecture 12 - Thermal Radiation  
Lecture 13 - Thermal Radiation and the Sun  
Lecture 14 - Virial Theorem and Its Application to Stars  
Lecture 15 - Stars  
Lecture 16 - Stellar Physics - I  
Lecture 17 - Stellar Physics - II  
Lecture 18 - Stellar Physics - III  
Lecture 19 - Stellar Physics - IV  
Lecture 20 - Stellar Physics - V  
Lecture 21 - White Dwarfs  
Lecture 22 - White Dwarfs and Neutron Stars  
Lecture 23 - Galaxies  
Lecture 24 - Galaxies and the Expanding Universe  
Lecture 25 - The Expanding Universe  
Lecture 26 - Dynamics of the Expanding Universe  
Lecture 27 - Dynamics of the Expanding Universe (Continued...)  
Lecture 28 - The Expanding Universe and the Cosmological Metric  
Lecture 29 - The Cosmological Space - Time

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Distances
- Lecture 31 - Distances (Continued...)
- Lecture 32 - Distances and the Hubble Parameter
- Lecture 33 - Distances, the Hubble Parameter and Dark Energy (Continued...)
- Lecture 34 - CMBR and Thermal History
- Lecture 35 - CMBR and Thermal History (Continued...1)
- Lecture 36 - CMBR and Thermal History (Continued...2)
- Lecture 37 - Thermal History, Expansion Rate and Neutrino Mass
- Lecture 38 - Thermal History
- Lecture 39 - Big Bang Nucleosynthesis

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Mathematics Methods in Physics - I

Subject Co-ordinator - Prof. Samudra Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Set, Group, Field, Ring

Lecture 2 - Vector Space

Lecture 3 - Span, Linear combination of vectors

Lecture 4 - Linearly dependent and independent vector, Basis

Lecture 5 - Dual Space

Lecture 6 - Inner Product

Lecture 7 - Schwarz Inequality

Lecture 8 - Inner product space, Gram-Schmidt Ortho-normalization

Lecture 9 - Projection operator

Lecture 10 - Transformation of Basis

Lecture 11 - Transformation of Basis (Continued...)

Lecture 12 - Unitary transformation, Similarity Transformation

Lecture 13 - Eigen Value, Eigen Vectors

Lecture 14 - Normal Matrix

Lecture 15 - Diagonalization of a Matrix

Lecture 16 - Hermitian Matrix

Lecture 17 - Rank of a Matrix

Lecture 18 - Cayley - Hamilton Theorem, Function space

Lecture 19 - Metric Space, Linearly dependent - independent functions

Lecture 20 - Linearly dependent & independent functions (Continued...), Inner Product of functions

Lecture 21 - Orthogonal functions

Lecture 22 - Delta Function, Completeness

Lecture 23 - Fourier

Lecture 24 - Fourier Series (Continued...)

Lecture 25 - Parseval Theorem, Fourier Transform

Lecture 26 - Parseval Relation, Convolution Theorem

Lecture 27 - Polynomial space, Legendre Polynomial

Lecture 28 - Monomial Basis, Factorial Basis, Legendre Basis

Lecture 29 - Complex Numbers

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Geometrical interpretation of complex numbers
- Lecture 31 - de Moivre's Theorem
- Lecture 32 - Roots of a complex number
- Lecture 33 - Set of complex no, Stereographic projection
- Lecture 34 - Complex Function, Concept of Limit
- Lecture 35 - Derivative of Complex Function, Cauchy-Riemann Equation
- Lecture 36 - Analytic Function
- Lecture 37 - Harmonic Conjugate
- Lecture 38 - Polar form of Cauchy-Riemann Equation
- Lecture 39 - Multi-valued function and Branches
- Lecture 40 - Complex Line Integration, Contour, Regions
- Lecture 41 - Complex Line Integration (Continued...)
- Lecture 42 - Cauchy-Goursat Theorem
- Lecture 43 - Application of Cauchy-Goursat Theorem
- Lecture 44 - Cauchy's Integral Formula
- Lecture 45 - Cauchy's Integral Formula (Continued...)
- Lecture 46 - Series and Sequence
- Lecture 47 - Series and Sequence (Continued...)
- Lecture 48 - Circle and radius of convergence
- Lecture 49 - Taylor Series
- Lecture 50 - Classification of singularity
- Lecture 51 - Laurent Series, Singularity
- Lecture 52 - Laurent series expansion
- Lecture 53 - Laurent series expansion (Continued...), Concept of Residue
- Lecture 54 - Classification of Residue
- Lecture 55 - Calculation of Residue for quotient from
- Lecture 56 - Cauchy's Residue Theorem
- Lecture 57 - Cauchy's Residue Theorem (Continued...)
- Lecture 58 - Real Integration using Cauchy's Residue Theorem
- Lecture 59 - Real Integration using Cauchy's Residue Theorem (Continued...)
- Lecture 60 - Real Integration using Cauchy's Residue Theorem (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Classical Mechanics - from Newtonian to Lagrangian Formulation

Subject Co-ordinator - Prof. Debamalya Banerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6 - Systems with variable mass - 3  
Lecture 7 - Systems with variable mass - 4  
Lecture 8 - Central force - 1  
Lecture 9 - Central force - 2  
Lecture 10 - Central force - 3  
Lecture 11 - Central force - 4  
Lecture 12 - Central force - 5  
Lecture 13 - Central force - 6  
Lecture 14 - Central force - 7  
Lecture 15 - Central force - 8  
Lecture 16 - Central force - 9  
Lecture 17 - Central force - 10  
Lecture 18 - Central force - 11  
Lecture 19 - Central force - 12  
Lecture 20 - Central force - 13  
Lecture 21 - Central force - 14  
Lecture 22 - Central force - 15  
Lecture 23 - Mooring Co-ordinate Systems - 1  
Lecture 24 - Mooring Co-ordinate Systems - 2  
Lecture 25 - Mooring Co-ordinate Systems - 3  
Lecture 26 - Mooring Co-ordinate Systems - 4  
Lecture 27 - Rigid body dynamics - 1  
Lecture 28 - Rigid body dynamics - 2  
Lecture 29 - Rigid body dynamics - 3

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30	- Rigid body dynamics	- 4
Lecture 31	- Rigid body dynamics	- 5
Lecture 32	- Rigid body dynamics	- 6
Lecture 33	- Rigid body dynamics	- 7
Lecture 34	- Rigid body dynamics	- 8
Lecture 35	- Rigid body dynamics	- 9
Lecture 36	- Rigid body dynamics	- 10
Lecture 37	- Rigid body dynamics	- 11
Lecture 38	- Rigid body dynamics	- 12
Lecture 39	- Rigid body dynamics	- 13
Lecture 40	- Rigid body dynamics	- 14
Lecture 41	- Rigid body dynamics	- 15
Lecture 42	- Rigid body dynamics	- 16
Lecture 43	- Lagrangian Formulation	- 1
Lecture 44	- Lagrangian Formulation	- 2
Lecture 45	- Lagrangian Formulation	- 3
Lecture 46	- Lagrangian Formulation	- 4
Lecture 47	- Lagrangian Formulation	- 5
Lecture 48	- Lagrangian Formulation	- 6
Lecture 49	- Lagrangian Formulation	- 7
Lecture 50	- Lagrangian Formulation	- 8
Lecture 51	- Lagrangian Formulation	- 9
Lecture 52	- Lagrangian Formulation	- 10
Lecture 53	- Small oscillation	- 1
Lecture 54	- Small oscillation	- 2
Lecture 55	- Small oscillation	- 3
Lecture 56	- Small oscillation	- 4
Lecture 57	- Small oscillation	- 5
Lecture 58	- Small oscillation	- 6
Lecture 59	- Small oscillation	- 7
Lecture 60	- Small oscillation	- 8

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Solid State Physics

Subject Co-ordinator - Prof. Amal Kumar Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Atom to Solid Structure  
Lecture 2 - Atom to Solid Structure (Continued...)  
Lecture 3 - Structure of Solid  
Lecture 4 - Structure of Solid (Continued...)  
Lecture 5 - Crystal Structure  
Lecture 6 - Crystal Structure (Continued...)  
Lecture 7 - Crystal Structure (Continued...)  
Lecture 8 - Crystal Structure (Continued...)  
Lecture 9 - Crystal Structure (Continued...)  
Lecture 10 - Crystal Structure (Continued...)  
Lecture 11 - Crystal Structure (Continued...)  
Lecture 12 - Crystal Structure (Continued...)  
Lecture 13 - Crystal Structure (Continued...)  
Lecture 14 - Crystal Structure (Continued...)  
Lecture 15 - Crystal Structure (Continued...)  
Lecture 16 - Crystal Structure (Continued...)  
Lecture 17 - Crystal Structure (Continued...)  
Lecture 18 - X-ray Diffraction from Crystal  
Lecture 19 - X-ray Diffraction from Crystal (Continued...)  
Lecture 20 - X-ray Diffraction from Crystal (Continued...)  
Lecture 21 - X-ray Diffraction from Crystal (Continued...)  
Lecture 22 - X-ray Diffraction from Crystal (Continued...)  
Lecture 23 - X-ray Diffraction from Crystal (Continued...)  
Lecture 24 - X-ray Diffraction from Crystal (Continued...)  
Lecture 25 - Reciprocal Lattice  
Lecture 26 - Reciprocal Lattice (Continued...)  
Lecture 27 - Reciprocal Lattice (Continued...)  
Lecture 28 - Reciprocal Lattice (Continued...)  
Lecture 29 - Reciprocal Lattice (Continued...)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Intensity of Bragg Diffraction
- Lecture 31 - Intensity of Bragg Diffraction (Continued...)
- Lecture 32 - Electrical Properties of Metal
- Lecture 33 - Electrical Properties of Metal (Continued...)
- Lecture 34 - Electrical Properties of Metal (Continued...)
- Lecture 35 - Electrical Properties of Metal (Continued...)
- Lecture 36 - Electrical Properties of Metal (Continued...)
- Lecture 37 - Electrical Properties of Metal (Continued...)
- Lecture 38 - Electrical Properties of Metal (Continued...)
- Lecture 39 - Electrical Properties of Metal (Continued...)
- Lecture 40 - Band Theory of Solids
- Lecture 41 - Band Theory of Solids (Continued...)
- Lecture 42 - Band Theory of Solids (Continued...)
- Lecture 43 - Band Theory of Solids (Continued...)
- Lecture 44 - Band Theory of Solids (Continued...)
- Lecture 45 - Band Theory of Solids (Continued...)
- Lecture 46 - Band Theory of Solids (Continued...)
- Lecture 47 - Physics of Semiconductor
- Lecture 48 - Physics of Semiconductor (Continued...)
- Lecture 49 - Physics of Semiconductor
- Lecture 50 - Electrical Conduction
- Lecture 51 - Electrical Conduction
- Lecture 52
- Lecture 53
- Lecture 54 - Thermal Properties of Solid (Continued...)
- Lecture 55 - Thermal Properties of Solid (Continued...)
- Lecture 56 - Thermal Properties of Solid (Continued...)
- Lecture 57 - Thermal Properties of Solid (Continued...)
- Lecture 58 - Magnetic Property of Solid
- Lecture 59 - Magnetic Property of Solid (Continued...)
- Lecture 60 - Magnetic Property of Solid (Continued...)
- Lecture 61 - Magnetic Property of Solid (Continued...)
- Lecture 62 - Magnetic Property of Solid (Continued...)
- Lecture 63 - Magnetic Property of Solid (Continued...)
- Lecture 64 - Magnetic Property of Solid (Continued...)
- Lecture 65 - Magnetic Property of Solid (Continued...)
- Lecture 66 - Magnetic Property of Solid (Continued...)
- Lecture 67 - Magnetic Property of Solid (Continued...)
- Lecture 68 - Magnetic Property of Solid (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Magnetic Property of Solid (Continued...)
- Lecture 70 - Magnetic Property of Solid (Continued...)
- Lecture 71 - Magnetic Property of Solids (Continued...)
- Lecture 72 - Dielectric Properties of Solid
- Lecture 73 - Dielectric Properties of Solid (Continued...)
- Lecture 74 - Dielectric Properties of Solid (Continued...)
- Lecture 75 - Superconductivity

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Atomic and Molecular Physics

Subject Co-ordinator - Prof. Amal Kumar Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Experimental observations and theoretical development in discovery of constituents of an atom  
Lecture 2 - Experimental observations and theoretical development in discovery of constituents of an atom (C  
Lecture 3 - Experimental observations and theoretical development in discovery of constituents of an atom (C  
Lecture 4 - Experimental observations and theoretical development in discovery of constituents of an atom (C  
Lecture 5 - Experimental observations and theoretical development in discovery of constituents of an atom (C  
Lecture 6 - Structure of an atom  
Lecture 7 - Structure of an atom  
Lecture 8 - Structure of an atom (Continued...)  
Lecture 9 - Atomic structure of an atom  
Lecture 10 - Atomic structure of an atom  
Lecture 11 - Structure of an atom  
Lecture 12 - Atomic structure of an atom  
Lecture 13 - Atomic structure of an atom  
Lecture 14 - Structure of an atom  
Lecture 15 - Structure of an atom  
Lecture 16 - Structure of an atom  
Lecture 17 - Structure of an atom  
Lecture 18 - Structure of an atom  
Lecture 19 - Structure of an atom  
Lecture 20 - Structure of an atom  
Lecture 21 - Atomic spectra  
Lecture 22 - Atomic spectra  
Lecture 23 - Multielectron atoms  
Lecture 24 - Multielectron atoms (Continued...)  
Lecture 25 - Multielectron atoms (Continued...)  
Lecture 26 - Multielectron atoms (Continued...)  
Lecture 27 - Quantum mechanical treatment  
Lecture 28 - Quantum mechanical treatment (Continued...)  
Lecture 29 - Quantum mechanical treatment of H-like atom

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quantum mechanical treatment of H-like atom (Continued...)
- Lecture 31 - Quantum mechanical treatment of Hydrogen like atom
- Lecture 32 - Quantum mechanical treatment of Hydrogen like atom (Continued...)
- Lecture 33 - Quantum mechanical treatment of hydrogen like atom (Continued...)
- Lecture 34 - Quantum mechanical treatment of hydrogen like atom (Continued...)
- Lecture 35 - Quantum mechanical treatment of hydrogen like atom (Continued...)
- Lecture 36 - Quantum Mechanical treatment of Hydrogen like atom (Continued...)
- Lecture 37 - Quantum Mechanical treatment of Hydrogen like atom (Continued...)
- Lecture 38 - Hydrogen like atom in magnetic field
- Lecture 39 - Hydrogen like atom in magnetic field (Continued...)
- Lecture 40 - Hydrogen like atom in electric field
- Lecture 41 - Physics of molecules
- Lecture 42 - Rotation of a molecule
- Lecture 43 - Rotation of a molecule (Continued...)
- Lecture 44 - Rotation of a molecule (Continued...)
- Lecture 45 - Rotation of a molecule (Continued...)
- Lecture 46 - Vibration of a molecule
- Lecture 47 - Vibration of a molecule (Continued...)
- Lecture 48 - Vibration of a molecule (Continued...)
- Lecture 49 - Vibration of a molecule (Continued...)
- Lecture 50 - Vibration of a molecule (Continued...)
- Lecture 51 - Electronic spectra of a molecule
- Lecture 52 - Electronic spectra of a molecule (Continued...)
- Lecture 53 - Electronic structure of molecules
- Lecture 54 - Electronic structure of molecules (Continued...)
- Lecture 55 - Electronic structure of a molecule
- Lecture 56 - Atomic and Molecular Spectroscopy
- Lecture 57 - Raman Spectroscopy
- Lecture 58 - Raman Spectroscopy (Continued...)
- Lecture 59 - Raman Spectroscopy (Continued...)
- Lecture 60 - Resonance spectroscopy

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Modern Optics

Subject Co-ordinator - Prof. Partha Roy Choudhuri

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Maxwells equations and electromagnetic waves  
Lecture 2 - Maxwells equations and electromagnetic waves (Continued...)  
Lecture 3 - Maxwells equations and electromagnetic waves (Continued...)  
Lecture 4 - Maxwells equations and electromagnetic waves (Continued...)  
Lecture 5 - Maxwells equations and electromagnetic waves (Continued...)  
Lecture 6 - Maxwells equations and electromagnetic waves (Continued...)  
Lecture 7 - Maxwells equations and electromagnetic waves (Continued...)  
Lecture 8 - Wave propagation in anisotropic media  
Lecture 9 - Wave propagation in anisotropic media (Continued...)  
Lecture 10 - Wave propagation in anisotropic media (Continued...)  
Lecture 11 - Wave propagation in anisotropic media (Continued...)  
Lecture 12 - Wave propagation in anisotropic media (Continued...)  
Lecture 13 - Wave propagation in layered structures  
Lecture 14 - Wave propagation in layered structures (Continued...)  
Lecture 15 - Wave propagation in layered structures (Continued...)  
Lecture 16 - Wave propagation in layered structures (Continued...)  
Lecture 17 - Wave propagation in layered structures (Continued...)  
Lecture 18 - Waves in guided structures and modes  
Lecture 19 - Waves in guided structures and modes (Continued...)  
Lecture 20 - Waves in guided structures and modes (Continued...)  
Lecture 21 - Waves in guided structures and modes (Continued...)  
Lecture 22 - Waves in guided structures and modes (Continued...)  
Lecture 23 - Waves in guided structures and modes (Continued...)  
Lecture 24 - Coupling of waves and optical couplers  
Lecture 25 - Coupling of waves and optical couplers (Continued...)  
Lecture 26 - Coupling of waves and optical couplers (Continued...)  
Lecture 27 - Coupling of waves and optical couplers (Continued...)  
Lecture 28 - Coupling of waves and optical couplers (Continued...)  
Lecture 29 - Electro-optic Effect

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Electro-optic Effect (Continued...)
- Lecture 31 - Electro-optic Effect (Continued...)
- Lecture 32 - Electro-optic Effect (Continued...)
- Lecture 33 - Electro-optic Effect (Continued...)
- Lecture 34 - Electro-optic Modulators and Devices
- Lecture 35 - Electro-optic Modulators and Devices (Continued...)
- Lecture 36 - Electro-optic Modulators and Devices (Continued...)
- Lecture 37 - Electro-optic Modulators and Devices (Continued...)
- Lecture 38 - Electro-optic Modulators and Devices (Continued...)
- Lecture 39 - Electro-optic Modulators and Devices (Continued...)
- Lecture 40 - Electro-optic Modulators and Devices (Continued...)
- Lecture 41 - Acousto-optic Effect
- Lecture 42 - Acousto-optic Effect (Continued...)
- Lecture 43 - Acousto-optic Effect (Continued...)
- Lecture 44 - Acousto-optic Effect (Continued...)
- Lecture 45 - Acousto-optic Effect (Continued...)
- Lecture 46 - Acousto-optic Effect (Continued...)
- Lecture 47 - Acousto-optic Effect (Continued...)
- Lecture 48 - Acousto-optic Effect (Continued...)
- Lecture 49 - Acousto-optic Effect (Continued...)
- Lecture 50 - Acousto-optic Effect (Continued...)
- Lecture 51 - Acousto-optic Effect (Continued...)
- Lecture 52 - Acousto-optic Effect (Continued...)
- Lecture 53 - Acousto-optic Effect (Continued...)
- Lecture 54 - Acousto-optic Modulators and Devices
- Lecture 55 - Acousto-optic Modulators and Devices (Continued...)
- Lecture 56 - Acousto-optic Modulators and Devices (Continued...)
- Lecture 57 - Acousto-optic Modulators and Devices (Continued...)
- Lecture 58 - Magneto-optic Effect
- Lecture 59 - Magneto-optic Effect (Continued...)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Introduction to Non-linear Optics and its Applications

Subject Co-ordinator - Prof. Samudra Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Linear Optics
- Lecture 2 - Basic Linear Optics (Continued...)
- Lecture 3 - Basic Linear Optics (Continued...)
- Lecture 4 - Basic Linear Optics (Continued...)
- Lecture 5 - Basic Linear Optics (Continued...)
- Lecture 6 - Basic Linear Optics (Continued...)
- Lecture 7 - Basic Linear Optics (Continued...)
- Lecture 8 - Basic Linear Optics (Continued...)
- Lecture 9 - Basic Linear Optics (Continued...)
- Lecture 10 - Nonlinear Optics
- Lecture 11 - Classical origin of optical nonlinearity
- Lecture 12 - Miller's Rule
- Lecture 13 - Second Harmonic Generation (SHG)
- Lecture 14 - Optical Rectification, Linear electro-optic effect
- Lecture 15 - Sum and Difference frequency generation
- Lecture 16 - Nonlinear Maxwell's equation
- Lecture 17 - Theory of SHG
- Lecture 18 - Phase matching
- Lecture 19 - Phase matching of SHG, Gain band width calculation
- Lecture 20 - Manley-Rowe Relation, Energy conservation in SHG,
- Lecture 21 - Birefringence phase-matching (BPM), Type I and Type II phase matching
- Lecture 22 - Type II phase matching, Symmetry in nonlinear susceptibility
- Lecture 23 - Kleinman's Symmetry, Neumann's Principle
- Lecture 24 - Neumann's Principle (Continued...) Centrosymmetric system
- Lecture 25 - Matrix form
- Lecture 26 - SHG in KDP crystal, Calculation of  $d_{eff}$
- Lecture 27 - SHG in LiNbO<sub>3</sub>
- Lecture 28 - Quasi phase matching (QPM)
- Lecture 29 - Quasi phase matching (QPM) (Continued...), Periodic  $d$  function

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - 1st, 2nd, 3rd order QPM, SHG under depleted pump
- Lecture 31 - Realistic calculation of SHG, 3 wave interaction
- Lecture 32 - 3 wave interaction, Equation for pump, signal and idler wave, Non-collinear phase matching
- Lecture 33 - Manley-Rowe Relation (3 wave mixing), Parametric down conversion
- Lecture 34 - Parametric down conversion (Continued...), Optical Parametric Amplification (OPA)
- Lecture 35 - Optical Parametric Amplification (OPA), Difference frequency generation under OPA
- Lecture 36 - Sum frequency generation under OPA
- Lecture 37 - OPA under non-phase matching condition, Expression of gain
- Lecture 38 - Optical parametric Oscillator (OPO), Singly resonant oscillator
- Lecture 39 - Doubly Resonant Oscillator (DRO)
- Lecture 40 - Doubly Resonant Oscillator (DRO) (Continued...)
- Lecture 41 - 3rd order nonlinear effect
- Lecture 42 - Optical Kerr effect and Self-focusing, Symmetry in 3rd order susceptibility
- Lecture 43 - Symmetry in 3rd order susceptibility (Continued...), Self Phase Modulation (SPM)
- Lecture 44 - Self Phase Modulation (Continued...), Frequency Shift
- Lecture 45 - Third Harmonic Generation(3HG), Energy conservation
- Lecture 46 - Third Harmonic Generation (Continued...)
- Lecture 47 - Third Harmonic Generation (Continued...), Cross Phase Modulation (XPM)
- Lecture 48 - Cross Phase Modulation (Continued...), Nonlinear Absorption
- Lecture 49 - Four Wave Mixing
- Lecture 50 - Four Wave mixing (Continued...)
- Lecture 51 - Parametric Amplification under FWM
- Lecture 52 - Parametric Amplification under FWM (Continued...)
- Lecture 53 - Optical Phase Conjugation
- Lecture 54 - Raman Scattering
- Lecture 55 - Stimulated Raman Scattering
- Lecture 56 - Raman Amplification
- Lecture 57 - Raman Amplification (Continued...)
- Lecture 58 - Linear pulse propagation
- Lecture 59 - Nonlinear Pulse propagation
- Lecture 60 - Optical Soliton

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Upstream LNG Technology

Subject Co-ordinator - Prof. Pavitra Sandilya

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Concentration
- Lecture 3 - Sources and Process Overview of Natural Gas
- Lecture 4 - Pure Component Phase Behavior
- Lecture 5 - Mixture Phase Behavior
- Lecture 6 - Phase Behaviour of Natural Gas
- Lecture 7 - Dew Point and Bubble Point Calculations
- Lecture 8 - Vapor Liquid Equilibrium
- Lecture 9 - Problems on Vapor Pressure, Gibb's Phase Rule, Dew Point Bubble Point Temperatures
- Lecture 10 - Thermophysical Properties of Natural Gas - I
- Lecture 11 - Thermophysical Properties of Natural Gas - II
- Lecture 12 - Thermodynamic and Chemical Properties
- Lecture 13 - Combustion Properties
- Lecture 14 - Flow in Natural Gas Systems
- Lecture 15 - Flow Measurement In Natural Gas - I
- Lecture 16 - Flow Measurement In Natural Gas - II
- Lecture 17 - Temperature and Quality Measurement in Natural Gas Systems
- Lecture 18 - Pressure measurement in natural gas systems
- Lecture 19 - Tutorial on the estimation of thermophysical properties
- Lecture 20 - Tutorial on the combustion and thermodynamic properties of natural gas
- Lecture 21 - Tutorial on fluid mechanics
- Lecture 22 - Tutorial on flow and pressure measurement in natural gas systems
- Lecture 23 - Tutorial on temperature and quality measurement in natural gas
- Lecture 24 - Heat transfer in natural gas systems
- Lecture 25 - Tutorial on heat transfer in natural gas systems
- Lecture 26 - Heat exchangers in natural gas systems
- Lecture 27 - Analysis of heat exchangers in natural gas systems
- Lecture 28 - Tutorial on heat exchanger analysis
- Lecture 29 - Equilibrium vapour-liquid separation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Equilibrium in multicomponent systems
- Lecture 31 - Separation by distillation
- Lecture 32 - Design of distillation column
- Lecture 33 - Equilibrium fluid solid separation
- Lecture 34 - Membrane separation in natural gas systems
- Lecture 35 - Estimation of water content in natural gas
- Lecture 36 - Multistage single component equilibrium separation
- Lecture 37 - Tutorial on vapour liquid separation
- Lecture 38 - Tutorial on ideal binary distillation
- Lecture 39 - Tutorial on equilibrium gas- solid separation
- Lecture 40 - Tutorial on membrane gas separation
- Lecture 41 - Dehydration of natural gas
- Lecture 42 - Natural gas Processing - hydrate removal
- Lecture 43 - Acid gas removal in natural gas system - I
- Lecture 44 - Acid gas removal in natural gas system - II
- Lecture 45 - Nitrogen removal in natural gas system - I
- Lecture 46 - Nitrogen removal in natural gas system - II
- Lecture 47 - Compression in natural gas systems
- Lecture 48 - Compressors used in natural gas systems
- Lecture 49 - Tutorial on hydrate removal
- Lecture 50 - Multicomponent distillation column design
- Lecture 51 - Sulfur recovery in natural gas systems - I
- Lecture 52 - Tutorial on compression
- Lecture 53 - Pigging
- Lecture 54 - Sulfur recovery in natural gas systems - II
- Lecture 55 - Trace components in natural gas
- Lecture 56 - Helium recovery, upgradation and purification
- Lecture 57 - Fundamentals of absorption and stripping for natural gas processing
- Lecture 58 - Tutorial on absorption and stripping
- Lecture 59 - Gas liquid separation in natural gas systems - I
- Lecture 60 - Gas liquid separation in natural gas systems - II
- Lecture 61 - Tutorial on equilibrium in multicomponent systems
- Lecture 62 - Tutorial on multicomponent distillation - I
- Lecture 63 - Tutorial on multicomponent distillation - II
- Lecture 64 - Pumps in natural gas systems - I
- Lecture 65 - Pumps in natural gas systems - II
- Lecture 66 - Pumps in natural gas systems - III
- Lecture 67 - Tutorial on pumps - I
- Lecture 68 - Tutorial on pumps - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Cryogenic refrigeration and liquefaction in natural gas systems - I
- Lecture 70 - Cryogenic refrigeration and liquefaction in natural gas systems - II
- Lecture 71 - Tutorial on refrigeration - I
- Lecture 72 - Tutorial on refrigeration - II
- Lecture 73 - Cryogenic refrigeration and liquefaction in natural gas systems - III
- Lecture 74 - Cryogenic refrigeration and liquefaction in natural gas systems - IV
- Lecture 75 - Cryogenic refrigeration and liquefaction in natural gas systems - V
- Lecture 76 - Tutorial on refrigeration - III
- Lecture 77 - Tutorial on refrigeration and liquefaction - IV
- Lecture 78 - Tutorial on refrigeration and liquefaction - V
- Lecture 79 - Hydrocarbon recovery in natural gas system - I
- Lecture 80 - Hydrocarbon recovery in natural gas system - II
- Lecture 81 - Hydrocarbon recovery in natural gas system - III
- Lecture 82 - Tutorial on hydrocarbon recovery in natural gas
- Lecture 83 - Piping in natural gas systems - I
- Lecture 84 - Piping in natural gas systems - II
- Lecture 85 - Tutorial on piping in natural gas systems - I
- Lecture 86 - Tutorial on piping in natural gas systems - II

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Experimental Physics-I

Subject Co-ordinator - Prof. Amal Kumar Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Basic tools and apparatus

Lecture 3 - Basic tools and apparatus (Continued...)

Lecture 4 - Basic tools and apparatus (Continued...)

Lecture 5 - Basic tools and apparatus (Continued...)

Lecture 6 - Basic tools and apparatus (Continued...)

Lecture 7 - Basic components

Lecture 8 - Basic apparatus

Lecture 9 - Basic apparatus (Continued...)

Lecture 10 - Basic analysis

Lecture 11 - Basics analysis (Continued...)

Lecture 12 - Basics analysis (Continued...)

Lecture 13 - Basics analysis (Continued...)

Lecture 14 - Basics analysis (Continued...)

Lecture 15 - Basics analysis (Continued...)

Lecture 16 - Basics analysis (Continued...)

Lecture 17 - Basics analysis (Continued...)

Lecture 18 - Basics analysis (Continued...)

Lecture 19 - Basics analysis (Continued...)

Lecture 20 - Determination of Young's modulus

Lecture 21 - Demonstration on the experiment of Young's modulus of mettalic bar and data collection

Lecture 22 - Calculate the value of young's modulus of given metallic bar form the recorded datas

Lecture 23 - Experimental demonstration to calculate the spring constant of a given spring

Lecture 24 - Calculate the value of calculate the spring constant of a given spring form the recorded datas

Lecture 25 - Theory regarding Moment of inertia of a flywheel

Lecture 26 - Experimental demonstration to calculate the moment of inertia of a given flywheel

Lecture 27 - How to calculate the value of moment of inertia of a flywheelform the recorded data

Lecture 28 - Theory regarding surface tension of the liquid

Lecture 29 - Demonstration on the experiment of surface tension and data collection

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - How to calculate the value of surface tension of water from the recorded data
- Lecture 31 - Theory regarding viscosity of liquid
- Lecture 32 - Demonstration on the experiment of viscosity
- Lecture 33 - Data analysis of recorded data on viscosity
- Lecture 34 - Forced Oscillations Pohls pendulum
- Lecture 35 - Coupled Pendulum
- Lecture 36 - Demonstration on the experiment of compound pendulum
- Lecture 37 - Theory regarding compound pendulum has been discussed
- Lecture 38 - Experimental demonstration on the standing Waves on a String has been shown clearly how to deter
- Lecture 39 - Linear expansion of metal
- Lecture 40 - Expt. to study linear expansion
- Lecture 41 - Determine the coefficient of thermal conductivity of a bad conductor
- Lecture 42 - Determination of electrical equivalent of heat
- Lecture 43 - Determination of specific heat of the given solid metals using Dulong-Petit's law
- Lecture 44 - Determination of the calibration curve of a given (Type K chromel- $\alpha$  alumel) thermocouple an
- Lecture 45 - Theorey and Demonstartion Platinum Resistance thermometer
- Lecture 46 - Experiment on Platinum Resistance thermometer
- Lecture 47 - To study the current-voltage relationship of an L-R circuit
- Lecture 48 - To study the variation in current and voltage in a series LCR circuit
- Lecture 49 - Sensitivity of Blastic Galvanometer
- Lecture 50 - Expt. for Sensitivity of Blastic Galvanometer
- Lecture 51 - Theory on RC Circuit
- Lecture 52 - Expt. on RC Circuit
- Lecture 53 - Theory regarding the magnetic field along the axis of a circular coil
- Lecture 54 - Experiment regarding the magnetic field along the axis of a circular coil
- Lecture 55 - Study the induced e.m.f of inductance coil
- Lecture 56 - Mutual inductance
- Lecture 57 - Theory regarding permeability of air
- Lecture 58 - Experiment to determination the permeability of air
- Lecture 59 - Devices around us
- Lecture 60 - Devices around us (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Experimental Physics-II

Subject Co-ordinator - Prof. Amal Kumar Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Summary of Experimental Physics - I

Lecture 3 - Summary of Experimental Physics - I (Continued...)

Lecture 4 - Summary of Experimental Physics - I (Continued...)

Lecture 5 - Summary of Experimental Physics - I (Continued...)

Lecture 6 - Basic analysis

Lecture 7 - Basic analysis (Continued...)

Lecture 8 - Basic components

Lecture 9 - Basic components (Continued...)

Lecture 10 - Basic components (Continued...)

Lecture 11 - Basic idea on mirrors and lenses and their applications

Lecture 12 - Determination of focal length of concave mirror

Lecture 13 - Determination of focal length of concave mirror (Continued...)

Lecture 14 - Determination of focal length of convex mirror

Lecture 15 - Determination of focal length of convex lens

Lecture 16 - Determination of focal length of concave lens

Lecture 17 - Determination of focal length of convex lens by displacement method

Lecture 18 - Applications of mirrors and lenses

Lecture 19 - Determination of refractive index of liquid using travelling microscope

Lecture 20 - Basic discussion on spectrometer and prism

Lecture 21 - Basic discussion on spectrometer and prism (Continued...)

Lecture 22 - Basic discussion on spectrometer and prism (Continued...)

Lecture 23 - Schuster's method

Lecture 24 - Discussion on angle of the prism, angular dispersion and dispersive power of given prism

Lecture 25 - Determination of the angle of prism

Lecture 26 - Determination of the angle of minimum deviation for a given prism and hence to determine the refractive index of the material of the prism

Lecture 27 - Discussion on the angle of incidence and corresponding deviation of light through a prism and hence to determine the refractive index of the material of the prism

Lecture 28 - Determination of the angle of minimum deviation from (i-D) plot for a given prism and hence to determine the refractive index of the material of the prism

Lecture 29 - Determination of the calibration plot of deviation versus wavelength for a given prism and hence to determine the refractive index of the material of the prism

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Determination of the dispersive power, Cauchy constant and resolving power of a given prism.
- Lecture 31 - Interference Phenomena
- Lecture 32 - Interference Phenomena (Continued...)
- Lecture 33 - Interference Phenomena (Continued...)
- Lecture 34 - Bi-prism
- Lecture 35 - Bi-prism (Continued...)
- Lecture 36 - Interference phenomena by Newton ring (Theory)
- Lecture 37 - Interference phenomena by Newton ring (Experiment)
- Lecture 38 - Michelson interferometer (Theory)
- Lecture 39 - Michelson interferometer (Experiment)
- Lecture 40 - Theory of diffraction
- Lecture 41 - Theory of diffraction (Continued...)
- Lecture 42 - Theory of diffraction (Continued...)
- Lecture 43 - Single slit diffraction
- Lecture 44 - Double slit diffraction
- Lecture 45 - Plane transmission grating
- Lecture 46 - Plane transmission grating (Continued...)
- Lecture 47 - Theory of polarization
- Lecture 48 - Theory of polarization (Continued...)
- Lecture 49 - Experiment for Verification of Malus law
- Lecture 50 - Experiment for Brewster angle
- Lecture 51 - Experiment for Brewster angle
- Lecture 52 - Experiment on e-ray and o-ray
- Lecture 53 - Polarimeter
- Lecture 54 - Zone-plate Theory
- Lecture 55 - Zone-plate Experiment
- Lecture 56 - Theory of Photoelectric Effect
- Lecture 57 - Experiment on Photoelectric Effect
- Lecture 58 - Thomson experiment to determine the specific charge of an electron (e/m)
- Lecture 59 - Frank-Hertz Experiment
- Lecture 60 - Experiment on Rydberg constant
- Lecture 61 - Experiment on Rydberg constant (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Experimental Physics-III

Subject Co-ordinator - Prof. Amal Kumar Das

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Tools and Instruments in the Laboratory

Lecture 2 - Basic Tools and Instruments in the Laboratory (Continued...)

Lecture 3 - Cathode Ray Oscilloscope (CRO)

Lecture 4 - Cathode Ray Oscilloscope (CRO) (Continued...)

Lecture 5 - Electro Magnet and Constant Current Power Supply

Lecture 6 - Electro Magnet and Constant Current Power Supply (Continued...)

Lecture 7 - Electro Magnet and Constant Current Power Supply (Continued...)

Lecture 8 - Gaussmeter/Teslameter

Lecture 9 - Gaussmeter/Teslameter (Continued...)

Lecture 10 - Lock in Amplifier

Lecture 11 - Lock in Amplifier (Continued...)

Lecture 12 - Measurement of magneto resistance

Lecture 13 - Magneto resistance for Semiconductor

Lecture 14 - Hall Effect

Lecture 15 - Hall Effect as a function of magnetic Field

Lecture 16 - Hall Effect as a function of temperature

Lecture 17 - To study the variation of resistivity of metal and semiconductor at low temperature region (Cont

Lecture 18 - To study the variation of resistivity of metal and semiconductor at low temperature region (Cont

Lecture 19 - Measurement of magnetisation of ferromagnetic material

Lecture 20 - Measurement of magnetisation of ferromagnetic material (Continued...)

Lecture 21 - Susceptibility of paramagnetic substance by Quincke's tube method

Lecture 22 - Experiment of Quincke's Tube Method

Lecture 23 - Susceptibility of paramagnetic substance by Gouy's method

Lecture 24 - Dielectric constant of solid

Lecture 25 - Dielectric constant of non-conducting liquid

Lecture 26 - P-E Loop of Ferroelectric Material

Lecture 27 - Measurement of Ionic Conductivity

Lecture 28 - Measurement of Ionic Conductivity (Continued...)

Lecture 29 - Electron Spin Resonance (ESR)

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Electron Spin Resonance (ESR) Experiment
- Lecture 31 - Superconductivity
- Lecture 32 - Superconductivity (Continued...)
- Lecture 33 - Superconductivity (Continued...)
- Lecture 34 - Nuclear g-factor
- Lecture 35 - Nuclear g-factor (Continued...)
- Lecture 36 - P-N Junction
- Lecture 37 - P-N Junction (Continued...)
- Lecture 38 - P-N Junction (Continued...)
- Lecture 39 - Zeeman Effect
- Lecture 40 - Zeeman Effect (Continued...)
- Lecture 41 - Zeeman Effect (Continued...)
- Lecture 42 - Sodium Yellow Doublet
- Lecture 43 - Sodium Yellow Doublet (Continued...)
- Lecture 44 - Study of Absorption Spectrum of Iodine Vapour
- Lecture 45 - Study of Absorption Spectrum of Iodine Vapour (Continued...)
- Lecture 46 - Study of Absorption Spectrum of Iodine Vapour (Continued...)
- Lecture 47 - Determination of Wavelength of Spectral Lines using Constant Deviation Spectrometer
- Lecture 48 - Determination of Wavelength of Spectral Lines using Constant Deviation Spectrometer (Continued...)
- Lecture 49 - Photoelastic Property of Materials
- Lecture 50 - Photoelastic Property of Materials (Continued...)
- Lecture 51 - Photoelastic Property of Materials (Continued...)
- Lecture 52 - Faraday Effect
- Lecture 53 - Faraday Effect (Continued...)
- Lecture 54 - Electron Diffraction
- Lecture 55 - Electron Diffraction (Continued...)
- Lecture 56 - Determination of Velocity of Light in Free Space
- Lecture 57 - Determination of Velocity of Light in Free Space (Continued...)
- Lecture 58 - X-Ray Diffraction and Crystal Structure
- Lecture 59 - X-Ray Diffraction and Crystal Structure (Continued...)
- Lecture 60 - X-Ray Diffraction and Crystal Structure (Continued...)
- Lecture 61 - X-Ray Diffraction and Crystal Structure (Continued...)
- Lecture 62

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Electronic Theory of Solids

Subject Co-ordinator - Prof. Arghya Taraphder

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Free electrons
- Lecture 2 - Weidemann Franz Law
- Lecture 3 - Drude Model continued
- Lecture 4 - Schrodinger Equation
- Lecture 5 - Density of States
- Lecture 6 - Properties of Degenerate Fermi Gas
- Lecture 7 - Statistics Fermi-Dirac distribution and Maxwell-Boltzmann Distribution
- Lecture 8 - Sommerfeld Expansion and Band Formation
- Lecture 9 - Bonding and Band Formation
- Lecture 10 - Variational Method
- Lecture 11 - Bonding and Band Formation (LCAO)
- Lecture 12 - Bonding and Band Formation (LCAO) (Continued...)
- Lecture 13 - Bloch's Theorem
- Lecture 14 - Proof of Bloch's Theorem
- Lecture 15 - N atoms Solid
- Lecture 16 - Brillouin Zones
- Lecture 17 - Tight binding
- Lecture 18 - Fermi Surfaces
- Lecture 19 - Lattice with basis
- Lecture 20 - Energy spectrum (Continued...)
- Lecture 21 - Graphene and Fermi Surfaces
- Lecture 22 - Fermi Surfaces Instabilities
- Lecture 23 - Low Dimensional Systems
- Lecture 24 - Integer Quantum Hall Effect (IQHE)
- Lecture 25 - Integer Quantum Hall Effect (Continued...)
- Lecture 26 - Electron in a Strong Magnetic Field and IQHE
- Lecture 27 - Spintronics
- Lecture 28 - Magnetism
- Lecture 29 - Magnetism

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- Lecture 30 - Hund's Rule
- Lecture 31 - Curie's Law and Van Vleck Paramagnetism
- Lecture 32 - Curie's law for any J, Susceptibility
- Lecture 33 - Susceptibility and Thermal Properties
- Lecture 34 - Adiabatic Demagnetisation
- Lecture 35 - Pauli Paramagnetism
- Lecture 36 - Paramagnetism of metals
- Lecture 37 - Exchange interaction for 2 electrons
- Lecture 38 - Exchange interactions of different types
- Lecture 39 - Magnetic Order
- Lecture 40 - Magnetic Order of different types and Heisenberg model
- Lecture 41 - Ising Model
- Lecture 42 - Mean Field Theory
- Lecture 43 - Spontaneous magnetisation and 1D Ising Model
- Lecture 44 - Symmetries of Ising model, Exact Solution
- Lecture 45 - Ferromagnetic Heisenberg Model
- Lecture 46 - Ground State and Magnons/Excitations
- Lecture 47 - Superconductivity
- Lecture 48 - London Equation
- Lecture 49 - Meisner Effect from London Equation
- Lecture 50 - Cooper problem
- Lecture 51 - Instability of the Fermi Surface
- Lecture 52 - Ground state of cooper problem, BCS Ground state
- Lecture 53 - BCS Theory, Excitation Spectrum
- Lecture 54 - BCS
- Lecture 55 - Tunneling and Ginzberg Landau Theory
- Lecture 56 - Electrodynamics of Superconductivity
- Lecture 57 - Type II superconductors
- Lecture 58 - Josephson junction
- Lecture 59 - Vortices, SQUID, Quantum Supremacy and Qubits
- Lecture 60 - Topological state of matter, XY Model, Topological Insulators

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Physics of Linear and Nonlinear Optical Waveguides

Subject Co-ordinator - Prof. Samudra Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Wave Equation, Maxwell's equation, Plane wave
- Lecture 2 - EM wave in vacuum, Poynting vector, Maxwell's equation in Dielectric Medium
- Lecture 3 - Poynting Vector, Maxwell's equation in dielectric medium (Continued...)
- Lecture 4 - Total Internal reflection, Evanescent wave
- Lecture 5 - Step-index fiber (SIF), Light guidance in SIF
- Lecture 6 - Light guidance in SIF (Skew Ray), V-Parameter, Discrete Ray
- Lecture 7 - Cutoff wavelength, Fiber characteristics
- Lecture 8 - Fiber Loss, dB units, Dispersion
- Lecture 9 - Dispersion, Ray Path constant
- Lecture 10 - Ray path constant, Ray equation
- Lecture 11 - Ray equation (Continued...)
- Lecture 12 - Ray transit time
- Lecture 13 - Ray transit time (Continued...)
- Lecture 14 - Material dispersion
- Lecture 15 - Material dispersion (Continued...)
- Lecture 16 - Material Dispersion (Continued...), Dispersion Coefficient
- Lecture 17 - Pulse Broadening
- Lecture 18 - Pulse Propagation in Dispersive Medium
- Lecture 19 - Pulse Propagation in Dispersive Medium (Continued...)
- Lecture 20 - Concept of Modes
- Lecture 21 - TE and TM Modes
- Lecture 22 - TE and TM Modes (Continued...)
- Lecture 23 - Modes in Slab waveguide
- Lecture 24 - Modes in Slab waveguide (Continued...)
- Lecture 25 - Modes in Slab waveguide (Continued...)
- Lecture 26 - Modes in Slab Waveguide (Continued...)
- Lecture 27 - Waveguide Dispersion
- Lecture 28 - Physical Understanding of Modes
- Lecture 29 - Power Associated with a Modes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Modes in an Optical Fiber
- Lecture 31 - Modes in an optical fiber (Continued...)
- Lecture 32 - Modes in an optical fiber (Continued...)
- Lecture 33 - LPlm mode structure
- Lecture 34 - Optical fiber mode morphology (Continued...)
- Lecture 35 - Effective area of mode, Fiber optics components
- Lecture 36 - Directional Coupler
- Lecture 37 - Coupled Mode Theory
- Lecture 38 - Coupled Mode Theory (Continued...)
- Lecture 39 - 3 dB power splitter
- Lecture 40 - Working principle of WDM coupler
- Lecture 41 - Fiber Bragg Grating
- Lecture 42 - Fiber Bragg Grating (Continued...)
- Lecture 43 - Reflectivity Calculation
- Lecture 44 - Reflectivity Calculation (Continued...)
- Lecture 45 - Reflectivity calculation of FBG (Continued...)
- Lecture 46 - Reflectivity calculation of FBG (Continued...)
- Lecture 47 - Reflectivity calculation of FBG (Continued...)
- Lecture 48 - Bandwidth of reflectivity
- Lecture 49 - Basic nonlinear optics
- Lecture 50 - Frequency mixing, Optical Kerr effect
- Lecture 51 - Optical Kerr effect (Continued...)
- Lecture 52 - Self Phase Modulation
- Lecture 53 - Self Phase Modulation (Continued...)
- Lecture 54 - Self Phase Modulation (Continued...)
- Lecture 55 - Pulse propagation in nonlinear waveguide
- Lecture 56 - Pulse propagation in nonlinear waveguide (Continued...)
- Lecture 57 - Pulse propagation in nonlinear dispersive waveguide
- Lecture 58 - Pulse propagation in nonlinear dispersive waveguide (Continued...)
- Lecture 59 - Concept of optical soliton
- Lecture 60 - Concept of optical soliton (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Physics of Renewable Energy Systems

Subject Co-ordinator - Prof. Amreesh Chandra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction and relevance of the course
- Lecture 2 - Energy sources
- Lecture 3 - Solar Radiation
- Lecture 4 - Solar Photovoltaic Systems
- Lecture 5 - Origin of Band Structure and Energy Band Gap
- Lecture 6 - Basics of Semiconductors
- Lecture 7 - Construction of Solar Cells
- Lecture 8 - Characterization of Solar Cells and Future Direction
- Lecture 9 - Solar Heaters
- Lecture 10 - Introduction to Wind Energy
- Lecture 11 - Continuity Equation and its applications
- Lecture 12 - Betz Criteria for extracting wind power
- Lecture 13 - Wind turbines and their operation
- Lecture 14 - Materials Aspects and future direction
- Lecture 15 - Introduction to Hydroelectric Power
- Lecture 16 - Hydroelectric Power Station and Turbines
- Lecture 17 - Wave power and converters
- Lecture 18 - Introduction to Tidal Power
- Lecture 19 - Tidal Power and Geothermal Energy
- Lecture 20 - Introduction to Energy Storage Systems
- Lecture 21 - Thermal Energy Storage
- Lecture 22 - Basics of Mechanical Energy Storage
- Lecture 23 - Pumped Hydroelectric to Flywheels (Mechanical Energy Storage Systems)
- Lecture 24 - Introduction to Li-ion battery
- Lecture 25 - Characteristics and Parameters of Li-ion batteries
- Lecture 26 - Cathode Materials for Li-ion batteries
- Lecture 27 - Anode Materials for Li-ion batteries
- Lecture 28 - Electrolytes and Separators for Li-batteries
- Lecture 29 - From battery to supercapacitors

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- Lecture 30 - Construction, development and classification of Supercapacitors
- Lecture 31 - Electric double layer capacitors (EDLCs)
- Lecture 32 - Pseudocapacitors
- Lecture 33 - Electrochemical Techniques for Supercapacitors and Batteries
- Lecture 34 - From material to a supercapacitor device
- Lecture 35 - Effect of temperature on supercapacitor performance
- Lecture 36 - Effect of external magnetic field and frequency on supercapacitors
- Lecture 37 - Introduction to Fuel Cells
- Lecture 38 - Explanation of Fuel cell systems
- Lecture 39 - Microbial Fuel Cells
- Lecture 40 - Nanotechnology and Nanomaterials for Energy Applications
- Lecture 41 - Synthesis of nanomaterials
- Lecture 42 - Carbon- and metal-oxide based nanomaterials
- Lecture 43 - Nanocatalysts
- Lecture 44 - Characterization techniques for solid materials
- Lecture 45 - X-ray diffraction method
- Lecture 46 - UV-Visible Spectroscopy
- Lecture 47 - Fourier Transform Infrared Spectroscopy
- Lecture 48 - SEM, TEM and XPS
- Lecture 49 - Particle size and zeta potential analysis
- Lecture 50 - BET analysis
- Lecture 51 - Electrochemical Impedance Spectroscopy

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Thermal Physics

Subject Co-ordinator - Prof. Debamalya Banerjee

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Foundation of kinetic theory of gasses
- Lecture 2 - Maxwell's law for speed distribution of gas molecules
- Lecture 3 - Average speeds in an ideal gas assembly
- Lecture 4 - Principle of equipartition of energy
- Lecture 5 - Maxwell's law for energy distribution of gas molecules
- Lecture 6 - The mean free path of a gas assembly
- Lecture 7 - Expression for mean free path
- Lecture 8 - Experimental determination of mean free path
- Lecture 9 - Pressure and molecular flux from mean free path
- Lecture 10 - Problems on mean free path
- Lecture 11 - Transport in fluids: introduction
- Lecture 12 - Viscosity: transport of momentum
- Lecture 13 - Thermal conductivity: transport of thermal energy
- Lecture 14 - Diffusion coefficient: transport of mass
- Lecture 15 - Molecular effusion: theory and applications
- Lecture 16 - Brownian motion: concept, features, theory of fluctuation
- Lecture 17 - Brownian motion: mean square displacement and vertical distribution of particles
- Lecture 18 - Perrin's experiment on Brownian motion - Part 1
- Lecture 19 - Perrin's experiment on Brownian motion - Part 2
- Lecture 20 - Problems on Brownian motion, Rotational brownian motion
- Lecture 21 - Specific heat of solids: Dulong-Petit law and Einstein theory
- Lecture 22 - Limitation of Einstein theory of specific heat
- Lecture 23 - Debye theory of specific heat
- Lecture 24 - Behavior of real gasses
- Lecture 25 - Van der Waals equation of state
- Lecture 26 - Critical parameters from Van der Waal's equation
- Lecture 27 - Determination of Van der Waals' constants and Boyle temperature
- Lecture 28 - Other equations of state
- Lecture 29 - Measurement of temperature: Celsius scale, ideal gas scale, absolute zero

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- Lecture 30 - The platinum resistance thermometer
- Lecture 31 - Basic concepts of classical thermodynamics
- Lecture 32 - Basic concepts of classical thermodynamics (Continued...)
- Lecture 33 - First law of thermodynamics
- Lecture 34 - General description of work done and specific heat
- Lecture 35 - General discussion on Heat conduction and elastic properties
- Lecture 36 - Cyclic processes
- Lecture 37 - The reversible heat engine: Carnot cycle
- Lecture 38 - Refrigerator and Carnot Theorem
- Lecture 39 - 2nd law and Clausius theorem
- Lecture 40 - Concept of Entropy and mathematical form of 2nd law
- Lecture 41 - The entropy principle
- Lecture 42 - Efficiency of a cycle from T-S diagram
- Lecture 43 - The Otto cycle
- Lecture 44 - The Diesel cycle
- Lecture 45 - Entropy and available energy
- Lecture 46 - Thermodynamic relations
- Lecture 47 - Application of thermodynamic relation
- Lecture 48 - The free energy functions
- Lecture 49 - Condition for thermodynamic equilibri
- Lecture 50 - Thermodynamics of chemical reaction
- Lecture 51 - Equilibrium between phases: The Clapeyron equation
- Lecture 52 - 1st order phase transition along liquid-vapor equilibrium
- Lecture 53 - Phase diagram and triple point
- Lecture 54 - The 2nd latent heat equation
- Lecture 55 - Gibbs phase rule and basics of second order phase transition
- Lecture 56 - Basic concepts of radiation
- Lecture 57 - Diffused radiation and Kirchhoff's law
- Lecture 58 - Cavity radiation as a thermodynamic system: Stefan-Boltzmann law
- Lecture 59 - Thermodynamics of cavity radiation
- Lecture 60 - 3rd law of thermodynamics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Concepts in Magnetism and Superconductivity

Subject Co-ordinator - Prof. A Taraphder

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction: Magnetism and superconductivity as macroscopic quantum phenomena
- Lecture 2 - Bohr magneton, BvL theorem
- Lecture 3 - An electron in a magnetic field, magnetism of isolated atoms
- Lecture 4 - Magnetism of isolated atoms (Continued...), Diamagnetism
- Lecture 5 - Magnetism of atoms-dia and paramagnetic susceptibilities. Hund's rules, Van Vleck paramagnetism
- Lecture 6 - Van Vleck paramagnetism (Continued...), Paramagnetism
- Lecture 7 - Curie's law for arbitrary J, adiabatic demagnetization
- Lecture 8 - Paramagnetism of conduction electrons - Pauli paramagnetism
- Lecture 9 - Ions in a solid: crystal field, orbital quenching, Jahn-Teller effect
- Lecture 10 - Jahn-Teller effect (Continued...), Magnetic resonance techniques NMR, ESR
- Lecture 11 - Resonance techniques (Continued...), Recapitulation and overview
- Lecture 12 - Recapitulation, interacting moments and long range order, dipolar exchange
- Lecture 13 - Interacting moments, 2-electron system, origin of exchange and spin Hamiltonian
- Lecture 14 - Spin Hamiltonian, Heisenberg model, Exchange interactions: direct
- Lecture 15 - GMR, spin model and mean-field theory, Ising model
- Lecture 16 - Ising model and its properties
- Lecture 17 - Ising model and its properties (Continued...), absence of LRO in d=1, mean-field theory
- Lecture 18 - Ising model recap, applications, exact solutions
- Lecture 19 - Exact solution of Ising model in d=1, exact results in d=2. Mermin-Wagner theorem
- Lecture 20 - Recap - Exact solution of Ising model. Mermin-Wagner theorem on the absence
- Lecture 21 - Ferromagnetic Heisenberg model ground state
- Lecture 22 - Ferromagnetic Heisenberg model, spin-waves and magnons
- Lecture 23 - Antiferromagnetic Heisenberg model, AF magnetic structures
- Lecture 24 - AF magnetic structures, susceptibility and excitations
- Lecture 25 - Antiferromagnets and frustration, spin glass
- Lecture 26 - Superconductivity: discovery, properties
- Lecture 27 - Superconductivity: Meissner effect, London Equation
- Lecture 28 - Electron-phonon interaction, Cooper problem
- Lecture 29 - Cooper problem, setting up the BCS theory

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - BCS wave function, the Superconducting state and calculations of various properties
- Lecture 31 - BCS theory (Continued...), energy gap, transition temperature
- Lecture 32 - Consequences of BCS theory, gap vs T, Transition temperature, specific heat, tunnelling
- Lecture 33 - Transition temperature, specific heat, tunnelling
- Lecture 34 - Andreev reflection, Ginzburg-Landau Theory and electrodynamics of superconductors
- Lecture 35 - Ginzburg-Landau theory, coherence length and Type I and II superconductors
- Lecture 36 - Flux lattice, Flux quantization, Josephson junctions
- Lecture 37 - Josephson effect and Josephson junctions
- Lecture 38 - SQUID, Quantum computers and Josephson junction Qubits
- Lecture 39 - High-Temperature Superconductivity: an enduring enigma
- Lecture 40 - Overview and conclusion

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Foundations of Classical Electrodynamics

Subject Co-ordinator - Prof. Samudra Roy

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Vector analysis, Scalar and vector fields, vector identities  
Lecture 2 - Vector Analysis (Continued...)  
Lecture 3 - Use of Levi-Civita Symbol, Coordinate system  
Lecture 4 - Coordinate system, Orthogonal Transformation  
Lecture 5 - Spherical Coordinate system, Line, surface and volume element  
Lecture 6 - Line, surface and volume element (Continued...)  
Lecture 7 - Line, surface and volume integral  
Lecture 8 - Differential calculus, Gradient  
Lecture 9 - Gradient operator, Concept of divergence  
Lecture 10 - Divergence operator, Divergence Theorem  
Lecture 11 - Curl operator, Stokes Theorem  
Lecture 12 - Gradient, Divergence and Curl (A recap), Vector identities  
Lecture 13 - Curvilinear coordinate system  
Lecture 14 - Curvilinear coordinate system (Continued...)  
Lecture 15 - Curvilinear coordinate system (Continued...)  
Lecture 16 - Delta Function  
Lecture 17 - Delta Function (Continued...)  
Lecture 18 - Helmholtz's Theorem  
Lecture 19 - Helmholtz's Theorem(Recap), Tutorial  
Lecture 20 - Tutorial (Continued...)  
Lecture 21 - Concept of charge, Charge density  
Lecture 22 - Coulomb's Law  
Lecture 23 - Coulomb's Law (Continued...), Charge distribution  
Lecture 24 - Charge distribution problem, Gauss's Law  
Lecture 25 - Topics More on Gauss's Law  
Lecture 26 - Application of Gauss's Law  
Lecture 27 - Electrostatic potential  
Lecture 28 - Electrostatic potential (Continued...)  
Lecture 29 - Electrostatic energy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Electrostatic energy (Continued...)
- Lecture 31 - Electrostatic energy calculation
- Lecture 32 - Electrostatic dipole
- Lecture 33 - Electric dipole (Continued...)
- Lecture 34 - Multipole expansion
- Lecture 35 - Monopole and Dipole moment
- Lecture 36 - Quadrupole moment
- Lecture 37 - Dipole and Quadrupole moment (Continued...)
- Lecture 38 - Conductor
- Lecture 39 - Conductor (Continued...)
- Lecture 40 - Boundary condition
- Lecture 41 - Electrostatic pressure, Capacitor
- Lecture 42 - Energy of the Capacitor, Dielectric
- Lecture 43 - Dielectric (Continued...)
- Lecture 44 - Displacement Vector
- Lecture 45 - Electrostatic boundary value problem
- Lecture 46 - Electrostatic boundary value problem (Continued...)
- Lecture 47 - Electrostatic boundary value problem (Continued...), Image method
- Lecture 48 - Image method (Continued...)
- Lecture 49 - Charge particle in magnetic field
- Lecture 50 - Biot-Savart Law
- Lecture 51 - Application of Biot-Savart Law
- Lecture 52 - Ampere's Law
- Lecture 53 - Application of Ampere's Law
- Lecture 54 - Magnetic vector potential
- Lecture 55 - Magnetic vector potential (Continued...)
- Lecture 56 - Magnetic dipole moment
- Lecture 57 - Magnetic dipole moment (Continued...)
- Lecture 58 - Torque and potential energy of magnetic dipole, Magnetization
- Lecture 59 - Bound Current
- Lecture 60 - Magnetic materials
- Lecture 61 - Electromagnetic Induction
- Lecture 62 - Self and mutual inductance
- Lecture 63 - Wave equation, Maxwell's Equation
- Lecture 64 - Maxwells Equation (Continued...)
- Lecture 65 - Maxwells Equation: a complete overview
- Lecture 66 - Maxwells Equation: a complete overview (Continued...)
- Lecture 67 - Lorentz Gauge, Maxwell's wave equation
- Lecture 68 - Maxwell's wave equation (Coninued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Maxwell's Equation in matter
- Lecture 70 - Maxwell's Equation in matter (Continued...)
- Lecture 71 - Tutorial 2 (Electrostatic)
- Lecture 72 - Tutorial 3 (Magnetostatic)
- Lecture 73 - Tutorial 4 (Magnetostatic and EM Wave)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Physics of Functional Materials and Devices

Subject Co-ordinator - Prof. Amreesh Chandra

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to solid state materials - From conventional to functional

Lecture 2 - Ceramics and Composites - I

Lecture 3 - Ceramics and Composites - II

Lecture 4 - Polymers

Lecture 5 - Introduction to Nanomaterials and functionality

Lecture 6 - Synthesis protocols - I

Lecture 7 - Synthesis protocols - II

Lecture 8 - Synthesis protocols - III

Lecture 9 - Crystal structure - I

Lecture 10 - Crystal structure - II

Lecture 11 - Crystal structure - III

Lecture 12 - Crystal imperfections

Lecture 13 - Alloys and Melts

Lecture 14 - Theory of Solids

Lecture 15 - Nearly free electron model

Lecture 16 - Bonds in molecules and solids

Lecture 17 - Transformations kinetics and reaction rates

Lecture 18 - Thermodynamics

Lecture 19 - Phase and phase transitions

Lecture 20 - Diffusion and various properties

Lecture 21 - Mechanical properties of solids

Lecture 22 - Thermal Properties of Solids

Lecture 23 - Negative and Zero Expansion Ceramics

Lecture 24 - Heat Capacity

Lecture 25 - Thermogravimetric (TGA) analysis

Lecture 26 - Introduction to magnetism and Magnetic properties of solids

Lecture 27 - From magnetic to multiferroic materials

Lecture 28 - Magnetic materials and their applications

Lecture 29 - Magnetism at nanoscale

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - GMR materials
- Lecture 31 - CMR materials
- Lecture 32 - Ferrofluids
- Lecture 33 - Spintronics and devices
- Lecture 34 - Introduction to the basic properties of liquids and melts
- Lecture 35 - Heat capacity and diffusion of liquids and melts
- Lecture 36 - Viscosity, electric and thermal conduction of liquids and melts
- Lecture 37 - Sensors
- Lecture 38 - Electrochemical Sensors
- Lecture 39 - Introduction to energy storage devices and basics of supercapacitors
- Lecture 40 - Supercapacitors - II
- Lecture 41 - Magnetic supercapacitors
- Lecture 42 - Battery - I
- Lecture 43 - Battery - II
- Lecture 44 - Solar Cells - I
- Lecture 45 - Solar Cells - II
- Lecture 46 - X-ray Diffraction (XRD)
- Lecture 47 - Fourier Transform Infrared Spectroscopy
- Lecture 48 - UV- Vis Spectroscopy
- Lecture 49 - Scanning and Transmission Electron Microscopy
- Lecture 50 - Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Fundamentals of Attosecond Science and Technology (FAST)

Subject Co-ordinator - Prof. Sivarama Krishnan

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to waves, 1D wave equation and its solutions

Lecture 2 - 1D Light waves

Lecture 3 - Characteristics of light waves - amplitude, absolute phase, wavelength and frequency

Lecture 4 - Phase, Phase velocity and Phase delay

Lecture 5 - Complex notation for the description light waves and superposition

Lecture 6 - Maxwell's equations to the 3D wave equation and its solutions

Lecture 7 - Recap of Week 1

Lecture 8 - 3D wave equation and plane waves

Lecture 9 - Complex notation for Electric fields, Superposition and interference

Lecture 10 - Fabry-Perot inteferometer and it transmittance

Lecture 11 - Physical interpretation of FP transmittance

Lecture 12 - Recap of Fabry-Perot modes

Lecture 13 - Free spectral range of a Fabry-Perot etalon

Lecture 14 - Resonator modes and optical pulses - insight

Lecture 15 - Table - Top Coherent and Incoherent Imaging

Lecture 16 - Recap of Etalon free spectral range

Lecture 17 - Line width and finesse of an etalon

Lecture 18 - Actual resonator modes

Lecture 19 - Resonator configurations and stability

Lecture 20 - Recap of optical resonators

Lecture 21 - Introduction of light pulses

Lecture 22 - Complex amplitude, Gaussian pulse

Lecture 23 - Recap of light pulses

Lecture 24 - Introduction of Fourier Transforms

Lecture 25 - Tutorial 1

Lecture 26 - Motivating Fourier Transforms

Lecture 27 - Fourier Transform Properties

Lecture 28 - Frequency domain electric field

Lecture 29 - Recap of Fourier transform properties

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Frequency domain description of pulses
- Lecture 31 - Spectral Phase
- Lecture 32 - Recap of spectral phase
- Lecture 33 - Instantaneous Frequency and group delay
- Lecture 34 - Phase wrapping, blanking, and Taylor series expansion
- Lecture 35 - Recap of instantaneous frequency, phase wrapping, and phase blanking
- Lecture 36 - Frequency domain phase expansion, group delay dispersion
- Lecture 37 - Absolute Phase
- Lecture 38 - Recap of concepts + discussion
- Lecture 39 - Absolute Phase (revisited)
- Lecture 40 - Carrier envelope phase, frequency comb
- Lecture 41 - Discussion
- Lecture 42 - Recap of concepts
- Lecture 43 - First order phase
- Lecture 44 - Second order phase
- Lecture 45 - Recap of first order and second order phase
- Lecture 46 - Chirped pulse: Instantaneous frequency and Fourier transform
- Lecture 47 - Group delay, nonlinearly chirped pulse
- Lecture 48 - Recap of chirped pulses
- Lecture 49 - Quadratic chirp pulses
- Lecture 50 - Higher order spectral phase
- Lecture 51 - Recap and discussion on higher order phase
- Lecture 52 - Relative importance of intensity and phase
- Lecture 53 - Pulse propagation through a medium
- Lecture 54 - Recap of pulse propagation and pulse length
- Lecture 55 - Discussion of RMS pulse width and uncertainty principle
- Lecture 56 - Time-bandwidth product
- Lecture 57 - Recap of previous module
- Lecture 58 - Introduction of Lorentz Oscillator Model
- Lecture 59 - Effect of matter on light
- Lecture 60 - Recap of Lorentz oscillator, Polarization tensor
- Lecture 61 - Dynamics of electrons in the Lorentz oscillator
- Lecture 62 - Solving the inhomogeneous wave equation
- Lecture 63 - Inhomogeneous wave equation, absorption coefficient, refractive index
- Lecture 64 - Nonlinear response of matter
- Lecture 65 - Origin of nonlinear optical effects
- Lecture 66 - Wave equation in an inert gas
- Lecture 67 - Perturbation theory and second harmonics
- Lecture 68 - Numerical simulation strategy

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Atoms in the presence of fields
- Lecture 70 - Ionization models
- Lecture 71 - Attosecond pulse generation and metrology
- Lecture 72 - Nonlinear optics review
- Lecture 73 - Nonlinear response of matter to light
- Lecture 74 - Sum and difference frequency generation
- Lecture 75 - Recap of sum and difference frequency generation, second harmonic generation
- Lecture 76 - Generalized nonlinear effects, conservation laws in SHG
- Lecture 77 - Phase matching in SHG, polarization dependent refractive index

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Special Topics in Atomic Physics

Subject Co-ordinator - Prof. P.C. Deshmukh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introductory lecture about this course
- Lecture 2 - Quantum Mechanics and Symmetry of the Hydrogen Atom
- Lecture 3 - Hydrogen atom
- Lecture 4 - Hydrogen atom
- Lecture 5 - Degeneracy of the Hydrogen Atom
- Lecture 6 - Wavefunctions of the Hydrogen Atom
- Lecture 7 - Angular Momentum in Quantum Mechanics
- Lecture 8 - Angular Momentum in Quantum Mechanics
- Lecture 9 - Angular Momentum in Quantum Mechanics
- Lecture 10 - Angular Momentum in Quantum Mechanics Dimensionality of the Direct-Product (Composite) Vector Sp
- Lecture 11 - Angular Momentum in Quantum Mechanics CGC matrix, Wigner D Rotation Matrix, Irreducible Tensor C
- Lecture 12 - Angular Momentum in Quantum Mechanics - more on ITO, and the Wigner-Eckart Theorem
- Lecture 13 - Angular Momentum in Quantum Mechanics Wigner-Eckart Theorem - 2
- Lecture 14 - Relativistic Quantum Mechanics of the Hydrogen Atom - 1
- Lecture 15 - Relativistic Quantum Mechanics of the Hydrogen Atom - 2
- Lecture 16 - Relativistic Quantum Mechanics of the Hydrogen Atom - PAULI Equation - Foldy - Wouthysen Transfo
- Lecture 17 - Relativistic Quantum Mechanics of the Hydrogen Atom - Foldy - Wouthysen Transformations - 2
- Lecture 18 - Relativistic Quantum Mechanics of the Hydrogen Atom - Foldy - Wouthysen Transformations - 3
- Lecture 19 - Relativistic Quantum Mechanics of the Hydrogen Atom - Spherical Symmetry of the Coulomb Potentia
- Lecture 20 - Hartree-Fock Self-Consistent Field formalism - 1
- Lecture 21 - Hartree-Fock Self-Consistent Field formalism - 2
- Lecture 22 - Hartree-Fock Self-Consistent Field formalism - 3
- Lecture 23 - Hartree-Fock Self-Consistent Field formalism - 4
- Lecture 24 - Hartree-Fock Self-Consistent Field formalism - 5
- Lecture 25 - Perturbative treatment of relativistic effectsâ | Schrodinger's and Dirac QM
- Lecture 26 - Perturbative treatment of relativistic effectsâ | Schrodinger's and Dirac QM
- Lecture 27 - Probing the atom - Collisions and Spectroscopy - boundary conditions - 1
- Lecture 28 - Atomic Probes - Collisions and Spectroscopy - boundary conditions - 2
- Lecture 29 - Atomic Probes - Collisions and Spectroscopy - Scattering phase shifts and boundary conditions

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- Lecture 30 - Atomic Probes - Time reversal symmetry - applications in atomic collisions and photoionization p
- Lecture 31 - Atomic Photoionization cross sections, angular distributions of photoelectrons - 1
- Lecture 32 - Atomic Photoionization cross sections, angular distributions of photoelectrons - 2
- Lecture 33 - Atomic Photoionization cross sections, angular distributions of photoelectrons - 3
- Lecture 34 - Atomic Photoionization cross sections, angular distributions of photoelectrons - 4
- Lecture 35 - Atomic Photoionization cross sections, angular distributions of photoelectrons Cooper Zare Formu
- Lecture 36 - Stark- Zeeman Spectroscopy - Stark effect
- Lecture 37 - Stark- Zeeman Spectroscopy - Stark effect on n=2 excited state of the H atom Zeeman effect
- Lecture 38 - Stark- Zeeman Spectroscopy - Normal, Anomalous Zeeman effect; Paschen- Back effect
- Lecture 39 - Stark- Zeeman Spectroscopy - Anomalous Zeeman effect
- Lecture 40 - Zeeman effect Fine structure, Hyperfine structure - Elemental, rudimentary introduction to Laser

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Classical Field Theory

Subject Co-ordinator - Prof. Suresh Govindarajan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is Classical Field Theory?  
Lecture 2 - Symmetries and Invariances - I  
Lecture 3 - Symmetries and Invariances - II  
Lecture 4 - Group Theory in Physics - I  
Lecture 5 - Group Theory in Physics - II  
Lecture 6 - Finite Groups - I  
Lecture 7 - Finite Groups - II  
Lecture 8 - Basics of CFT - I  
Lecture 9 - Basics of CFT - II  
Lecture 10 - Basics of CFT - III  
Lecture 11 - Green Functions - I  
Lecture 12 - Green Functions - II  
Lecture 13 - Noether's Theorem - I  
Lecture 14 - Noether's Theorem - II  
Lecture 15 - Kink Soliton  
Lecture 16 - Hidden Symmetry  
Lecture 17 - Local Symmetries  
Lecture 18 - The Abelian Higgs model  
Lecture 19 - Lie Algebras - I  
Lecture 20 - Lie Algebras - II  
Lecture 21 - Magnetic Vortices - I  
Lecture 22 - Magnetic Vortices - II  
Lecture 23 - Non-abelian gauge theories - I  
Lecture 24 - Non-abelian gauge theories - II  
Lecture 25 - Irreps of Lie algebras - I  
Lecture 26 - Irreps of Lie algebras - II  
Lecture 27 - The Standard Model - I  
Lecture 28 - The Standard Model - II  
Lecture 29 - Irreps of the Lorentz/Poincare algebras

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Dirac monopole
- Lecture 31 - The 't Hooft-Polyakov monopole
- Lecture 32 - Revisiting Derrick's Theorem
- Lecture 33 - The Julia-Zee dyon
- Lecture 34 - Instantons - I
- Lecture 35 - Instantons - II
- Lecture 36 - Instantons - III
- Lecture 37 - Instantons - IV
- Lecture 38 - Dualities
- Lecture 39 - Geometrization of Field Theory

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Topics in Nonlinear Dynamics

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview
- Lecture 2 - Critical points of a dynamical system
- Lecture 3 - Two-dimensional flows
- Lecture 4 - Stable and unstable manifolds
- Lecture 5 - Hamiltonian dynamics - Part I
- Lecture 6 - Hamiltonian dynamics - Part II
- Lecture 7 - Hamiltonian dynamics - Part III
- Lecture 8 - Hamiltonian dynamics - Part IV
- Lecture 9 - Hamiltonian dynamics - Part V
- Lecture 10 - Elementary bifurcations
- Lecture 11 - Limit cycles
- Lecture 12 - Poincaré index
- Lecture 13 - Illustrative examples
- Lecture 14 - Quiz 1. Questions and answers
- Lecture 15 - Bead on a rotating hoop
- Lecture 16 - Types of dynamical behaviour
- Lecture 17 - Discrete time dynamics - Part I
- Lecture 18 - Discrete time dynamics - Part II
- Lecture 19 - Discrete time dynamics - Part III
- Lecture 20 - Discrete time dynamics - Part IV
- Lecture 21 - Coarse-grained dynamics in phase space - Part I
- Lecture 22 - Coarse-grained dynamics in phase space - Part II & Stochastic dynamics - Part I
- Lecture 23 - Stochastic dynamics - Part II
- Lecture 24 - Stochastic dynamics - Part III
- Lecture 25 - Coarse-grained dynamics in phase space - Part IV & Stochastic dynamics - Part IV
- Lecture 26 - Discrete time dynamics - Part V
- Lecture 27 - Quiz 2. Questions and answers
- Lecture 28 - Stochastic dynamics - Part V
- Lecture 29 - Stochastic dynamics - Part VI

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# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Condensed Matter Physics

Subject Co-ordinator - Prof. G. Rangarajan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Principles of Condensed Matter Physics
- Lecture 2 - Symmetry in Perfect Solids
- Lecture 3 - Symmetry in Perfect Solids (Continued...)
- Lecture 4 - Symmetry in Perfect Solids - Worked Examples
- Lecture 5 - Diffraction Methods For Crystal Structures
- Lecture 6 - Diffraction Methods For Crystal Structures (Continued...)
- Lecture 7 - Diffraction Methods For Crystal Structures - Worked Examples
- Lecture 8 - Physical Properties of Crystals
- Lecture 9 - Physical Properties of Crystals (Continued...)
- Lecture 10 - Physical Properties of Crystals - Worked Examples
- Lecture 11 - Cohesion in Solids
- Lecture 12 - Cohesion in Solids - Worked Examples
- Lecture 13 - The Free Electron Theory of Metals
- Lecture 14 - The Free Electron Theory of Metals - Worked Examples
- Lecture 15 - The Free Electron Theory of Metals - Electrical Conductivity
- Lecture 16 - The Free Electron Theory of Metals - Electrical Conductivity - Worked Examples
- Lecture 17 - Thermal Conductivity of Metals
- Lecture 18 - Thermal Conductivity of Metals - Worked Examples
- Lecture 19 - The Concept of Phonons
- Lecture 20 - Debye Theory of Specific Heat, Lattice Vibrations
- Lecture 21 - Debye Theory of Specific Heat, Lattice Vibrations - Worked Examples
- Lecture 22 - Lattice Vibrations (Continued) Phonon thermal conductivity
- Lecture 23 - Lattice Vibrations (Continued) Phonon Thermal Conductivity - Worked Examples
- Lecture 24 - Anharmonicity and Thermal Expansion
- Lecture 25 - Dielectric (Insulating) Solids
- Lecture 26 - Dispersion and Absorption of Electromagnetic Waves in Dielectric Media, Ferro-and Antiferroelect
- Lecture 27 - Optical Properties of Metals; Ionic Polarization in Alkali Halides; Piezoelectricity
- Lecture 28 - Dielectric Solids - Worked Examples
- Lecture 29 - Dia - and Paramagnetism

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Paramagnetism of Transition Metal and Rare Earth Ions
- Lecture 31 - Quenching of Orbital Angular Momentum; Ferromagnetism
- Lecture 32 - Exchange Interactions, Magnetic Order, Neutron Diffraction
- Lecture 33 - Hysteresis and Magnetic Domains; Spin Waves and Magnons
- Lecture 34 - Magnetic Resonance
- Lecture 35 - Magnetism and Magnetic Resonance - Worked Examples
- Lecture 36 - Magnetism - Worked Examples (Continued...)
- Lecture 37 - Pauli Paramagnetism and Landau Diamagnetism
- Lecture 38 - Band Magnetism; Itinerant Electrons; Stoner Model
- Lecture 39 - Superconductivity - Perfect Electrical Conductivity and Perfect Diamagnetism
- Lecture 40 - Type I and Type II Superconductors
- Lecture 41 - Ginsburg - Landau Theory, Flux Quantization
- Lecture 42 - Cooper Pairs
- Lecture 43 - Microscopic (BCS) Theory of Superconductivity
- Lecture 44 - BCS Theory (Continued...)
- Lecture 45 - Josephson Effect (Continued...); High Temperature Superconductors
- Lecture 46 - Superconductors - Worked Examples
- Lecture 47 - Energy Bands in Solids
- Lecture 48 - Electron Dynamics in a Periodic Solid
- Lecture 49 - Semiconductors
- Lecture 50 - Semiconductors (Continued...)
- Lecture 51 - Semiconductors - Worked Examples
- Lecture 52 - Defects in Solids - Point Defects
- Lecture 53 - Point Defects in Solids - Worked Examples
- Lecture 54 - Defects in Solids - Line and Surface Defects
- Lecture 55 - Dislocations in Solids - Worked Examples
- Lecture 56 - Quantum Fluids and Quantum Solids
- Lecture 57 - Quantum Liquids and Quantum Solids - Worked Examples
- Lecture 58 - Epilogue

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Quantum Field Theory

Subject Co-ordinator - Dr. Prasanta Tripathy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction  
Lecture 2 - Introduction to Classical Field Theory  
Lecture 3 - Quantization of Real Scalar Field - I  
Lecture 4 - Quantization of Real Scalar Field - II  
Lecture 5 - Quantization of Real Scalar Field - III  
Lecture 6 - Quantization of Real Scalar Field - IV  
Lecture 7 - Quantization of Complex Scalar Field  
Lecture 8 - Interacting Field Theory - I  
Lecture 9 - Interacting Field Theory - II  
Lecture 10 - Interacting Field Theory - III  
Lecture 11 - Interacting Field Theory - IV  
Lecture 12 - Interacting Field Theory - V  
Lecture 13 - Interacting Field Theory - VI  
Lecture 14 - Interacting Field Theory - VII  
Lecture 15 - Quantization of Electromagnetic Field - I  
Lecture 16 - Quantization of Electromagnetic Field - II  
Lecture 17 - Fermion Quantization - I  
Lecture 18 - Fermion Quantization - II  
Lecture 19 - Fermion Quantization - III  
Lecture 20 - Fermion Quantization - IV  
Lecture 21 - Fermion Quantization - V  
Lecture 22 - Fermion Quantization - VI  
Lecture 23 - The S-Matrix Expansion in QED - I  
Lecture 24 - The S-Matrix Expansion in QED - II  
Lecture 25 - Feynman Rules in QED - I  
Lecture 26 - Feynman Rules in QED - II  
Lecture 27 - Compton Scattering - I  
Lecture 28 - Compton Scattering - II  
Lecture 29 - Compton Scattering - III

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- Lecture 30 - Moller Scattering - I
- Lecture 31 - Moller Scattering - II
- Lecture 32 - Vertex Correction - I
- Lecture 33 - Vertex Correction - II
- Lecture 34 - Vertex Correction - III
- Lecture 35 - Vertex Correction - IV
- Lecture 36 - Electron Selfenergy
- Lecture 37 - Photon Selfenergy - I
- Lecture 38 - Photon Selfenergy - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Quantum Mechanics I

Subject Co-ordinator - Prof. S. Lakshmi Bala

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Quantum Mechanics â An Introduction
- Lecture 2 - Linear Vector Spaces - I
- Lecture 3 - Linear Vector Spaces - II
- Lecture 4 - Linear Vector Spaces - III
- Lecture 5 - Postulates of Quantum Mechanics - I
- Lecture 6 - Postulates of Quantum Mechanics - II
- Lecture 7 - The Uncertainty Principle
- Lecture 8 - The Linear Harmonic Oscillator
- Lecture 9 - Introducing Quantum Optics
- Lecture 10 - An Interesting Quantum Superposition
- Lecture 11 - The Displacement and Squeezing Operators
- Lecture 12 - Exercises in Finite Dimensional Linear Vector Spaces
- Lecture 13 - Exercises on Angular Momentum Operators and their algebra
- Lecture 14 - Exercises on Quantum Expectation Values
- Lecture 15 - Composite Systems
- Lecture 16 - The Quantum Beam Splitter
- Lecture 17 - Addition of Angular Momenta - I
- Lecture 18 - Addition of Angular Momenta - II
- Lecture 19 - Addition of Angular Momenta - III
- Lecture 20 - Infinite Dimensional Linear Vector Spaces
- Lecture 21 - Square-Integrable Functions
- Lecture 22 - Ingredients of Wave Mechanics
- Lecture 23 - The Schrodinger equation
- Lecture 24 - Wave Mechanics of the Simple Harmonic Oscillator
- Lecture 25 - One-Dimensional Square Well Potential
- Lecture 26 - The Square Well and the Square Potential Barrier
- Lecture 27 - The Particle in a one-dimensional Box
- Lecture 28 - A Charged Particle in a Uniform Magnetic Field
- Lecture 29 - The Wavefunction

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - The Central Potential
- Lecture 31 - The Spherical Harmonics
- Lecture 32 - Central Potential
- Lecture 33 - Illustrative Exercises - I
- Lecture 34 - Illustrative Exercises - II
- Lecture 35 - Ehrenfest's Theorem
- Lecture 36 - Perturbation Theory - I
- Lecture 37 - Perturbation Theory - II
- Lecture 38 - Perturbation Theory - III
- Lecture 39 - Perturbation Theory - IV
- Lecture 40 - Time-dependent Hamiltonians
- Lecture 41 - The Jaynes-Cummings model



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Special Topics in Classical Mechanics

Subject Co-ordinator - Prof. P.C. Deshmukh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Overview
- Lecture 2 - Equations of Motion (i)
- Lecture 3 - Equations of Motion (ii)
- Lecture 4 - Equations of Motion (iii)
- Lecture 5 - Equations of Motion (iv)
- Lecture 6 - Equations of Motion (v)
- Lecture 7 - Oscillators, Resonances, Waves (i)
- Lecture 8 - Oscillators, Resonances, Waves (ii)
- Lecture 9 - Oscillators, Resonances, Waves (iii)
- Lecture 10 - Oscillators, Resonances, Waves (iv)
- Lecture 11 - Polar Coordinates (i)
- Lecture 12 - Polar Coordinates (ii)
- Lecture 13 - Dynamical Symmetry in the Kepler Problem (i)
- Lecture 14 - Dynamical Symmetry in the Kepler Problem (ii)
- Lecture 15 - Real Effects of Pseudo-Forces (i)
- Lecture 16 - Real Effects of Pseudo-Forces (ii)
- Lecture 17 - Real Effects of Pseudo-Forces (iii)
- Lecture 18 - Real Effects of Pseudo-Forces (iv)
- Lecture 19 - Special Theory of Relativity (i)
- Lecture 20 - Special Theory of Relativity (ii)
- Lecture 21 - Special Theory of Relativity (iii)
- Lecture 22 - Special Theory of Relativity (iv)
- Lecture 23 - Potentials Gradients Fields (i)
- Lecture 24 - Potentials Gradients Fields (ii)
- Lecture 25 - Potentials Gradients Fields (iii)
- Lecture 26 - Gauss Law Eq of continuity (i)
- Lecture 27 - Gauss Law Eq of continuity (ii)
- Lecture 28 - Gauss Law Eq of continuity (iii)
- Lecture 29 - Fluid Flow Bernoulli Principle (i)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Fluid Flow Bernoulli Principle (ii)
- Lecture 31 - Classical Electrodynamics (i)
- Lecture 32 - Classical Electrodynamics (ii)
- Lecture 33 - Classical Electrodynamics (iii)
- Lecture 34 - Classical Electrodynamics (iv)
- Lecture 35 - Chaotic Dynamical Systems (i)
- Lecture 36 - Chaotic Dynamical Systems (ii)
- Lecture 37 - Chaotic Dynamical Systems (iii)
- Lecture 38 - Chaotic Dynamical Systems (iv)
- Lecture 39 - Chaotic Dynamical Systems (v)
- Lecture 40 - The Scope and Limitations of Classical Mechanics

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Special, Select Topics in the Theory of Atomic Collisions and Spectroscopy

Subject Co-ordinator - Prof. P.C. Deshmukh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the STiTACS course
- Lecture 2 - Quantum Theory of collisions
- Lecture 3 - Quantum Theory of collisions
- Lecture 4 - Quantum Theory of collisions
- Lecture 5 - Quantum Theory of collisions
- Lecture 6 - Quantum Theory of collisions
- Lecture 7 - Quantum Theory of collisions
- Lecture 8 - Quantum Theory of collisions
- Lecture 9 - Quantum Theory of collisions
- Lecture 10 - Quantum Theory of collisions
- Lecture 11 - Quantum Theory of collisions
- Lecture 12 - Quantum Theory of collisions
- Lecture 13 - Many body theory, electron correlations
- Lecture 14 - Second Quantization Creation, Destruction and Number operators
- Lecture 15 - Many-particle Hamiltonian & Schrodinger Equation in 2nd Quantization
- Lecture 16 - Many-electron problem in quantum mechanics
- Lecture 17 - Hartree-Fock Self-Consistent-Field
- Lecture 18 - Exchange, Statistical, Fermi-Dirac correlations
- Lecture 19 - Limitations of the Hartree-Fock Self-Consistent-Field formalism
- Lecture 20 - Many-Body formalism, II Quantization
- Lecture 21 - Density fluctuations in an electron gas
- Lecture 22 - Bohm-Pines approach to Random Phase Approximation
- Lecture 23 - Bohm-Pines approach to Random Phase Approximation (Continued...)
- Lecture 24 - Bohm-Pines approach to Random Phase Approximation (Continued...)
- Lecture 25 - Schrodinger, Heisenberg and Dirac's pictures of QM
- Lecture 26 - Dyson's chronological operator
- Lecture 27 - Gell-Mann-Low Theorem
- Lecture 28 - Reyleigh-Schrodinger perturbation methods and adiabatic switching
- Lecture 29 - Feynman Diagrams

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - I Order Feynman Diagrams
- Lecture 31 - II and higher order Feynman Diagrams
- Lecture 32 - Linear response of electron correlations
- Lecture 33 - Lippman Schwinger equation of potential scattering
- Lecture 34 - Born Approximation
- Lecture 35 - Coulomb scattering
- Lecture 36 - Scattering of partial waves
- Lecture 37 - Scattering at high energy
- Lecture 38 - Resonances in Quantum Collisions
- Lecture 39 - Breit-Wigner Resonances
- Lecture 40 - Fano parameterization of Breit-Wigner formula
- Lecture 41 - Discrete state embedded in the continuum
- Lecture 42 - Resonance life times
- Lecture 43 - Wigner-Eisenbud formalism of time-delay in scattering
- Lecture 44 - Photoionization and Photoelectron Angular Distributions
- Lecture 45 - Ionization and Excitation of Atoms by Fast Charged Particles
- Lecture 46 - Photo-absorption by Free and Confined Atoms and Ions

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Selected Topics in Mathematical Physics

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Analytic functions of a complex variable - Part I
- Lecture 2 - Analytic functions of a complex variable - Part II
- Lecture 3 - Calculus of residues - Part I
- Lecture 4 - Calculus of residues - Part II
- Lecture 5 - Calculus of residues - Part III
- Lecture 6 - Calculus of residues - Part IV
- Lecture 7 - Linear response; dispersion relations - Part I
- Lecture 8 - Linear response; dispersion relations - Part II
- Lecture 9 - Analytic continuation and the gamma function - Part I
- Lecture 10 - Analytic continuation and the gamma function - Part II
- Lecture 11 - Möbius transformations - Part I
- Lecture 12 - Möbius transformations - Part II
- Lecture 13 - Möbius transformations - Part III
- Lecture 14 - Multivalued functions; integral representations - Part I
- Lecture 15 - Multivalued functions; integral representations - Part II
- Lecture 16 - Multivalued functions; integral representations - Part III
- Lecture 17 - Multivalued functions; integral representations - Part IV
- Lecture 18 - Laplace transforms - Part I
- Lecture 19 - Laplace transforms - Part II
- Lecture 20 - Fourier transforms - Part I
- Lecture 21 - Fourier transforms - Part II
- Lecture 22 - Fourier transforms - Part III
- Lecture 23 - Fundamental Green function for  $\hat{1}^2$  - Part I
- Lecture 24 - Fundamental Green function for  $\hat{1}^2$  - Part II
- Lecture 25 - The diffusion equation - Part I
- Lecture 26 - The diffusion equation - Part II
- Lecture 27 - The diffusion equation - Part III
- Lecture 28 - The diffusion equation - Part IV
- Lecture 29 - Green function for  $(\hat{1}^2 + k^2)$ ; nonrelativistic scattering - Part I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Green function for  $(\hat{I}^2 + k^2)$ ; nonrelativistic scattering - Part II
- Lecture 31 - Green function for  $(\hat{I}^2 + k^2)$ ; nonrelativistic scattering - Part III
- Lecture 32 - The wave equation - Part I
- Lecture 33 - The wave equation - Part II
- Lecture 34 - The rotation group and all that - Part I
- Lecture 35 - The rotation group and all that - Part II
- Lecture 36 - The rotation group and all that - Part III

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Nuclear Reactors and Safety - An Introduction

Subject Co-ordinator - Dr.G.Vaidyanathan

Co-ordinating Institute - SRM University

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Energy Sources
- Lecture 2 - Nuclear Power Production Cycle
- Lecture 3 - Basic Physics of Nuclear Fission
- Lecture 4 - Basic Physics of Nuclear Fission (Continued...)
- Lecture 5 - Nuclear Reactors
- Lecture 6 - Reactors Generation
- Lecture 7 - Radiation Sources and Protection
- Lecture 8 - Biological Effects of Radiation
- Lecture 9 - Safety Principles
- Lecture 10 - Safety Principles (Continued...)
- Lecture 11 - Safety Approach
- Lecture 12 - Risk and Probabilistic safety analysis (PSA)
- Lecture 13 - History of Events in Nuclear Power Plants and Radiation facilities
- Lecture 14 - Other Events
- Lecture 15 - Validation and Dynamic Analysis
- Lecture 16 - Validation and Dynamic Analysis (Continued...)
- Lecture 17 - Quality Assurance
- Lecture 18 - Siting of Nuclear Plants
- Lecture 19 - Siting of Nuclear Plants (Continued...)
- Lecture 20 - Engineered Safety Systems
- Lecture 21 - Engineered Safety Systems (Continued...)
- Lecture 22 - Assessment of Radiological Consequences of Incidents
- Lecture 23 - Safety Regulation in India
- Lecture 24 - Safety Regulation in India (Continued...)
- Lecture 25 - Safety Regulation in India (Continued...)
- Lecture 26 - Safety Practices in Indian NPPs
- Lecture 27 - Safety Practices in Indian NPPs (Continued...)
- Lecture 28 - Safety Practices in Indian NPPs (Continued...)
- Lecture 29 - Passive Safety

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Lecture 30 - Passive Safety (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Physical Applications of Stochastic Processes

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Discrete probability distributions - Part 1
- Lecture 2 - Discrete probability distributions - Part 2
- Lecture 3 - Continuous random variables
- Lecture 4 - Central Limit Theorem
- Lecture 5 - Stable distributions
- Lecture 6 - Stochastic processes
- Lecture 7 - Markov processes - Part 1
- Lecture 8 - Markov processes - Part 2
- Lecture 9 - Markov processes - Part 3
- Lecture 10 - Birth-and-death processes
- Lecture 11 - Continuous Markov processes
- Lecture 12 - Langevin dynamics - Part 1
- Lecture 13 - Langevin dynamics - Part 2
- Lecture 14 - Langevin dynamics - Part 3
- Lecture 15 - Langevin dynamics - Part 4
- Lecture 16 - Itô and Fokker-Planck equations for diffusion processes
- Lecture 17 - Level-crossing statistics of a continuous random process
- Lecture 18 - Diffusion of a charged particle in a magnetic field
- Lecture 19 - Power spectrum of noise
- Lecture 20 - Elements of linear response theory
- Lecture 21 - Random pulse sequences
- Lecture 22 - Dichotomous diffusion
- Lecture 23 - First passage time - Part 1
- Lecture 24 - First passage time - Part 2
- Lecture 25 - First passage and recurrence in Markov chains
- Lecture 26 - Recurrent and transient random walks
- Lecture 27 - Non-Markovian random walks
- Lecture 28 - Statistical aspects of deterministic dynamics - Part 1
- Lecture 29 - Statistical aspects of deterministic dynamics - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Mechanics, Heat Oscillations and Waves

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The Nature of Physical Laws
- Lecture 2 - Fundamental Constants and Dimensional Analysis
- Lecture 3 - Dimensional analysis and scaling
- Lecture 4 - sketching Elementary Functions
- Lecture 5 - The fundamental forces of nature
- Lecture 6 - Scalars, Vectors and All That
- Lecture 7 - Plane Polar Coordinates
- Lecture 8 - Vectors In a Plane, Scalars and Pseudoscalars
- Lecture 9 - Kinematics In a Plane
- Lecture 10 - Vectors in 3-Dimensional Space
- Lecture 11 - Vectors in 3-Dimensional space (Continued...)
- Lecture 12 - The Finite Rotation Formula, Polar Coordinates in 3-dimensions
- Lecture 13 - Cylindrical and Spherical polar coordinates
- Lecture 14 - Motion in a circle - Acceleration
- Lecture 15 - Newtons laws of motion
- Lecture 16 - Conservation Laws and Newtons Equations
- Lecture 17 - Conservation of Angular Momentum
- Lecture 18 - Two-Body Scattering
- Lecture 19 - Two-Body Collision Kinematics
- Lecture 20 - Conservative Forces - The Concept of a Potential
- Lecture 21 - Central Potential and Central Force
- Lecture 22 - The 2-Body Central Force Problem
- Lecture 23 - Keplers Laws of Planetary Motion
- Lecture 24 - Non-Inertial Forces (Pseudo-forces)
- Lecture 25 - More on the Kepler problem; Satellite motion
- Lecture 26 - Linear Elasticity of Solids
- Lecture 27 - Simple Harmonic Motion
- Lecture 28 - Some Physical Examples of Simple Harmonic Motion
- Lecture 29 - More on Simple Harmonic Motion

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- Lecture 30 - Damped Simple Harmonic Motion
- Lecture 31 - Wave Motion - Travelling and Standing Waves
- Lecture 32 - Wave Motion - Wave Equation, General Solution
- Lecture 33 - Fluid Dynamics - Hydrostatic Equilibrium
- Lecture 34 - Fluid Dynamics - Equation of Continuity
- Lecture 35 - Fluid Flow - Bernoullis Principle
- Lecture 36 - Circulation and Vorticity
- Lecture 37 - What is Thermodynamics?
- Lecture 38 - The Classical Ideal Gas
- Lecture 39 - The Laws of Thermodynamics
- Lecture 40 - Specific Heat of an Ideal Gas
- Lecture 41 - Van der Waals Equation
- Lecture 42 - Phase Transitions
- Lecture 43 - Summary

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Nonequilibrium Statistical Mechanics

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Recapitulation of equilibrium statistical mechanics  
Lecture 2 - The Langevin model (Part 1)  
Lecture 3 - The Langevin model (Part 2)  
Lecture 4 - The Langevin model (Part 3)  
Lecture 5 - The Langevin model (Part 4)  
Lecture 6 - Linear response theory (Part 1)  
Lecture 7 - Linear response theory (Part 2)  
Lecture 8 - Linear response (Part 3)  
Lecture 9 - Linear response (Part 4)  
Lecture 10 - Linear response (Part 5)  
Lecture 11 - Linear response (Part 6)  
Lecture 12 - Linear response theory (Part 7)  
Lecture 13 - Quiz 1 - Questions and answers  
Lecture 14 - Linear response theory (Part 8)  
Lecture 15 - Linear response theory (Part 9)  
Lecture 16 - The dynamic mobility  
Lecture 17 - Fokker-Planck equations (Part 1)  
Lecture 18 - Fokker-Planck equations (Part 2)  
Lecture 19 - Fokker-Planck equations (Part 3)  
Lecture 20 - The generalized Langevin equation (Part 1)  
Lecture 21 - The generalized Langevin equation (Part 2)  
Lecture 22 - Diffusion in a magnetic field  
Lecture 23 - The Boltzmann equation for a dilute gas (Part 1)  
Lecture 24 - The Boltzmann equation for a dilute gas (Part 2)  
Lecture 25 - The Boltzmann equation for a dilute gas (Part 3)  
Lecture 26 - The Boltzmann equation for a dilute gas (Part 4)  
Lecture 27 - The Boltzmann equation for a dilute gas (Part 5)  
Lecture 28 - Quiz 2 - Questions and answers  
Lecture 29 - Critical phenomena (Part 1)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Critical phenomena (Part 2)
- Lecture 31 - Critical phenomena (Part 3)
- Lecture 32 - Critical phenomena (Part 4)
- Lecture 33 - Critical phenomena (Part 5)
- Lecture 34 - Critical phenomena (Part 6)
- Lecture 35 - Critical phenomena (Part 7)
- Lecture 36 - The Wiener process (standard Brownian motion)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Statistical Mechanics

Subject Co-ordinator - Prof. Ashwin Joy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Discrete Probability
- Lecture 2 - Continous Probability
- Lecture 3 - Characteristic Function
- Lecture 4 - Gausssian Distribution
- Lecture 5 - Binomial Distribution
- Lecture 6 - Poisson Distribution
- Lecture 7 - Central Limit Theorem
- Lecture 8 - Many Random Variables
- Lecture 9 - Entropy and Probability
- Lecture 10 - Entropy Maximization
- Lecture 11 - Transformation of Random Variables
- Lecture 12 - Tutorial
- Lecture 13 - Mathematical Preliminaries - 1
- Lecture 14 - Microcanonical Ensemble
- Lecture 15 - Two Level System (Microcanonical Ensemble)
- Lecture 16 - Classical Ideal Gas (Microcanonical Ensemble)
- Lecture 17 - Entropy of Mixing
- Lecture 18 - Canonical Ensemble
- Lecture 19 - Two Level System (Canonical Ensemble)
- Lecture 20 - Classical Ideal Gas (Canonical Ensemble)
- Lecture 21 - Gibbs Canonical Ensemble
- Lecture 22 - Classical Ideal Gas (Gibbs Canonical Ensemble)
- Lecture 23 - N Spins in a Uniform Magnetic Field
- Lecture 24 - Grand Canonical Ensemble
- Lecture 25 - Ideal Gas (Grand Canonical Ensemble)
- Lecture 26 - N Non - Interacting Spins in Constant Magnetic Field
- Lecture 27 - Qunatum Statistical Mechanics
- Lecture 28 - Statistics of Fermions and Bosons
- Lecture 29 - Quantum to Classical Correspondance

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- Lecture 30 - Vibrations of Solid (Low Temperature)
- Lecture 31 - Vibrations of Solid (Continuation)
- Lecture 32 - Free Electrons(Fermi Gas) in a Metal
- Lecture 33 - Free Electrons(Fermi Gas) in a Metal (Continuation)
- Lecture 34 - Problem solving demo - Part 1
- Lecture 35 - Problem solving demo - Part 2

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Computational Physics

Subject Co-ordinator - Prof. Prasenjit Ghosh

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Fortran - Part 1  
Lecture 2 - Introduction to Fortran - Part 2  
Lecture 3 - Introduction to Fortran - Part 3  
Lecture 4 - Introduction to Fortran - Part 4  
Lecture 5 - Introduction to Fortran - Part 5  
Lecture 6 - Numerical Integration - Part 1  
Lecture 7 - Numerical Integration - Part 2  
Lecture 8 - Numerical Integration - Part 3  
Lecture 9 - Numerical Integration - Part 4  
Lecture 10 - Numerical Integration - Part 5  
Lecture 11 - Numerical Integration - Part 6  
Lecture 12 - Numerical Integration - Part 7  
Lecture 13 - Numerical Integration - Part 8  
Lecture 14 - Numerical Integration - Part 9  
Lecture 15 - Numerical Integration - Part 10  
Lecture 16 - Monte Carlo Simulation Introduction - Part 1  
Lecture 17 - Monte Carlo Simulation Introduction - Part 2  
Lecture 18 - Implementing the Ising model on computer  
Lecture 19 - Periodic Boundary conditions and the Metropolis scheme  
Lecture 20 - Testing the simulation and relaxation to equilibrium, finite size effects  
Lecture 21 - Monte Carlo Simulation Analysis - Part 1  
Lecture 22 - Monte Carlo Simulation Analysis - Part 2  
Lecture 23 - Monte Carlo Simulation Analysis  
Lecture 24 - Monte Carlo Simulation Analysis  
Lecture 25 - Calculating  $T_c$  using Binder's cumulant; Principle of detailed balance  
Lecture 26 - Differential Equations Euler and Runge Kutta - Part 1  
Lecture 27 - Differential Equations Euler and Runge Kutta - Part 2  
Lecture 28 - Differential Coupled Equation Non Linear Equation - Part 1  
Lecture 29 - Differential Coupled Equation Non Linear Equation - Part 2

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- Lecture 30 - Coupled Differential Equation Visualisation and Making Movie
- Lecture 31 - Differential Equations With Specified Boundary Conditions - Part 1
- Lecture 32 - Differential Equations With Specified Boundary Conditions - Part 2
- Lecture 33 - Partial Differential equations - 1
- Lecture 34 - Partial Differential equations - 2
- Lecture 35 - Partial Differential equations - 3
- Lecture 36 - Differential Equation for Quantum Mechanical Problems
- Lecture 37 - Differential Equation for Quantum Mechanical Problems
- Lecture 38 - Differential Equation for Quantum Mechanical Problems
- Lecture 39 - Differential Equation for Quantum Mechanical Problems
- Lecture 40 - Differential Equation for Quantum Mechanical Problems
- Lecture 41 - Differential Equation for Quantum Mechanical Problems
- Lecture 42 - Differential Equation for Quantum Mechanical Problems
- Lecture 43 - Differential Equation for Quantum Mechanical Problems
- Lecture 44 - Differential Equation for Quantum Mechanical Problems
- Lecture 45 - Differential Equation for Quantum Mechanical Problems
- Lecture 46 - Molecular Dynamics Introduction - Part 1
- Lecture 47 - Molecular Dynamics Introduction - Part 2
- Lecture 48 - Molecular Dynamics Details and Algorithm - Part 1
- Lecture 49 - Molecular Dynamics Details and Algorithm - Part 2
- Lecture 50 - Molecular Dynamics Details and Algorithm - Part 3
- Lecture 51 - Molecular Dynamics Analysis - Part 1
- Lecture 52 - Molecular Dynamics Analysis - Part 2
- Lecture 53 - Molecular Dynamics Neighbours Lists - Part 1
- Lecture 54 - Molecular Dynamics Neighbours Lists - Part 2
- Lecture 55 - Molecular Dynamics
- Lecture 56 - Molecular Dynamics Diffusion Constant Calculation - Part 1
- Lecture 57 - Molecular Dynamics Diffusion Constant Calculation - Part 2
- Lecture 58 - Molecular Dynamics Diffusion Constant Calculation - Part 3

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Waves and Oscillations

Subject Co-ordinator - Prof. M. S. Santhanam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Simple Harmonic Motion
- Lecture 2 - Superposition of Oscillations
- Lecture 3 - Superposition of Oscillations
- Lecture 4 - Superposition of Oscillations
- Lecture 5 - Simple Harmonic Motion
- Lecture 6 - Damped oscillator - Part 1
- Lecture 7 - Damped oscillator - Part 2
- Lecture 8 - Damped oscillator and Q-factor
- Lecture 9 - Damped oscillator
- Lecture 10 - Forced oscillator - Part 1
- Lecture 11 - Forced oscillator - Part 2
- Lecture 12 - Resonances
- Lecture 13 - Q-factor of forced oscillator
- Lecture 14 - Applications of forced oscillator
- Lecture 15 - Forced Oscillator
- Lecture 16 - Coupled Oscillations - Part 1
- Lecture 17 - Coupled Oscillations - Part 2
- Lecture 18 - Solving for normal modes
- Lecture 19 - Coupled oscillations - More examples
- Lecture 20 - Coupled oscillator
- Lecture 21 - Coupled Oscillations of Loaded String
- Lecture 22 - Solutions for Loaded String
- Lecture 23 - Oscillations of Loaded String
- Lecture 24 - Continuum Limit of Loaded String
- Lecture 25 - Wave equation and its solutions
- Lecture 26 - Wave equation - impedance and velocities
- Lecture 27 - Standing waves
- Lecture 28 - Transverse waves in periodic structures
- Lecture 29 - Wave equation

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- Lecture 30 - Reflection and transmission of waves
- Lecture 31 - Impedance matching
- Lecture 32 - Energy of vibrating string
- Lecture 33 - Dispersion of waves
- Lecture 34 - Bandwidth theorem and problems
- Lecture 35 - Longitudnal Waves and Speed of Sound
- Lecture 36 - Longitudnal Standing Waves
- Lecture 37 - Sound Intensity
- Lecture 38 - Longitudnal Waves
- Lecture 39 - Fourier Series - Part 1
- Lecture 40 - Fourier Series - Part 2
- Lecture 41 - Fourier Series and Energy of Vibrating String
- Lecture 42 - Frequency Spectrum and Fourier Transforms
- Lecture 43 - Fourier Series
- Lecture 44 - Waves in Optical Systems
- Lecture 45 - Waves in Optical Systems
- Lecture 46 - Waves in Optical Systems
- Lecture 47 - Waves in Optical Systems
- Lecture 48 - Waves in Optical Systems
- Lecture 49 - Interference
- Lecture 50 - Interference
- Lecture 51 - Michelson and Fabry-Perot Interferometers
- Lecture 52 - Young's Double Slit Experiment
- Lecture 53 - Diffraction
- Lecture 54 - Beyond Linear Oscillators
- Lecture 55 - Beyond Linear Oscillators
- Lecture 56 - Beyond Linear Oscillators
- Lecture 57 - Beyond Linear Waves
- Lecture 58 - Waves in Quantum Mechanics and Summary

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Physics through Computational Thinking

Subject Co-ordinator - Prof. Auditya Sharma, Prof. Ambar Jain

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Mathematica, Wolfram language and Wolfram Cloud

Lecture 2 - Technical Prelim 1

Lecture 3 - Plotting Simple Functions

Lecture 4 - Function Behaviour near Extrema

Lecture 5 - Radicals and Logarithms

Lecture 6 - Properties of Functions

Lecture 7 - Vector Fields, Vector and Streamline Plots and Contour Plots

Lecture 8 - Introduction to Non-dimensionalisation

Lecture 9 - Non-dimensionalization and visual thinking

Lecture 10 - Non-dimensionalisation and Parametric Plot

Lecture 11 - Technical Prelim 2

Lecture 12 - Introduction to Simple Harmonic Oscillator

Lecture 13 - Simple Harmonic Oscillator with a spring mass system

Lecture 14 - More Examples of Simple Harmonic Oscillator

Lecture 15 - Anharmonic Oscillator

Lecture 16 - Introduction to Data Analysis - 1

Lecture 17 - Introduction to Data Analysis - 2

Lecture 18 - Curve fitting

Lecture 19 - Linear superposition of oscillations

Lecture 20 - Technical Prelim 3

Lecture 21 - Damped Harmonic Oscillator

Lecture 22 - Solving Initial Value Problem with Mathematica

Lecture 23 - Damped Harmonic Oscillator

Lecture 24 - Technical Prelim 4

Lecture 25 - Introduction to Euler's Method for Solving Differential Equation

Lecture 26 - Technical Prelim 5

Lecture 27 - Writing Euler's Method as a custom function

Lecture 28 - Mean Global Error in Euler's method and Application of Euler's method to damped oscillator

Lecture 29 - Improved Euler (RK2) and RK4 Methods for solving ODEs

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- Lecture 30 - Driven oscillations
- Lecture 31 - Driven oscillations using the Improved Euler method
- Lecture 32 - Falling Bodies
- Lecture 33 - Escape velocity
- Lecture 34 - Driven oscillations
- Lecture 35 - Linear systems
- Lecture 36 - Linear systems
- Lecture 37 - Linearization - 1
- Lecture 38 - Linearization - 2
- Lecture 39 - The Monte Carlo Method - 1
- Lecture 40 - The Monte Carlo Method - 2
- Lecture 41 - The Monte Carlo Method - 3
- Lecture 42 - The Monte Carlo Method - 4
- Lecture 43 - The Monte Carlo Method - 5
- Lecture 44 - Random Walks - 1
- Lecture 45 - Random Walks - 2
- Lecture 46 - Random Walks - 3
- Lecture 47 - Random Walks - 4
- Lecture 48 - Random Walks - 5
- Lecture 49 - Random Walks - 6
- Lecture 50 - Random Walks - 7

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Electromagnetism

Subject Co-ordinator - Prof. Nirmal Ganguli

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Vector algebra
- Lecture 2 - Vector algebra in component form
- Lecture 3 - Vector triple products
- Lecture 4 - Vector differential calculus
- Lecture 5 - Divergence
- Lecture 6 - Curl
- Lecture 7 - Tutorial on differential vector calculus
- Lecture 8 - More problems on vector differential calculus
- Lecture 9 - Vector integral calculus
- Lecture 10 - Surface integral
- Lecture 11 - Volume integral
- Lecture 12 - Fundamental theorems of vector calculus
- Lecture 13 - The divergence theorem (Gauss's theorem)
- Lecture 14 - The curl theorem (Stokes' theorem)
- Lecture 15 - Curvilinear coordinates
- Lecture 16 - Generic curvilinear coordinate systems
- Lecture 17 - Differential vector calculus in curvilinear coordinate systems
- Lecture 18 - Special curvilinear coordinate systems
- Lecture 19 - Vector calculus in spherical coordinate system
- Lecture 20 - Vector calculus in cylindrical coordinate system
- Lecture 21 - Introduction to Dirac delta function
- Lecture 22 - Tutorial on vector calculus and curvilinear coordinates
- Lecture 23 - Introduction to electrostatics
- Lecture 24 - Continuous charge distribution
- Lecture 25 - Electric field due to a line charge distribution
- Lecture 26 - Electric field lines, Flux, Gauss law
- Lecture 27 - Application of Gauss law with cylindrical symmetry
- Lecture 28 - Application of Gauss law on a flat 2D surface
- Lecture 29 - Tutorial on Dirac delta function and electrostatics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Tutorial on electrostatics
- Lecture 31 - The curl of an electric field
- Lecture 32 - Scalar potential
- Lecture 33 - Calculation of electric potential from different approaches
- Lecture 34 - Boundary conditions on electric field and potential
- Lecture 35 - Work and energy of an assembly of point charges
- Lecture 36 - General idea of energy in electrostatics
- Lecture 37 - Electrostatics with conductors
- Lecture 38 - Capacitors
- Lecture 39 - Laplace equation
- Lecture 40 - Boundary conditions and the uniqueness theorems
- Lecture 41 - The method of images
- Lecture 42 - Induced charge
- Lecture 43 - Force and energy
- Lecture 44 - Another example of the method of images
- Lecture 45 - Electric dipoles
- Lecture 46 - Multipole expansion, continuous charge distribution, and assembly of point charges
- Lecture 47 - Electric field due to a dipole
- Lecture 48 - Introduction to electric polarization in matter
- Lecture 49 - Electric polarization and bound charges
- Lecture 50 - Electric displacement vector and Gauss law
- Lecture 51 - Boundary conditions on the displacement vector and linear dielectric materials
- Lecture 52 - Parallel plate capacitors
- Lecture 53 - Energy in dielectric materials
- Lecture 54 - Force on dielectric materials
- Lecture 55 - Motion of a charged particle in electromagnetic field
- Lecture 56 - Work done by a magnetic field
- Lecture 57 - Electric current
- Lecture 58 - Surface and volume current
- Lecture 59 - Biot Savart law
- Lecture 60 - Biot Savart law with surface and volume currents
- Lecture 61 - A tutorial on currents and magnetic field
- Lecture 62 - Straight line current
- Lecture 63 - Divergence and curl of a generic magnetic field
- Lecture 64 - Ampere's law in integral form and its applications
- Lecture 65 - Magnetic field in a long solenoid
- Lecture 66 - A comparison between electrostatics and magnetostatics
- Lecture 67 - Magnetic vector potential
- Lecture 68 - Tutorial on magnetic fields

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Calculation of vector potential
- Lecture 70 - Boundary conditions on magnetic field
- Lecture 71 - Magnetic dipole
- Lecture 72 - Multipole expansion of the vector potential
- Lecture 73 - Magnetism, force and torque on magnetic dipole
- Lecture 74 - Fringing magnetic field
- Lecture 75 - Magnetization
- Lecture 76 - A tutorial on the magnetic dipole moment
- Lecture 77 - Ampere's law in magnetized materials
- Lecture 78 - Electrodynamics
- Lecture 79 - Electromagnetic induction
- Lecture 80 - Laws of electromagnetism so far
- Lecture 81 - Maxwell's correction to electromagnetism
- Lecture 82 - Fictitious discussion about symmetry
- Lecture 83 - Maxwell's equations in matter and the boundary conditions



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Introduction to Classical Mechanics

Subject Co-ordinator - Prof. Anurag Tripathi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction. Symmetries of space and time
- Lecture 2 - Generalized coordinates and degrees of freedom
- Lecture 3 - Virtual Work
- Lecture 4 - Virtual Work (rigid body)
- Lecture 5 - d'Alembert Principle
- Lecture 6 - Euler Lagrange Equation for a holonomic system
- Lecture 7 - Euler Lagrange Equations. Examples
- Lecture 8 - Euler Lagrange Equations. Examples (Continued...)
- Lecture 9 - Properties of Lagrangian
- Lecture 10 - Kinetic term in generalized coordinates
- Lecture 11 - Cyclic coordinates
- Lecture 12 - Conservation laws - Conservation of Energy
- Lecture 13 - Energy Function, Jacobi's Integral
- Lecture 14 - Momentum conservation
- Lecture 15 - Matrices and all that
- Lecture 16 - Matrices, Forms, and all that
- Lecture 17 - Principal axis transformation
- Lecture 18 - Small Oscillations
- Lecture 19 - Oscillations, Normal Coordinates
- Lecture 20 - Oscillations, Triatomic molecule
- Lecture 21 - Triatomic molecule normal coordinates
- Lecture 22 - Coupled pendulums, normal modes
- Lecture 23 - Coupled pendulums, Beats
- Lecture 24 - Oscillations, General solution
- Lecture 25 - Forced oscillations
- Lecture 26 - Damped oscillations
- Lecture 27 - Forced Damped oscillations
- Lecture 28 - one dimensional systems
- Lecture 29 - Two-body problem

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Two-body problem, Kepler's second law
- Lecture 31 - Two-body problem, Kepler problem
- Lecture 32 - Two-body problem, Conic Sections in Polar Coordinates
- Lecture 33 - Two-body problem, Ellipse in polar coordinates
- Lecture 34 - Orbits in Kepler Problem
- Lecture 35 - Apsidal distances, eccentricity of orbits
- Lecture 36 - Kepler's Third law; Laplace-Runge-Lenz vector
- Lecture 37 - Rigid Body, degrees of freedom
- Lecture 38 - Rigid Body, Transformation matrix
- Lecture 39 - Rigid Body, Euler Angles
- Lecture 40 - Parameterization using Euler Angles
- Lecture 41 - Rigid Body, Euler's Theorem
- Lecture 42 - General motion of a rigid body
- Lecture 43 - Moment of Inertia Tensor
- Lecture 44 - Principal Moments
- Lecture 45 - Lagrangian of a rigid body
- Lecture 46 - Motion of a free symmetric top
- Lecture 47 - Angular velocity using Euler angles
- Lecture 48 - Lagrangian of a heavy symmetric top
- Lecture 49 - First integrals of a heavy symmetric top
- Lecture 50 - Nutation and Precession of a heavy symmetric top
- Lecture 51 - Sleeping Top
- Lecture 52 - Rotating Frames. Euler Equations
- Lecture 53 - Calculus of Variations
- Lecture 54 - Method of Lagrange Multipliers
- Lecture 55 - Calculus of Variations
- Lecture 56 - Calculus of Variations
- Lecture 57 - Cartesian Tensors
- Lecture 58 - Hamiltonian Mechanics
- Lecture 59 - Hamiltonian Mechanics
- Lecture 60 - Hamiltonian Mechanics
- Lecture 61 - Hamiltonian Mechanics
- Lecture 62 - Hamiltonian Mechanics
- Lecture 63 - Hamiltonian Mechanics
- Lecture 64 - Examples of Generating Functions
- Lecture 65 - Harmonic Oscillator (Canonical Transformations)
- Lecture 66 - Invariance of Poisson Brackets
- Lecture 67 - Normal modes of triatomic molecule using Mathematica

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Fluid Dynamics for Astrophysics

Subject Co-ordinator - Prof. Prasad Subramanian

Co-ordinating Institute - IISER - Pune

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to the course
- Lecture 2 - Continuum hypothesis, distribution function and stress-viscosity relation
- Lecture 3 - Continuum hypothesis, distribution function and stress-viscosity relation - Recap
- Lecture 4 - Fluid Kinematics
- Lecture 5 - Fluid Kinematics - Recap
- Lecture 6 - Conservation laws: Mass conservation and incompressibility
- Lecture 7 - Conservation laws: Momentum conservation and Euler equation
- Lecture 8 - Conservation laws - Recap
- Lecture 9 - Potential flows
- Lecture 10 - Bernoulli constant, its applications and vorticity equation
- Lecture 11 - Recap - Potential flows, Bernoulli constant and its applications
- Lecture 12 - Vorticity dynamics -- Kelvin's vorticity theorem and Magnus effect
- Lecture 13 - Navier-Stokes equation
- Lecture 14 - Navier-Stokes equation (Continued....) and energy equation
- Lecture 15 - Energy equation in a conservative form
- Lecture 16 - Boundary conditions in Navier-Stokes equation, d'Alembert's paradox
- Lecture 17 - Poiseuille flow, deriving viscosity from microscopics
- Lecture 18 - Dimensionless numbers -- Mach number, Reynolds number
- Lecture 19 - Dimensionless numbers (Continued...) -- plasma beta, magnetic Reynolds number, Alfvén Mach number
- Lecture 20 - Reynolds number and dynamic similarity
- Lecture 21 - Reynolds number recap, Low Re flows, and drag on a sphere (Stokes law)
- Lecture 22 - High Re flows -- turbulent drag law, vortex shedding and drag crisis
- Lecture 23 - Lift on a body, introduction to compressible flows
- Lecture 24 - Compressible flows -- derivation of sound speed and dispersion relation
- Lecture 25 - Subsonic and supersonic flows
- Lecture 26 - Propagation of sonic information, shock tube problem and piston problem
- Lecture 27 - Criterion for neglect of compressibility, method of characteristics
- Lecture 28 - Shock thickness
- Lecture 29 - Shock thickness recap, shock jump conditions

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Shock jump conditions (Continued...), transonic 1D flows, converging/diverging channels
- Lecture 31 - Coverging/diverging channels, de Laval nozzle and its application to astrophysical jets
- Lecture 32 - Spherically symmetric transonic flows
- Lecture 33 - Spherically symmetric transonic flows (Continued...)
- Lecture 34 - Solar wind : Parker's solution
- Lecture 35 - Solar wind : Modifications in Parker's solution
- Lecture 36 - Spherical accretion onto a compact object : Eddington luminosity and accretion rate
- Lecture 37 - Spherical accretion onto a compact object : Solutions for flow properties
- Lecture 38 - Spherical accretion (Continued...), disk accretion--Roche lobe overflow
- Lecture 39 - Disk accretion : Mass conservation and vertical hydrostatic equilibrium
- Lecture 40 - Disk accretion : Removal of angular momentum, Shakura-Sunyaev viscosity parameter
- Lecture 41 - Disk accretion : Viscous dissipation and the energy equation, two-temperature criterion
- Lecture 42 - Particle acceleration in astrophysical settings : Shocks and non-thermal energy distribution
- Lecture 43 - Particle acceleration in astrophysical settings : Diffusive shock acceleration
- Lecture 44 - Spherical blast waves : Bomb explosion and supernova explosion
- Lecture 45 - Spherical blast waves : Sedov-Taylor solution
- Lecture 46 - Spherical blast waves : Sedov-Taylor solution (Continued....)
- Lecture 47 - Magnetohydrodynamics (MHD) : Introduction
- Lecture 48 - Magnetohydrodynamics (MHD) : The induction equation
- Lecture 49 - Magnetohydrodynamics (MHD) : Currents in MHD, momentum equation and magnetic stress tensor
- Lecture 50 - Magnetohydrodynamics (MHD) : Magnetic stresses and magnetic buoyancy
- Lecture 51 - Magnetohydrodynamics (MHD) : Plasma beta, force-free fields and potential configurations
- Lecture 52 - Magnetohydrodynamics (MHD) : Magnetic flux-freezing
- Lecture 53 - Magnetohydrodynamics (MHD) : Magnetic flux-freezing (Continued....), magnetic dynamos
- Lecture 54 - Magnetohydrodynamics (MHD) : Dynamo theory
- Lecture 55 - Magnetohydrodynamics (MHD) : Waves in MHD - Alfven waves
- Lecture 56 - Magnetohydrodynamics (MHD) : Waves in MHD - Alfven waves and magnetosonic waves
- Lecture 57 - Magnetohydrodynamics (MHD) : Waves in MHD - Magnetosonic waves
- Lecture 58 - Magnetohydrodynamics (MHD) : Shocks in MHD
- Lecture 59 - Magnetohydrodynamics (MHD) : Shocks in MHD - Shock jump conditions
- Lecture 60 - Non-ideal MHD : Introduction to magnetic reconnection
- Lecture 61 - Non-ideal MHD : Magnetic reconnection - The Sweet-Parker model
- Lecture 62 - Non-ideal MHD : Magnetic reconnection - The Petscheck model
- Lecture 63 - Sun's atmosphere : Solar corona and the coronal heating problem
- Lecture 64 - Solar eruptions : Coronal Mass Ejections (CMEs) and solar flares

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Quantum Transport

Subject Co-ordinator - Prof. Madhu Thalakulam

Co-ordinating Institute - IISER - Thiruvananthapuram

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Classical and Semi-classical Transport: Overview
- Lecture 3 - Quantum Transport Regimes
- Lecture 4 - Band-bending and Metal semiconductor Interfaces
- Lecture 5 - Semiconductor Heterostructures
- Lecture 6 - 2DEG and Electrostatic Gating
- Lecture 7 - Device Fabrication - Photolithography
- Lecture 8 - Device Fabrication - Electron-beam Lithography
- Lecture 9 - Quantum hall Effect - Overview
- Lecture 10 - Quantum Hall Effect: Quantization of electron orbitals, Landau levels and Flux quantization
- Lecture 11 - Quantum Hall Effect: Lanau level, filling factor and Shubnikov-de-Haas effect
- Lecture 12 - Quantum Hall Effect: Edge states and Resistance Quantization
- Lecture 13 - Weak Localization
- Lecture 14 - Aharonov-Bohm Effect
- Lecture 15 - Ballistic 1D transport-Quantum Point contacts
- Lecture 16 - Ballistic 1D transport-Current from transmission
- Lecture 17 - Ballistic 1D transport-Where is the power dissipation?
- Lecture 18 - 0D Transport - Single Electron Tunneling
- Lecture 19 - Single Electron Transistors, Coulomb Blockade
- Lecture 20 - Quantum Dots, Shell filling, Artificial Atoms
- Lecture 21 - Transport on Double Quantum Dots - I
- Lecture 22 - Transport on Double Quantum Dots - II
- Lecture 23 - Superconductivity-Introduction
- Lecture 24 - Superconducting tunnel junctions-Josephson effect - 1
- Lecture 25 - Superconducting tunnel junctions-Josephson effect - 2
- Lecture 26 - Charge sensing with quantum point contacts
- Lecture 27 - Charge sengin with single electron transistors
- Lecture 28 - Real-time charge sensing
- Lecture 29 - Quantum Electrical Metrology - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Quantum Electrical Metrology - II
- Lecture 31 - Qubits - Overview
- Lecture 32 - Superconducting qubits
- Lecture 33 - Quantum dot qubits

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Statistical Mechanics (2021)

Subject Co-ordinator - Prof. Dipanjan Chakraborty

Co-ordinating Institute - IISER - Mohali

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Thermodynamics

Lecture 2 - Laws of Thermodynamics

Lecture 3 - Second Law of Thermodynamics and Heat Engines

Lecture 4 - Entropy, Clausius Inequality, Thermodynamic Processes and Systems

Lecture 5 - Extensivity of Entropy and Internal Energy, Gibbs Duhem relation

Lecture 6 - Exact and Inexact differentials, Legendre Transformation

Lecture 7 - Free Energy in Thermodynamics

Lecture 8 - Maxwell's relations - Part I

Lecture 9 - Maxwell's relations - Part II

Lecture 10 - Maxwell's relations - Part III

Lecture 11 - Response Functions and manipulating Partial Derivatives

Lecture 12 - Working With Thermodynamics

Lecture 13 - Joule Expansion and Joule Thomson Effect

Lecture 14 - Stability of Thermodynamic Potentials

Lecture 15 - Consequences of Stability of Thermodynamic Potentials

Lecture 16 - Conditions of Equilibrium and Gibbs Phase Rule

Lecture 17 - Introduction to Probability

Lecture 18 - Discrete and Continuous Distributions

Lecture 19 - Central Limit Theorem and Statistical Entropy

Lecture 20 - Classical Probability Density and Liouville Equation

Lecture 21 - Classical Probability Density, Ergodicity and Microcanonical Ensemble

Lecture 22 - Microcanonical Ensemble

Lecture 23 - Examples of Microcanonical Ensemble - Two Level System

Lecture 24 - Examples of Microcanonical Ensemble - Magnetic System and Ideal Gas - Part I

Lecture 25 - Examples of Microcanonical Ensemble - Magnetic System and Ideal Gas - Part II

Lecture 26 - Examples of Microcanonical Ensemble - Ultra-Relativistic Gas

Lecture 27 - Microcanonical Ultrarelativistic Gas and Quantum Solid

Lecture 28 - Microcanonical Excluded Volume

Lecture 29 - Canonical Ensemble

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Canonical Ensemble Paramagnet
- Lecture 31 - Canonical Ensemble Ideal Gas
- Lecture 32 - Canonical Ensemble Einstein Solid
- Lecture 33 - Grand Canonical Ensemble
- Lecture 34 - Grand Canonical Ensemble Ideal Gas - Part I
- Lecture 35 - Grand Canonical Ensemble Ideal Gas - Part II
- Lecture 36 - MicroCanonical to Canonical - Part I
- Lecture 37 - MicroCanonical to Canonical - Part II
- Lecture 38 - Interacting System - Part I
- Lecture 39 - Interacting System - Part II
- Lecture 40 - Van-Der Waals Equation of State
- Lecture 41 - Quantum Statistical Mechanics Density Matrix
- Lecture 42 - Density Matrix in different Ensembles
- Lecture 43 - Free Particle Quantum Canonical Partition Function Free
- Lecture 44 - Single Particle Quantum Partition Function Harmonic Oscillator - Part I
- Lecture 45 - Single Particle Quantum Partition Function Harmonic Oscillator - Part II
- Lecture 46 - Wigner Transformation
- Lecture 47 - N-Particle partition function
- Lecture 48 - Canonical Formulation of Ideal Gas
- Lecture 49 - Grand Canonical Formulation of Ideal Gas
- Lecture 50 - High Temperature Expansion
- Lecture 51 - Degenerate Fermi Gas
- Lecture 52 - Ideal Fermi Gas close to  $T=0$ , Chemical Potential and Specific Heat
- Lecture 53 - Relativistic Fermi Gas at  $T=0$
- Lecture 54 - Ideal Bose Gas
- Lecture 55 - Bose-Einstein Condensation
- Lecture 56 - Pressure of an Ideal Bose Gas
- Lecture 57 - Specific Heat of an Ideal Bose Gas - Part 1
- Lecture 58 - Specific Heat of an Ideal Bose Gas - Part 2
- Lecture 59 - Bose-Einstein Condensation in a Harmonically Trapped Bose Gas
- Lecture 60 - Specific Heat of a Harmonically Trapped Bose Gas
- Lecture 61 - General Treatment of a Bose gas - Part 1
- Lecture 62 - General Treatment of a Bose gas - Part 2
- Lecture 63 - Discontinuity in the Specific Heat of a Bose Gas - Part 1
- Lecture 64 - Discontinuity in the Specific Heat of a Bose Gas - Part 2
- Lecture 65 - Ultra Relativistic Bose Gas Stefan Boltzmann Law



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Solid State Physics (2021)

Subject Co-ordinator - Prof. Nirmal Ganguli

Co-ordinating Institute - IISER - Bhopal

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - What is solid?
- Lecture 2 - Bravais lattice
- Lecture 3 - Indexing of crystal planes
- Lecture 4 - Simple crystal structures
- Lecture 5 - Diffraction of waves by crystals
- Lecture 6 - Fourier analysis of diffraction
- Lecture 7 - Diffraction condition
- Lecture 8 - Laue equations and Ewald construction
- Lecture 9 - Introduction to Brillouin zone
- Lecture 10 - Brillouin zones for bcc and fcc lattice
- Lecture 11 - Fourier analysis of the basis and structure factor
- Lecture 12 - Atomic form factor
- Lecture 13 - Van der Waals attraction
- Lecture 14 - Repulsive interaction
- Lecture 15 - Equilibrium lattice constant and cohesive energy
- Lecture 16 - Ionic crystals
- Lecture 17 - Evaluation of the Madelungconstant
- Lecture 18 - Covalent crystals: Linearcombination of atomic orbitals
- Lecture 19 - Electron tunneling in covalentbonds
- Lecture 20 - Metallic bonds
- Lecture 21 - The Drude theory of metals
- Lecture 22 - Hall effect and magnetoresistance
- Lecture 23 - AC electrical conductivity
- Lecture 24 - Thermal conductivity
- Lecture 25 - Introduction to Sommerfeld theory - I
- Lecture 26 - Introduction to Sommerfeld theory - II
- Lecture 27 - Electronic states at finite temperature
- Lecture 28 - Fermi-Dirac distribution
- Lecture 29 - Thermal properties of the free electron gas

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- Lecture 30 - The Sommerfeld theory for conduction in metals
- Lecture 31 - Thermal conductivity
- Lecture 32 - One dimensional chain of atoms
- Lecture 33 - One dimensional chain of atoms
- Lecture 34 - Periodic boundary condition
- Lecture 35 - Energy levels in periodic array of quantum wells
- Lecture 36 - Tunneling of electrons
- Lecture 37 - Reflection and transmission amplitudes and coefficients
- Lecture 38 - Transfer matrix for a rectangular barrier
- Lecture 39 - Electron tunneling through a periodic potential
- Lecture 40 - The tight-binding approximation
- Lecture 41 - Tridiagonal matrices and continued fraction
- Lecture 42 - Plane-wave basis for nearly free electrons
- Lecture 43 - Nearly free electron approximation
- Lecture 44 - Dynamical aspects of electrons in band theory
- Lecture 45 - Semiconductor crystals
- Lecture 46 - Effective mass
- Lecture 47 - Carrier concentration
- Lecture 48 - Mobility, impurity conductivity, and Fermi surface
- Lecture 49 - Vibration of crystals with monatomic basis
- Lecture 50 - Analyzing the dispersion relation
- Lecture 51 - Phonons with diatomic basis
- Lecture 52 - Quantization of elastic waves
- Lecture 53 - Phonon heat capacity
- Lecture 54 - Phonon density of states
- Lecture 55 - Introduction to diamagnetism
- Lecture 56 - Issues with the classical theory of diamagnetism
- Lecture 57 - Quantum theory of diamagnetism
- Lecture 58 - The quantum theory of paramagnetism
- Lecture 59 - Rare earth atoms, Hund's rule
- Lecture 60 - Crystal field splitting
- Lecture 61 - Quenching of orbital angular momentum
- Lecture 62 - Paramagnetic susceptibility of conduction electrons
- Lecture 63 - Ferromagnetism
- Lecture 64 - Antiferromagnetism and ferrimagnetism
- Lecture 65 - Introduction to superconductivity
- Lecture 66 - Thermodynamics of superconducting transition, London equation
- Lecture 67 - BCS theory of superconductivity
- Lecture 68 - Flux quantization in a superconducting ring

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 69 - Single particle tunneling and Josephson effect

Lecture 70 - AC Josephson effect and microscopic quantum interference

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Introduction to Quantum Field Theory (Theory of Scalar Fields)

Subject Co-ordinator - Prof. Anurag Tripathi

Co-ordinating Institute - IIT - Hyderabad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Quantum Filed Theory
- Lecture 2 - Quantizing Schrodinger Field
- Lecture 3 - Quantizing Schrodinger Field (Continued...)
- Lecture 4 - Symmetry and normalization of the states
- Lecture 5 - A multiparticle system of Bosons
- Lecture 6 - Klein-Gordon Equation
- Lecture 7 - Quantization of Klein-Gordon Theory
- Lecture 8 - Quantization of Klein-Gordon Theory (Continued...)
- Lecture 9 - Quantization of Klein-Gordon Theory (Continued...)
- Lecture 10 - Quantization of Klein-Gordon Theory (Continued...)
- Lecture 11 - Quantization of Klein-Gordon Theory (Continued...)
- Lecture 12 - Qunatization of Klein-Gordon Theory (Continued...)
- Lecture 13 - Quantization of Klein-Gordon Theory (Continued...)
- Lecture 14 - Feynman propagator - 2
- Lecture 15 - Feynman propagator - 3
- Lecture 16 - Symmetries
- Lecture 17 - Lorentz transformations
- Lecture 18 - Lorentz transformations (Continued...)
- Lecture 19 - Lorentz Group
- Lecture 20 - Groups and Generators
- Lecture 21 - SU(3) Generators
- Lecture 22 - Representation of groups. Poincare group
- Lecture 23 - Poincare Algebra
- Lecture 24 - Symmetries in Classical Field Theories
- Lecture 25 - Symmetries (Continued...)
- Lecture 26 - Symmetries (Continued...)
- Lecture 27 - Symmetries (Continued...)
- Lecture 28 - Noether's theorem: The Proof
- Lecture 29 - Noether's theorem (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Momentum in KG Theory
- Lecture 31 - Noether Currents corresponding to Lorentz symmetry
- Lecture 32 - Conserved currents and charges due to Lorentz symmetry
- Lecture 33 - Conserved charges as symmetry generators
- Lecture 34 - Consequences of symmetry
- Lecture 35 - A boring world: Scattering in a free theory
- Lecture 36 - Phi-4 Theory
- Lecture 37 - Phi-4 Theory: Manipulating the ground state
- Lecture 38 - Phi-4 Theory: Interaction picture - 1
- Lecture 39 - Phi-4 Theory: Interaction picture - 2
- Lecture 40 - Phi-4 Theory: Interaction picture (Continued...)
- Lecture 41 - Phi-4 Theory: Interaction picture (Continued...)
- Lecture 42 - Wick's Theorem
- Lecture 43 - Wick's Theorem (Continued...)
- Lecture 44 - Feynman Diagrams
- Lecture 45 - Feynman Diagrams (Continued...)
- Lecture 46 - Momentum space Feynman rules for  $G(x_1, \dots, x_N)$
- Lecture 47 - Feynman rules for  $G(p_1, p_2, \dots, p_N)$
- Lecture 48 - Feynman rules for  $G(p_1, p_2, \dots, p_N)$  (Continued...)
- Lecture 49 - Cancellation of Bubble diagrams
- Lecture 50 - Examples of Feynman Diagrams
- Lecture 51 - Survey

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Introduction to Quantum Field Theory (Theory of Scalar Fields) - Part 2

Subject Co-ordinator - Prof. Anurag Tripathi

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Scattering Matrix  
Lecture 2 - Scattering Matrix (Continued...)  
Lecture 3 - Scattering Matrix (Continued...)  
Lecture 4 - Creating single particle states - 1  
Lecture 5 - Creating single particle states - 2  
Lecture 6 - Annihilating single particle states  
Lecture 7 - Creating Multiparticle States  
Lecture 8 - LSZ reduction  
Lecture 9 - LSZ reduction (Continued...)  
Lecture 10 - S matrix  
Lecture 11 - S matrix (Continued...)  
Lecture 12 - S matrix (Continued...)  
Lecture 13 - Pole and residue of the propagator  
Lecture 14 - Kallen-Lehmann spectral representation  
Lecture 15 - Kallen-Lehmann spectral representation (Continued...)  
Lecture 16 - High Energy Experiment Setup - 1  
Lecture 17 - High Energy Experiment Setup - 2  
Lecture 18 - Scattering cross-section  
Lecture 19 - Differential cross-section  
Lecture 20 - 2-2 scattering cross-section  
Lecture 21 - Loop diagrams - 1  
Lecture 22 - Wick rotated Green's functions  
Lecture 23 - UV divergences - Part 1  
Lecture 24 - UV divergences - Part 2  
Lecture 25 - UV divergences - Part 3  
Lecture 26 - Explicit evaluation of Feynman integrals  
Lecture 27 - Few more Feynman integrals  
Lecture 28 - UV Singularity structure in dimensional regularization  
Lecture 29 - Renormalization - Part 1

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- Lecture 30 - Renormalization - Part 2
- Lecture 31 - Renormalization - Part 3
- Lecture 32 - Renormalization - Part 4
- Lecture 33 - Renormalization - Part 5
- Lecture 34 - Renormalization Group Equation - 1
- Lecture 35 - Renormalization Group Equation - 2
- Lecture 36 - Renormalization Group Equation - 3
- Lecture 37 - Solution of Callan Symanzik Equation
- Lecture 38 - UV and IR fixed points and Asymptotic Freedom
- Lecture 39 - Behaviour near fixed point

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Radio Astronomy

Subject Co-ordinator - Prof. Abhirup Datta

Co-ordinating Institute - IIT - Indore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Radio Astronomy  
Lecture 2 - Review of Electromagnetism - Part 1  
Lecture 3 - Review of Electromagnetism - Part 2  
Lecture 4 - Radio Astronomy - Tutorial 1  
Lecture 5 - Milestones in Radio Astronomy  
Lecture 6 - Radio Astronomy Fundamentals - Part 1  
Lecture 7 - Radio Astronomy Fundamentals - Part 2  
Lecture 8 - Radiative Transfer - Tutorial 1  
Lecture 9 - Fundamentals of Antenna  
Lecture 10 - Fundamental of Antenna Theory - Part 1  
Lecture 11 - Fundamental of Antenna Theory - Part 2  
Lecture 12 - Fundamental of Antenna Theory - Part 3  
Lecture 13 - Signal Processing and Receivers  
Lecture 14 - Signal Proceeding and Receivers - Part 2  
Lecture 15 - Radio Telescopes  
Lecture 16 - Single Dish Observations  
Lecture 17 - Demonstration of Antenna Design and Simulation - Part 1  
Lecture 18 - Demonstration Of Antenna Design and Simulation - Part 2  
Lecture 19 - What Have we Learnt so Far? - A Review  
Lecture 20 - Demonstration of Antenna Design and Simulation - Part 3  
Lecture 21 - Co-ordinate System  
Lecture 22 - Radio Interferometers  
Lecture 23 - Example Questions  
Lecture 24 - Python Crash Course  
Lecture 25 - Few Concepts with the help of python as a computational tool  
Lecture 26 - Live session  
Lecture 27 - Example Questions  
Lecture 28 - Radio Interferometry and Aperture Synthesis  
Lecture 29 - Introduction to CASA

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Examples  
Lecture 31  
Lecture 32  
Lecture 33 - Revision  
Lecture 34 - Revision

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Fiber Optics

Subject Co-ordinator - Prof. Vipul Rastogi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction
- Lecture 2 - Need for Optical Communication
- Lecture 3 - Salient Features of Optical Fiber - I
- Lecture 4 - Salient Features of Optical Fiber - II
- Lecture 5 - Optical Fiber Fabrication
- Lecture 6 - Transmission Characteristics - I
- Lecture 7 - Transmission Characteristics - II
- Lecture 8 - Transmission Characteristics - III
- Lecture 9 - Propagation in Infinitely Extended Dielectric
- Lecture 10 - EM Waves in Dielectrics
- Lecture 11 - Electromagnetic Analysis of Waveguides - I
- Lecture 12 - Electromagnetic Analysis of Waveguides - II
- Lecture 13 - Electromagnetic Analysis of Waveguides - III
- Lecture 14 - Electromagnetic Analysis of Waveguides - IV
- Lecture 15 - Electromagnetic Analysis of Waveguides - V
- Lecture 16 - Electromagnetic Analysis of Waveguides - VI
- Lecture 17 - Electromagnetic Analysis of Waveguides - VII
- Lecture 18 - Electromagnetic Analysis of Waveguides - VIII
- Lecture 19 - Optical Fiber Waveguide - I
- Lecture 20 - Optical Fiber Waveguide - II
- Lecture 21 - Optical Fiber Waveguide - III
- Lecture 22 - Optical Fiber Waveguide - IV
- Lecture 23 - Optical Fiber Waveguide - V
- Lecture 24 - Splice Loss
- Lecture 25 - Waveguide Dispersion - I
- Lecture 26 - Waveguide Dispersion - II
- Lecture 27 - Recap
- Lecture 28 - Optical Fiber Components and Devices - I
- Lecture 29 - Optical Fiber Components and Devices - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Optical Fiber Components and Devices - III
- Lecture 31 - Optical Fiber Components and Devices - IV
- Lecture 32 - Optical Fiber Components and Devices - V
- Lecture 33 - Optical Sources and Detectors - I
- Lecture 34 - Optical Sources and Detectors - II
- Lecture 35 - Optical Sources and Detectors - III
- Lecture 36 - Optical Sources and Detectors - IV
- Lecture 37 - Optical Sources and Detectors - V
- Lecture 38 - System Design Aspects
- Lecture 39 - Optical Fiber Measurements
- Lecture 40 - Summary and Recent Advances

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Solar Photovoltaics Fundamentals, Technology and Applications

Subject Co-ordinator - Prof. Soumitra SataPathi

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Energy and its Sources
- Lecture 2 - Introduction to Solar Energy
- Lecture 3 - Introduction of Quantum Mechanics in Solar Photovoltaics - I
- Lecture 4 - Introduction of Quantum Mechanics in Solar Photovoltaics - II
- Lecture 5 - Introduction of Quantum Mechanics in Solar Photovoltaics - III
- Lecture 6 - Band Theory
- Lecture 7 - Energy Band Diagram
- Lecture 8 - Charge Carrier Dynamics in Semiconductor
- Lecture 9 - P-N junction model and Diode working principle
- Lecture 10 - Current-Voltage Characteristics of Solar Cell
- Lecture 11 - Equivalent Circuits of Solar Cells, Fill Factor
- Lecture 12 - Fabrication Process of Semiconductor Grade Silicon
- Lecture 13 - Fabrication Process of Single crystalline Silicon
- Lecture 14 - Thin Film deposition Techniques
- Lecture 15 - Thin Film Solar Cells
- Lecture 16 - Photo Physics of Dye Sensitized Solar Cells
- Lecture 17 - Fabrication of Dye Sensitized Solar Cells
- Lecture 18 - Design of Novel dyes
- Lecture 19 - Design of Electrolytes
- Lecture 20 - Quantum Dot Solar Cells
- Lecture 21 - Fabrication of Organic Solar Cells
- Lecture 22 - Physics of Bulk Hetero Junction (BHJ) Solar Cells
- Lecture 23 - Photo Physics of Organic Solar Cells
- Lecture 24 - Morphology Optimization of Organic Solar Cells
- Lecture 25 - Perovskite Solar Cells
- Lecture 26 - Fabrication of Perovskite Solar Cells
- Lecture 27 - Photo Physics of Perovskite Solar Cells
- Lecture 28 - Stability in Perovskite Solar Cells
- Lecture 29 - Morphology Optimization of Perovskite Solar Cells

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Perovskite Single Crystal Solar Cells
- Lecture 31 - Photophysics in Perovskite Single Crystal Solar Cells
- Lecture 32 - Applications of Perovskite Single Crystal Solar Cells
- Lecture 33 - Organic Nano Particles Based Solar Cells
- Lecture 34 - Morphology Optimization in Organic Nanoparticle Based Solar Cells
- Lecture 35 - Multijunction Tandem Solar Cells
- Lecture 36 - Introduction to Characterization Techniques
- Lecture 37 - Vacuum Technology in Solar Photovoltaics
- Lecture 38 - Introduction of Pressure Gauges
- Lecture 39 - Electron Microscopy in Solar Photovoltaics
- Lecture 40 - Impedance Spectroscopy

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Introduction to Atmospheric and Space Sciences

Subject Co-ordinator - Prof. M V Sunil Krishna

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - An Introduction to the Earth's Atmosphere and Source of Energy - The Sun
- Lecture 2 - Primary Source of Energy on the Earth - The Sun
- Lecture 3 - Evolution of the Earth's Atmosphere
- Lecture 4 - Earth's Second Atmosphere and Rise of Oxygen
- Lecture 5 - Atmosphere of Other Planets in Solar System
- Lecture 6 - Structure of Earth's Atmosphere
- Lecture 7 - Vertical Structure of Atmosphere
- Lecture 8 - Characterization of Atmosphere Based on Electrical Properties
- Lecture 9 - Coupling of Solar Radiation with the Earth's Atmosphere
- Lecture 10 - Forces and Their Classifications
- Lecture 11 - Forces - Gravitational Force
- Lecture 12 - Forces - Viscous Force
- Lecture 13 - Forces - Coriolis Force
- Lecture 14 - Coriolis Force and Curvature Effect
- Lecture 15 - Hydrostatic Equation
- Lecture 16 - Hypsometric Equation
- Lecture 17 - Atmospheric Thermodynamics
- Lecture 18 - Thermodynamics - Dry Air
- Lecture 19 - Thermodynamics - Moist Air
- Lecture 20 - Geopotential and Scale Height
- Lecture 21 - Specific Heats
- Lecture 22 - Air Parcel and Potential Temperature
- Lecture 23 - Moisture Parameters
- Lecture 24 - Saturation Mixing Ratio and Relative Humidity
- Lecture 25 - Pseudo-Adiabatic Processes
- Lecture 26 - Convection of Air
- Lecture 27 - Atmospheric Stability and Cloud Formation
- Lecture 28 - Cloud Formation
- Lecture 29 - Cloud Formation and Lifting

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Cloud Morphology
- Lecture 31 - Secondary Cloud Classification and Fog
- Lecture 32 - Atmospheric Stability
- Lecture 33 - Atmospheric Stability Conditions
- Lecture 34 - Stable Unstable and Neutral Atmosphere
- Lecture 35 - Cloud Seeding and Precipitation
- Lecture 36 - Measuring Precipitation
- Lecture 37 - Droplet Growth and Curvature Effect
- Lecture 38 - Droplet Growth and Solute Effect
- Lecture 39 - Radial Growth of Droplets by Diffusion
- Lecture 40 - Radial Growth of Droplets by Diffusion (Continued...)
- Lecture 41 - Ionospheric Layers and Photochemistry
- Lecture 42 - Ionization Processes
- Lecture 43 - Ionospheric Chemical Reactions and Layers
- Lecture 44 - Chapman's Theory of Layer Production
- Lecture 45 - Chapman's Theory of Layer Production (Continued...)
- Lecture 46 - Chapman's Alpha Layer
- Lecture 47 - Hydrogen in Ionosphere
- Lecture 48 - Debye's Shielding
- Lecture 49 - Debye's Shielding and Debye's Potential
- Lecture 50 - Debye's Potential (Continued...)
- Lecture 51 - Particle Motion in Uniform Electric Field
- Lecture 52 - Particle Motion in Uniform Magnetic Field
- Lecture 53 - Particle Motion in Uniform Magnetic Field and Guiding Center
- Lecture 54 - Particle Motion in Uniform Electric and Magnetic Fields
- Lecture 55 - Gradient Magnetic Field
- Lecture 56 - Gradient Drift and Curvature Drift
- Lecture 57 - Vacuum Drift and Planetary Ring Current
- Lecture 58 - Magnetic Mirroring
- Lecture 59 - Magnetic Mirroring and Loss Cone
- Lecture 60 - Airglow and Aurora

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Optical Sensors

Subject Co-ordinator - Prof. Sachin Kumar Srivastava

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Sensor Fabrication and Characterization

Lecture 3 - Basic Optics for Optical Sensing - I

Lecture 4 - Basic Optics for Optical Sensing - II

Lecture 5 - Basic Optics for Optical Sensing - III

Lecture 6 - Basic Optics for Optical Sensing - IV

Lecture 7 - Basic Optics for Optical Sensing - V

Lecture 8 - Basic Optics for Optical Sensing - VI

Lecture 9 - Basic Optics for Optical Sensing - VII

Lecture 10 - Plasmons - I

Lecture 11 - Plasmons - II

Lecture 12 - Plasmons - III

Lecture 13 - Plasmons - IV

Lecture 14 - Plasmons - V

Lecture 15 - Plasmons - VI

Lecture 16 - Multiple Optical Sensors of Different Mechanisms

Lecture 17 - Interference based Sensors

Lecture 18 - Interference, Diffraction and Optical Fiber Sensors

Lecture 19 - Review of Biomaterial Optics

Lecture 20 - Terahertz Based Detection and Circular Dichroism

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Advanced Atmospheric Physics

Subject Co-ordinator - Prof. M V Sunil Krishna

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Atmospheric Forces and Dynamics - Part 1
- Lecture 2 - Atmospheric Forces and Dynamics - Part 2
- Lecture 3 - Total Derivative (Introduction)
- Lecture 4 - Total Derivative of a Vector in a Rotating Frame of Reference
- Lecture 5 - Momentum Equations and its Vectorial Form in Spherical Polar Coordinates - Part 1
- Lecture 6 - Momentum Equations and its Vectorial Form in Spherical Polar Coordinates - Part 2
- Lecture 7 - Momentum Equations and its Vectorial Form in Spherical Polar Coordinates - Part 3
- Lecture 8 - Total Derivative and Lagrangian
- Lecture 9 - Continuity Equation: Eulerian
- Lecture 10 - Energy Equations - Part 1
- Lecture 11 - Energy Equations - Part 2
- Lecture 12 - Scaling analysis - Part 1
- Lecture 13 - Scaling analysis - Part 2
- Lecture 14 - Scaling Analysis of Governing Equations - Part 1
- Lecture 15 - Scaling Analysis of Governing Equations - Part 2
- Lecture 16 - Scaling Analysis - Part 3, A Tutorial
- Lecture 17 - Scaling Analysis - Part 4, A Tutorial
- Lecture 18 - Introduction of Atmospheric Waves - Part 1
- Lecture 19 - Introduction of Atmospheric Waves - Part 2
- Lecture 20 - Problems based on Total Derivative - Part 1
- Lecture 21 - Problems based on Total Derivative - Part 2
- Lecture 22 - Shallow Water Gravity Waves - Part 1
- Lecture 23 - Shallow Water Gravity Waves - Part 2
- Lecture 24 - Acoustic Waves
- Lecture 25 - Internal Gravity Waves - Part 1
- Lecture 26 - Internal Gravity Waves - Part 2
- Lecture 27 - Internal Gravity Waves - Part 3
- Lecture 28 - Pressure as a vertical coordinate - Part 1
- Lecture 29 - Pressure as a vertical coordinate - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pressure as a vertical coordinate - Part 3
- Lecture 31 - General circulation and global winds
- Lecture 32 - Introduction to different types of Fronts
- Lecture 33 - Geostrophic winds
- Lecture 34 - Natural coordinate and Inertial flows
- Lecture 35 - Cyclostrophic winds and Rossby number
- Lecture 36 - Gradient winds
- Lecture 37 - Thermal winds
- Lecture 38 - Problems on thermal winds
- Lecture 39 - Ionosphere introduction (Basics)- Part 1
- Lecture 40 - Ionosphere introduction (Different layers) - Part 2
- Lecture 41 - Ionosphere introduction (Photochemistry) - Part 3
- Lecture 42 - Ionosphere introduction (Recombination) - Part 4
- Lecture 43 - Composite F layer - Part 1
- Lecture 44 - Composite F layer - Part 2
- Lecture 45 - Composite F layer H/He ions - Part 3
- Lecture 46 - The Sun - Earth Energetics and Aurora
- Lecture 47 - Airglows and Aurora
- Lecture 48 - Sun's magnetic field, Formation of Aurora, and Solar cycle
- Lecture 49 - Sun's internal structure, Prominences
- Lecture 50 - Solar wind - Magnetosphere interactions
- Lecture 51 - Solar wind interactions with different planets
- Lecture 52 - Solar wind properties and its interaction with different planets
- Lecture 53 - Static Model of Corona
- Lecture 54 - Parker's Theory of Solar Wind Acceleration - Part 1
- Lecture 55 - Parker's Theory of Solar Wind Acceleration - Part 2
- Lecture 56 - Parker's Theory of Solar Wind Acceleration - Part 3
- Lecture 57 - Parker's Theory of Solar Wind Acceleration - Part 4
- Lecture 58 - Introduction to Space Weather - Part 1
- Lecture 59 - Introduction to Space Weather - Part 2
- Lecture 60 - Introduction to Space Weather - Part 3

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Nuclear Astrophysics

Subject Co-ordinator - Prof. Anil Kumar Gourishetty

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Historical Background, Observational Astronomy, Properties of Sun and of Stars

Lecture 2 - Properties of Galaxies and Universe

Lecture 3 - Background of elemental abundance curve

Lecture 4 - Evidences of Nucleosynthesis - I

Lecture 5 - Evidences of Nucleosynthesis - II

Lecture 6 - Evidences of Nucleosynthesis - III and Mass gaps

Lecture 7 - H-R Diagram

Lecture 8 - M-L relation, Hubble's Law and Echo of Big Bang

Lecture 9 - Thermonuclear reactions and Reaction cross-section

Lecture 10 - Reaction rate

Lecture 11 - Reaction rate and Neutron induced reactions

Lecture 12 - Gamma induced reactions and Inverse reactions

Lecture 13 - Inverse reactions

Lecture 14 - Inverse reactions and Mean life time of a nuclei

Lecture 15 - Mean life time of a nuclei and Time dependent abundance evolution

Lecture 16 - Non-resonant charged particle induced reactions

Lecture 17 - Astrophysical S-factor and Non-resonant charged particle induced reactions

Lecture 18 - Gamow peak and Electron screening effect

Lecture 19 - Resonant reactions

Lecture 20 - Resonant reactions

Lecture 21 - Neutron induced non-resonant reactions

Lecture 22 - Burning stages of stars and Hydrogen burning

Lecture 23 - pp chain

Lecture 24 - pp chain and CN cycle

Lecture 25 - CNO cycle, Shell model and Gamma decay

Lecture 26 - Formation of  $^{12}\text{C}$

Lecture 27 - Survival of  $^{12}\text{C}$

Lecture 28 - Carbon, Neon, Oxygen and Silicon burning

Lecture 29 - Nucleosynthesis beyond Iron

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - s-, r- and p-process
- Lecture 31 - Charged particle and Neutron beams
- Lecture 32 - Accelerators and Targets
- Lecture 33 - Backing materials and Target preparation
- Lecture 34 - Contaminants and Radiation sources
- Lecture 35 - Detectors - I
- Lecture 36 - Detectors - II
- Lecture 37 - Activity method
- Lecture 38 - Kinematics - I
- Lecture 39 - Kinematics - II
- Lecture 40 - Time of flight method and Indirect methods

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Applied Optics

Subject Co-ordinator - Prof. Akhilesh Kumar Mishra

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Course Overview
- Lecture 2 - Introduction to Geometrical Optics
- Lecture 3 - Ray Theory, Fermat's Principle
- Lecture 4 - Refraction from Single Interface
- Lecture 5 - Refraction from double interface
- Lecture 6 - Matrix method in paraxial optics - I
- Lecture 7 - Matrix Method in Paraxial Optics - II
- Lecture 8 - Thick and Thin Lenses, Unit Planes
- Lecture 9 - Nodal Planes, System of Thin Lenses
- Lecture 10 - Problems on Geometrical Optics
- Lecture 11 - Concept of Wavefront, Huygens Principle - I
- Lecture 12 - Concept of Wavefront, Huygens Principle - II
- Lecture 13 - Superposition of Waves
- Lecture 14 - Introduction to Polarization, Linear and Circular Polarization
- Lecture 15 - Elliptical Polarization
- Lecture 16 - Interference of Light Waves, Interference of Polarized Light - I
- Lecture 17 - Interference of Light Waves, Interference of Polarized Light - II
- Lecture 18 - Young's Double Slit Experiment - I
- Lecture 19 - Young's Double Slit Experiment - II
- Lecture 20 - Interference with White Light, Displacement of Fringes, Fresnel's Biprism
- Lecture 21 - Interference by Division of Amplitude
- Lecture 22 - Thin Parallel Films, Wedge Shaped Films
- Lecture 23 - Newton's Rings
- Lecture 24 - Michelson Interferometer and Its Applications - I
- Lecture 25 - Michelson Interferometer and Its Applications - II
- Lecture 26 - Multiple Beam Interference
- Lecture 27 - Fabry-Perot Interferometer and Etalon - I
- Lecture 28 - Fabry-Perot Interferometer and Etalon - II
- Lecture 29 - Concept of Coherence - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Concept of Coherence - II
- Lecture 31 - Introduction to Diffraction
- Lecture 32 - Fraunhofer Diffraction
- Lecture 33 - Single Slit Diffraction
- Lecture 34 - Double Slit Diffraction
- Lecture 35 - Multiple Slit Diffraction
- Lecture 36 - Diffraction at a Rectangular Aperture
- Lecture 37 - Diffraction at a Circular Aperture
- Lecture 38 - Diffraction Grating
- Lecture 39 - Grating Spectrum and Resolving Power
- Lecture 40 - Fresnel Diffraction
- Lecture 41 - Fresnel Half Period Zones
- Lecture 42 - Vibration Curve
- Lecture 43 - Circular Obstacle, Zone Plates
- Lecture 44 - Rectangular Aperture
- Lecture 45 - Diffraction of a Plane Wave by a Long Narrow Slit
- Lecture 46 - Brewster's Law, Malus' Law
- Lecture 47 - Phenomenon of Double Refraction
- Lecture 48 - Normal and Oblique Incidence
- Lecture 49 - Production of Polarized Light
- Lecture 50 - Quarter and Half Wave Plates
- Lecture 51 - Analysis of Polarized Light and Optical Activity
- Lecture 52 - Plane Wave Propagation in Anisotropic Media - I
- Lecture 53 - Plane Wave Propagation in Anisotropic Media - II
- Lecture 54 - Antireflecting Coating
- Lecture 55 - Basic Concepts of Holography - I
- Lecture 56 - Basic Concepts of Holography - II
- Lecture 57 - Basic Concepts and Ray Optics Consideration of Optical Fiber
- Lecture 58 - Introduction to Lasers - I
- Lecture 59 - Introduction to Lasers - II
- Lecture 60 - Trifle

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Newtonian Mechanics With Examples

Subject Co-ordinator - Prof. Shiladitya Sengupta

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Scalars vectors, and tensors - basic definitions
- Lecture 2 - Scalars, vectors and tensors - most general definition
- Lecture 3 - Elementary vector algebra - I (unit vector, dot product)
- Lecture 4 - Elementary vector algebra - II (cross product, triple product)
- Lecture 5 - Review of Newton's laws of motion - tools for analysis
- Lecture 6 - Newton's laws of motion - third and second law
- Lecture 7 - Newton's laws of motion - first law
- Lecture 8 - Solving mechanics problems - how to draw free body diagram correctly
- Lecture 9 - Mechanical equilibrium (statics) using force and torque balance
- Lecture 10 - Mechanical equilibrium (statics) using force and torque balance - more examples
- Lecture 11 - Mechanical equilibrium of rope like structures, nature of tension force
- Lecture 12 - Massless, flexible suspension cable in mechanical equilibrium
- Lecture 13 - Massive flexible suspension cable in mechanical equilibrium
- Lecture 14 - Mechanical equilibrium of truss (framework) - nature of internal forces
- Lecture 15 - Mechanical equilibrium of truss (framework) - examples
- Lecture 16 - Mechanical equilibrium of truss - uniqueness of solution, beam with distributed load
- Lecture 17 - Mechanical equilibrium of truss - more on beam with distributed load
- Lecture 18 - Mechanical equilibrium - more examples, principle of virtual work, constrained motion
- Lecture 19 - Mechanical equilibrium: constraints, degrees of freedom, work done by constrained force
- Lecture 20 - d'Alembert - Lagrange principle of virtual work - statement and examples
- Lecture 21 - Equivalence of principles of force, torque balance and virtual work, stability analysis
- Lecture 22 - Mechanical equilibrium: stability analysis, energy diagram technique
- Lecture 23 - Friction between solids - Amonton-Coulomb laws, common misconceptions
- Lecture 24 - Friction between solids - worked out examples
- Lecture 25 - Friction between solid and fluid - drag force
- Lecture 26 - Friction examples - projectile motion with drag force, tying a rope
- Lecture 27 - Work-energy theorem in one dimension, importance of conservation laws
- Lecture 28 - Work-energy theorem in higher dimensions, conservative forces
- Lecture 29 - Momentum balance principle, critical review: projectile motion in real-life

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Projectile motion - effect of lift and thrust force by examples
- Lecture 31 - More on rocket motion - comparing effect of thrust in deep space and at lift off
- Lecture 32 - Collisions in daily life - application of energy and momentum balance principles
- Lecture 33 - Collision at micro-meter, atomic and sub-atomic scales - Brownian motion, Compton effect
- Lecture 34 - Concepts necessary for translation and rotation of rigid bodies - centre of mass
- Lecture 35 - Centre of mass of composite objects
- Lecture 36 - Concepts necessary for translation and rotation of rigid bodies - moment of inertia
- Lecture 37 - More on moment of inertia - 3D objects, composite objects, engineering applications
- Lecture 38 - Symmetry of mass distribution - product of inertia
- Lecture 39 - Determining the principal axes of rotation and moment of inertia about them
- Lecture 40 - Example of finding principal axes, introduction to rotation, the angular velocity vector
- Lecture 41 - Rotation of rigid bodies - the angular momentum vector
- Lecture 42 - Rotation of rigid bodies - torque
- Lecture 43 - Translation and rotation of rigid bodies - computing rules
- Lecture 44 - Translation and rotation of rigid bodies - examples (rolling, collision with rotation)



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Plasma Physics and Applications

Subject Co-ordinator - Prof. M.V. Sunil Krishna

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Plasma - I
- Lecture 2 - Introduction to Plasma - II
- Lecture 3 - Plasma Oscillations
- Lecture 4 - Debye Shielding
- Lecture 5 - Debye Potential - I
- Lecture 6 - Debye Potential - II
- Lecture 7 - Debye Length and Plasma Criteria
- Lecture 8 - More Aspects of Debye Shielding
- Lecture 9 - Numerical Problems on Debye Shielding - I
- Lecture 10 - Plasma as a Gas and Distribution of Velocities
- Lecture 11 - Numerical Problems on Debye Shielding - II
- Lecture 12 - Single-Particle Motion in Uniform Electric Field
- Lecture 13 - Single-Particle Motion in Uniform Magnetic Field - I
- Lecture 14 - Single-Particle Motion in Uniform Magnetic Field - II
- Lecture 15 - Single-Particle Motion in Uniform Magnetic Field - III
- Lecture 16 - Single-Particle Motion Under Uniform Magnetic field - IV
- Lecture 17 - Motion in Perpendicular Electric and Magnetic fields - I
- Lecture 18 - Motion in Perpendicular Electric and Magnetic fields - II
- Lecture 19 - Gradient Drift
- Lecture 20 - Gradient and Curvature Drifts
- Lecture 21 - Vacuum Drift
- Lecture 22 - Numerical Problems on Drifts
- Lecture 23 - Magnetic Mirroring - I
- Lecture 24 - Magnetic Mirroring - II
- Lecture 25 - Magnetic Mirroring - III
- Lecture 26 - Magnetic Mirroring - IV
- Lecture 27 - Motion in Time Varying Magnetic Field - I
- Lecture 28 - Motion in Time Varying Magnetic Field - II
- Lecture 29 - Motion in Time Varying Electric field - I

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Motion in Time Varying Electric field - II
- Lecture 31 - Plasma as a Fluid: Equation of Continuity
- Lecture 32 - Plasma as a Fluid: Fluid Equation - I
- Lecture 33 - Plasma as a Fluid: Fluid Equation - II
- Lecture 34 - Plasma as a fluid: Governing Equations
- Lecture 35 - MHD Approximation - I
- Lecture 36 - MHD Approximation - II
- Lecture 37 - Plasma as a fluid: Electric and Magnetic Properties - I
- Lecture 38 - Plasma as a fluid: Electric and Magnetic Properties - II
- Lecture 39 - Plasma as a fluid: Fluid Drift - I
- Lecture 40 - Plasma as a fluid: Fluid Drift - II
- Lecture 41 - Magnetic Pressure
- Lecture 42 - Wave in Plasma: Perturbation Theory
- Lecture 43 - Wave in Plasma: Plasma Oscillation
- Lecture 44 - Wave in Plasma: Dispersion Relation
- Lecture 45 - Ion Acoustic Wave - I
- Lecture 46 - Ion Acoustic Wave - II
- Lecture 47 - Ion Acoustic Wave - III
- Lecture 48 - Invalidity of Plasma Approximation - I
- Lecture 49 - Invalidity of Plasma Approximation - II
- Lecture 50 - Electromagnetic Waves in Plasma
- Lecture 51 - Collisions and Diffusion in Plasma - I
- Lecture 52 - Collisions and Diffusion in Plasma - II
- Lecture 53 - Ambipolar Diffusion - I
- Lecture 54 - Ambipolar Diffusion - II
- Lecture 55 - Diffusion Equation
- Lecture 56 - Diffusion in Presence of B - I
- Lecture 57 - Diffusion in Presence of B - II
- Lecture 58 - Instabilities in Plasma
- Lecture 59 - Laser Produced Plasma and Pulsed Laser Deposited (PLD) Thin Film - I
- Lecture 60 - Laser Produced Plasma and Pulsed Laser Deposited (PLD) Thin Film - II
- Lecture 61 - Surface Modification of Metallic Components by Plasma Nitriding - I
- Lecture 62 - Surface Modification of Metallic Components by Plasma Nitriding - II

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Relativistic Quantum Mechanics

Subject Co-ordinator - Prof. Apoorva D Patel

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction, The Klein-Gordon equation
- Lecture 2 - Particles and antiparticles, Two component framework
- Lecture 3 - Coupling to electromagnetism, Solution of the Coulomb problem
- Lecture 4 - Bohr-Sommerfeld semiclassical solution of the Coulomb problem, The Dirac equation and the Clifford
- Lecture 5 - Dirac matrices, Covariant form of the Dirac equation, Equations of motion, Spin, Free particle so
- Lecture 6 - Electromagnetic interactions, Gyromagnetic ratio
- Lecture 7 - The Hydrogen atom problem, Symmetries, Parity, Separation of variables
- Lecture 8 - The Frobenius method solution, Energy levels and wavefunctions
- Lecture 9 - Non-relativistic reduction, The Foldy-Wouthuysen transformation
- Lecture 10 - Interpretation of relativistic corrections, Reflection from a potential barrier
- Lecture 11 - The Klein paradox, Pair creation process and examples
- Lecture 12 - Zitterbewegung, Hole theory and antiparticles
- Lecture 13 - Charge conjugation symmetry, Chirality, Projection operators, The Weyl equation
- Lecture 14 - Weyl and Majorana representations of the Dirac equation, Unitary and antiunitary symmetries
- Lecture 15 - Time reversal symmetry, The PCT invariance
- Lecture 16 - Arrow of time and particle-antiparticle asymmetry, Band theory for graphene
- Lecture 17 - Dirac equation structure of low energy graphene states, Relativistic signatures in graphene prop
- Lecture 18 - Groups and symmetries, The Lorentz and Poincare groups
- Lecture 19 - Group representations, generators and algebra, Translations, rotations and boosts
- Lecture 20 - The spinor representation of  $SL(2,C)$ , The spin-statistics theorem
- Lecture 21 - Finite dimensional representations of the Lorentz group, Euclidean and Galilean groups
- Lecture 22 - Classification of one particle states, The little group, Mass, spin and helicity
- Lecture 23 - Massive and massless one particle states
- Lecture 24 - P and T transformations, Lorentz covariance of spinors
- Lecture 25 - Lorentz group classification of Dirac operators, Orthogonality and completeness of Dirac spinors
- Lecture 26 - Propagator theory, Non-relativistic case and causality
- Lecture 27 - Relativistic case, Particle and antiparticle contributions, Feynman prescription and the propaga
- Lecture 28 - Interactions and formal perturbative theory, The S-matrix and Feynman diagrams
- Lecture 29 - Trace theorems for products of Dirac matrices

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Photons and the gauge symmetry
- Lecture 31 - Abelian local gauge symmetry, The covariant derivative and invariants
- Lecture 32 - Charge quantisation, Photon propagator, Current conservation and polarisations
- Lecture 33 - Feynman rules for Quantum Electrodynamics, Nature of perturbative expansion
- Lecture 34 - Dyson's analysis of the perturbation series, Singularities of the S-matrix, Elementary QED processes
- Lecture 35 - The T-matrix, Coulomb scattering
- Lecture 36 - Mott cross-section, Compton scattering
- Lecture 37 - Klein-Nishina result for cross-section
- Lecture 38 - Photon polarisation sums, Pair production through annihilation
- Lecture 39 - Unpolarised and polarised cross-sections
- Lecture 40 - Helicity properties, Bound state formation
- Lecture 41 - Bound state decay, Non-relativistic potentials
- Lecture 42 - Lagrangian formulation of QED, Divergences in Green's functions, Superficially divergent 1-loop
- Lecture 43 - Infrared divergences due to massless particles, Renormalisation and finite physical results
- Lecture 44 - Symmetry constraints on Green's functions, Furry's theorem, Ward-Takahashi identity, Spontaneous
- Lecture 45 - Status of QED, Organisation of perturbative expansion, Precision tests

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Control System Design

Subject Co-ordinator - Prof. G R Jayanth

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction

Lecture 2 - Linear Systems

Lecture 3 - Homogeneous linear time invariant ordinary differential equations

Lecture 4 - In-homogeneous linear time invariant ordinary differential equations

Lecture 5 - Fourier transforms - Part 1

Lecture 6 - Fourier transforms - Part 2

Lecture 7 - Laplace transforms - Part 1

Lecture 8 - Laplace transforms - Part 2

Lecture 9 - Introduction to feedback control - Part 1

Lecture 10 - Introduction to feedback control - Part 2

Lecture 11 - Nyquist stability theory - Part 1

Lecture 12 - Nyquist stability theory - Part 2

Lecture 13 - Nyquist stability theory - Part 3

Lecture 14 - Bode plots

Lecture 15 - Steps for performing control design - Part 1

Lecture 16 - Steps for performing control design - Part 2

Lecture 17 - General controllers - Part 1

Lecture 18 - General controllers - Part 2

Lecture 19 - General controllers - Part 3

Lecture 20 - Bode plot-based control design - Part 1

Lecture 21 - Bode plot-based control design - Part 2

Lecture 22 - Introduction to root-locus

Lecture 23 - Control system design using root-locus

Lecture 24 - Control of systems with some known parameters - Part 1

Lecture 25 - Control of systems with some known parameters - Part 2

Lecture 26 - Limitations of 1-degree of freedom control

Lecture 27 - Introduction to 2-degree of freedom control

Lecture 28 - 2-Degree of freedom robust control design for plants with gain uncertainty - Part 1

Lecture 29 - 2-Degree of freedom robust control design for plants with uncertain gain - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - 2-Degree of freedom robust control design for plants with uncertain pole
- Lecture 31 - 2-Degree of freedom robust control design for plants with multiple uncertainties in their structure
- Lecture 32 - Issues connected with 2-Degree of freedom control design using root-locus
- Lecture 33 - Introduction to Nichols plot
- Lecture 34 - Feedback control design using Nichols plot
- Lecture 35 - Robust control design using Quantitative feedback theory - Part 1
- Lecture 36 - Robust control design using Quantitative feedback theory - Part 2
- Lecture 37 - Tutorial on QFT Toolbox software - Part 1
- Lecture 38 - Tutorial on QFT Toolbox software - Part 2
- Lecture 39 - Tutorial on QFT Toolbox software - Part 3
- Lecture 40 - Fundamental properties of the loop gain - Part 1
- Lecture 41 - Fundamental properties of the loop gain - Part 2
- Lecture 42 - Ideal Bode Characteristic - Part 1
- Lecture 43 - Ideal Bode Characteristic - Part 2
- Lecture 44 - Introduction to nonminimum phase systems
- Lecture 45 - Fundamental properties of nonminimum phase systems - Part 1
- Lecture 46 - Fundamental properties of nonminimum phase systems - Part 2
- Lecture 47 - Fundamental properties of unstable systems
- Lecture 48 - Consequences of actuator bandwidth limitations while controlling unstable systems
- Lecture 49 - Describing functions - Part 1
- Lecture 50 - Describing functions - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Bonds and Bands in Solids

Subject Co-ordinator - S. Ramashesha

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Born-Oppenheimer approximation
- Lecture 2 - Self-consistent field (SCF) method
- Lecture 3 - Simple MO Theory of Hydrogen Molecule
- Lecture 4 - Bloch's theorem
- Lecture 5 - Tight binding approximation
- Lecture 6 - Energy band theory - 1
- Lecture 7 - Energy band theory - 2
- Lecture 8 - Density of states
- Lecture 9 - Energy band theory - 3
- Lecture 10 - Energy band theory - 4
- Lecture 11 - Drude's classical free electron model - 1
- Lecture 12 - Drude's classical free electron model - 2
- Lecture 13 - Drude's classical free electron model - 3
- Lecture 14 - Drude's classical free electron model - 4
- Lecture 15 - Sommerfeld's quantum free electron model
- Lecture 16 - Specific heat of Fermi gas
- Lecture 17 - Energy dispersion relation in a periodic potential - 1
- Lecture 18 - Energy dispersion relation in a periodic potential - 2
- Lecture 19 - Brief overview of space groups and constant energy surface in 2D
- Lecture 20 - Energy band and effective mass
- Lecture 21 - Effective mass
- Lecture 22 -  $k$   $p$  perturbation method
- Lecture 23 - Revisiting Bloch's theorem and tight binding functions
- Lecture 24 - Symmetries in crystal Hamiltonian - 1
- Lecture 25 - Symmetries in crystal Hamiltonian - 2
- Lecture 26 - Tight binding method - 1
- Lecture 27 - Tight binding method - 2
- Lecture 28 - Tight binding method - 3
- Lecture 29 - Plane wave method

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Pseudo potential method
- Lecture 31 - Cellular method of energy band calculation
- Lecture 32 - Muffin tin potential and APW functions
- Lecture 33 - Augmented plane wave method of energy band calculation - 1
- Lecture 34 - Augmented plane wave method of energy band calculation - 2
- Lecture 35 - Greenâ s function method of energy band calculation - 1
- Lecture 36 - Greenâ s function method of energy band calculation - 2
- Lecture 37 - Cyclotron resonance technique
- Lecture 38 - De Haas-van Alphen effect
- Lecture 39 - De Haas-van Alphen effect conclusion. Introduction to point impurity effect on band structure
- Lecture 40 - Point impurity in crystal
- Lecture 41 - Friedel Oscillations
- Lecture 42 - Lindhard dielectric constant
- Lecture 43 - Dielectric anomaly. Crystal momentum
- Lecture 44 - Spatial and time reversal symmetries in crystals
- Lecture 45 - Time reversal symmetry (Continued...)
- Lecture 46 - Spin orbit interaction
- Lecture 47 - Disordered solids and transport in disordered solids
- Lecture 48 - Optical properties of semiconductors
- Lecture 49 - Excitonic states in semiconductors
- Lecture 50 - Excitonic states in semiconductors (Continued...)
- Lecture 51 - Molecular orbital calculation - I
- Lecture 52 - Mott-Hubbard transition
- Lecture 53 - Hubbard model
- Lecture 54 - Electron repulsion and magnetic exchange
- Lecture 55 - Beyond on-site electron repulsions; Pariser-Parr-Pople model
- Lecture 56 - Electron-hole symmetry and Pairing theorem. Solitons
- Lecture 57 - Density waves in 1-d systems and Lattice vibrations - I
- Lecture 58 - Lattice vibrations - II
- Lecture 59 - Lattice vibrations - III
- Lecture 60 - Lattice vibrations - IV



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Advanced NMR Techniques in Solution and Solid-State

Subject Co-ordinator - Prof. N. Suryaprakash

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to NMR
- Lecture 2 - NMR concepts and spin physics - I
- Lecture 3 - NMR concepts and spin physics - II
- Lecture 4 - Internal interaction parameters and chemical shifts
- Lecture 5 - Chemical shifts
- Lecture 6 - Scalar couplings
- Lecture 7 - Multiplicity patterns of coupled spins and analysis of  $^1\text{H}$  NMR spectrum
- Lecture 8 - Multiplicity pattern and analysis of NMR spectra - II
- Lecture 9 - Analysis of NMR spectra and their analysis
- Lecture 10 - Heteronuclear NMR
- Lecture 11 - Introduction to Fourier series
- Lecture 12 - Complex form of Fourier series
- Lecture 13 - Fourier theorems
- Lecture 14 - Fourier transformation in NMR
- Lecture 15 - Pople notation, construction of spin Hamiltonian
- Lecture 16 - Quantum mechanical analysis of AX spectra
- Lecture 17 - Quantum mechanical analysis of AB spin system
- Lecture 18 - Quantum mechanical analysis of coupled spin systems
- Lecture 19 - RF pulses and their phases
- Lecture 20 - Receiver phase and phase cycling
- Lecture 21 - Evolution of chemical shift
- Lecture 22 - Evolution of J couplings: polarization transfer
- Lecture 23 - selective saturation in homo and heteronuclear spin systems, coupled and decoupled INEPT
- Lecture 24 - INEPT and DEPT
- Lecture 25 - Coherence transfer pathway
- Lecture 26 - Examples of coherence pathway selection
- Lecture 27 - Pulse field gradients - I
- Lecture 28 - Pulse field gradients - II
- Lecture 29 - Selective excitation, selective inversion

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## NPTTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Relaxation phenomenon
- Lecture 31 - T1 relaxation concepts and measurements
- Lecture 32 - Spectral density function and relaxation mechanisms
- Lecture 33 - T1 Relaxation mechanisms
- Lecture 34 - T1 Relaxation mechanisms and T2 relaxation
- Lecture 35 - Measurement of T1 and T2
- Lecture 36 - Decoupling and NOE concepts
- Lecture 37 - DQ and ZQ relaxation pathways
- Lecture 38 - Positive and Negative NOE and spectral density functions
- Lecture 39 - NOE and correlation time
- Lecture 40 - Product operators
- Lecture 41 - Product operator analysis
- Lecture 42 - Product operator analysis of pulse sequences
- Lecture 43 - Product operators for two J coupled spins
- Lecture 44 - Spin echo sequences
- Lecture 45 - Introduction to 2D NMR
- Lecture 46 - 2D NMR concepts, 2D experiments
- Lecture 47 - 2D COSY experiment
- Lecture 48 - 2D COSY and its variants
- Lecture 49 - TOCSY Heteronuclear 2D experiments
- Lecture 50 - coupled and decoupled HSQC, HMBC, INADEQUATE, 2D Jresolved
- Lecture 51 - Introduction to multiple quantum NMR
- Lecture 52 - DQ and ZQ of coupled spins
- Lecture 53 - MQ and relative signs of couplings
- Lecture 54 - MQ and spin system filtering
- Lecture 55 - Introduction to solid state NMR
- Lecture 56 - CSA and dipolar couplings
- Lecture 57 - Magic Angle Spinning
- Lecture 58 - WAHUHA and Cross Polarization
- Lecture 59 - Cross Polarization
- Lecture 60 - CP at high speeds, Side band suppression, TOSS

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM Summer School on Graph Theory and Graph Algorithms

Subject Co-ordinator - Dr. N S. Narayanaswamy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Graph Theory - Part 1  
Lecture 2 - Introduction to Graph Theory - Part 2  
Lecture 3 - Introduction to Graph Algorithms - Part 1  
Lecture 4 - Introduction to Graph Algorithms - Part 2  
Lecture 5 - Havel Hakimi Theorem - Part 1  
Lecture 6 - Havel Hakimi Theorem - Part 2  
Lecture 7 - Havel Hakimi Theorem - Part 3  
Lecture 8 - Graph Traversals - Part 1  
Lecture 9 - Graph Traversals - Part 2  
Lecture 10 - Topological Sort and Mengers Theorem - Part 1  
Lecture 11 - Topological Sort and Mengers Theorem - Part 2  
Lecture 12 - Topological Sort and Mengers Theorem - Part 3  
Lecture 13 - Hamiltonian Graphs - Part 1  
Lecture 14 - Hamiltonian Graphs - Part 2  
Lecture 15 - Shortest path Algorithms 1 - Part 1  
Lecture 16 - Shortest path Algorithms 1 - Part 2  
Lecture 17 - Shortest path Algorithms 1 - Part 3  
Lecture 18 - Shortest path Algorithms 1 - Part 4  
Lecture 19 - Matching in Graphs - Part 1  
Lecture 20 - Matching in Graphs - Part 2  
Lecture 21 - Some Graph Theoretic Puzzles - Part 1  
Lecture 22 - Some Graph Theoretic Puzzles - Part 2  
Lecture 23 - Network Flow Algorithms - Part 1  
Lecture 24 - Network Flow Algorithms - Part 2  
Lecture 25 - Network Flow Algorithms - Part 3  
Lecture 26 - Network Flow Algorithms - Part 4  
Lecture 27 - Network Flow Algorithms - Part 5  
Lecture 28 - Network Flow Algorithms - Part 6  
Lecture 29 - Network Flows - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Network Flows - Part 2
- Lecture 31 - Network Flows - Part 3
- Lecture 32 - Network Flows - Part 4
- Lecture 33 - Turanâ s and Madrurâ s theorem - Part 1
- Lecture 34 - Turanâ s and Madrurâ s theorem - Part 2
- Lecture 35 - NP Computations - Part 1
- Lecture 36 - NP Computations - Part 2
- Lecture 37 - Spectral Graph Theory-I - Part 1
- Lecture 38 - Spectral Graph Theory-I - Part 2
- Lecture 39 - Spectral Graph Theory-I - Part 3
- Lecture 40 - NP Computations II - Part 1
- Lecture 41 - NP Computations II - Part 2
- Lecture 42 - Graph Coloring - Part 1
- Lecture 43 - Graph Coloring - Part 2
- Lecture 44 - Spectral Graph Theory-II - Part 1
- Lecture 45 - Spectral Graph Theory-II - Part 2
- Lecture 46 - NP Computations Reductions - Part 1
- Lecture 47 - NP Computations Reductions - Part 2
- Lecture 48 - NP Computations Reductions - Part 3
- Lecture 49 - Spectral Graph Theory-III - Part 1
- Lecture 50 - Planar Graphs - Part 1
- Lecture 51 - Planar Graphs - Part 2
- Lecture 52 - NP Computations and Approximation Algorithms - Part 1
- Lecture 53 - NP Computations and Approximation Algorithms - Part 2
- Lecture 54 - Spectral Graph Theory-IV - Part 1
- Lecture 55 - Spectral Graph Theory-IV - Part 2
- Lecture 56 - Approximation Algorithms I - Part 1
- Lecture 57 - Approximation Algorithms I - Part 2
- Lecture 58 - Social Network Analysis - Part 1
- Lecture 59 - Social Network Analysis - Part 2
- Lecture 60 - Spectral Graph Theory-V - Part 1
- Lecture 61 - Spectral Graph Theory-V - Part 2
- Lecture 62 - Approximation Algorithms II - Part 1
- Lecture 63 - Approximation Algorithms II - Part 2
- Lecture 64 - Spectral Graph Theory-VI - Part 1
- Lecture 65 - Spectral Graph Theory-VI - Part 2
- Lecture 66 - RSA Crypto - Part 1
- Lecture 67 - RSA Crypto - Part 2
- Lecture 68 - Approximation Algorithms III - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Approximation Algorithms III - Part 2
- Lecture 70 - Spectral Graph Theory-VII - Part 1
- Lecture 71 - Spectral Graph Theory-VII - Part 2
- Lecture 72 - Exact Exponential Algorithms - Part 1
- Lecture 73 - Exact Exponential Algorithms - Part 2
- Lecture 74 - Interconnection Networks - Part 1
- Lecture 75 - Interconnection Networks - Part 2
- Lecture 76 - Kernelization - Part 1
- Lecture 77 - Kernelization - Part 2
- Lecture 78 - Kernelization - Part 3
- Lecture 79 - Introduction to Parameterized Algorithms - Part 1
- Lecture 80 - Introduction to Parameterized Algorithms - Part 2
- Lecture 81 - Chordal Graphs - Part 1
- Lecture 82 - Chordal Graphs - Part 2
- Lecture 83 - Branching - Part 1
- Lecture 84 - Branching - Part 2
- Lecture 85 - Interval Graphs and Split Graphs - Part 1
- Lecture 86 - Interval Graphs and Split Graphs - Part 2
- Lecture 87 - Vertex cover linear vertex kernel using LP - Part 1
- Lecture 88 - Vertex cover linear vertex kernel using LP - Part 2
- Lecture 89 - Comparability Graphs - Part 1
- Lecture 90 - Comparability Graphs - Part 2
- Lecture 91 - Introduction to Randomized Algorithms and Karger's Min-cut Algorithm - Part 1
- Lecture 92 - Introduction to Randomized Algorithms and Karger's Min-cut Algorithm - Part 2
- Lecture 93 - Probability Methods to Ramsey Number - Part 2
- Lecture 94 - Probability Methods to Ramsey Number - Part 2
- Lecture 95 - Color Coding - Part 1
- Lecture 96 - Color Coding - Part 2
- Lecture 97 - Fast Min-cut Algorithm and its analysis - Part 1
- Lecture 98 - Fast Min-cut Algorithm and its analysis - Part 2
- Lecture 99 - Box Representations of Graphs - Part 1
- Lecture 100 - Box Representations of Graphs - Part 2
- Lecture 101 - Hardness for FPT - Part 1
- Lecture 102 - Hardness for FPT - Part 2
- Lecture 103 - Application of min-cut Algorithm

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM Summer School in Data Science

Subject Co-ordinator - Prof. Murugaiyan Amirthalingam

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Probability - Part 1  
Lecture 2 - Probability - Part 2  
Lecture 3 - Probability - Part 3  
Lecture 4 - Math Foundation - Part 1  
Lecture 5 - Math Foundation - Part 2  
Lecture 6 - Math Foundation - Part 3  
Lecture 7 - Math Foundation 2 - Part 1  
Lecture 8 - Math Foundation 2 - Part 2  
Lecture 9 - Math Foundation 2 - Part 3  
Lecture 10 - Introduction to probability for Data science - Part 1  
Lecture 11 - Introduction to probability for Data science - Part 2  
Lecture 12 - Introduction to probability for Data science - Part 3  
Lecture 13 - Introduction to Statistics for Data science - Part 1  
Lecture 14 - Introduction to Statistics for Data science - Part 2  
Lecture 15 - Introduction to Statistics for Data science - Part 3  
Lecture 16 - Clustering I - Part 1  
Lecture 17 - Clustering I - Part 2  
Lecture 18 - Clustering I - Part 3  
Lecture 19 - Clustering II - Part 1  
Lecture 20 - Clustering II - Part 2  
Lecture 21 - Clustering II - Part 3  
Lecture 22 - Dimensionality Reduction - Part 1  
Lecture 23 - Dimensionality Reduction - Part 2  
Lecture 24 - Dimensionality Reduction - Part 3  
Lecture 25 - Supervised Learning I - Part 1  
Lecture 26 - Supervised Learning I - Part 2  
Lecture 27 - Supervised Learning I - Part 3  
Lecture 28 - Supervised Learning II - Part 1  
Lecture 29 - Supervised Learning II - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Supervised Learning II - Part 3
- Lecture 31 - Supervised Learning III - Part 1
- Lecture 32 - Supervised Learning III - Part 2
- Lecture 33 - Supervised Learning III - Part 3
- Lecture 34 - Linear Models For Classification - Part 1
- Lecture 35 - Linear Models For Classification - Part 2
- Lecture 36 - Linear Models For Classification - Part 3
- Lecture 37 - Tree Based Methods - Part 1
- Lecture 38 - Tree Based Methods - Part 2
- Lecture 39 - SVMs - Part 1
- Lecture 40 - SVMs - Part 2
- Lecture 41 - SVMs - Part 3
- Lecture 42 - Ensemble Methods - Part 1
- Lecture 43 - Ensemble Methods - Part 2
- Lecture 44 - Ensemble Methods - Part 3
- Lecture 45 - Learning Theory - Part 1
- Lecture 46 - Learning Theory - Part 2
- Lecture 47 - Introduction to Probabilistic Modeling - Part 1
- Lecture 48 - Introduction to Probabilistic Modeling - Part 2
- Lecture 49 - Introduction to Probabilistic Modeling - Part 3
- Lecture 50 - Probabilistic/Bayesian Models for Regression - Part 1
- Lecture 51 - Probabilistic/Bayesian Models for Regression - Part 2
- Lecture 52 - Probabilistic/Bayesian Models for Regression - Part 3
- Lecture 53 - Probabilistic Classification, Latent Variable Models - Part 1
- Lecture 54 - Probabilistic Classification, Latent Variable Models - Part 2
- Lecture 55 - Probabilistic Classification, Latent Variable Models - Part 3
- Lecture 56 - Deep Learning I - Part 1
- Lecture 57 - Deep Learning I - Part 2
- Lecture 58 - Deep Learning I - Part 3
- Lecture 59 - Deep Learning II - Part 1
- Lecture 60 - Deep Learning II - Part 2
- Lecture 61 - Deep Learning II - Part 3
- Lecture 62 - Deep Learning III - Part 1
- Lecture 63 - Deep Learning III - Part 2
- Lecture 64 - Deep Learning III - Part 3
- Lecture 65 - Reinforcement learning I - Part 1
- Lecture 66 - Reinforcement learning I - Part 2
- Lecture 67 - Reinforcement learning II - Part 1
- Lecture 68 - Reinforcement learning II - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 69 - Map-Reduce and Spark - Part 1
- Lecture 70 - Map-Reduce and Spark - Part 2
- Lecture 71 - Map-Reduce and Spark - Part 3
- Lecture 72 - Scalable Machine Learning - Part 1
- Lecture 73 - Scalable Machine Learning - Part 2



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - Topics in Theoretical Computer Science

Subject Co-ordinator - Dr. N S. Narayanaswamy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Finite Automata

Lecture 2 - TMs, Halting Problems

Lecture 3 - Concurrency

Lecture 4 - Blockchain and Bitcoin

Lecture 5 - Complexity Theory

Lecture 6 - Lower Bounds, Dealing with NP hardness

Lecture 7 - Online and streaming algorithms

Lecture 8 - Zero Knowledge Proofs

Lecture 9 - Verification, Games

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - Researching Anglo-Indians in India and the Diaspora

Subject Co-ordinator - Prof. Merin Simi Raj

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Keynote Address

Lecture 2 - A Synopsis of 'Two Cheers'

Lecture 3 - Higher Education Among Anglo-Indians

Lecture 4 - Perception of trust, risk and intimacy among elderly Anglo-Indians living in Tollygunge home in K

Lecture 5 - The Daunting Spirit and the Empowering Voice of Eunice De Souza

Lecture 6 - Origin Myth and Anglo-Indian Identity

Lecture 7 - Keynote Address

Lecture 8 - Shame and Guilt in Alison McQueens The Secret Children

Lecture 9 - Re-visiting McCluskieganj

Lecture 10 - The Imaging of the Anglo-Indian Woman in Colonialist Literature

Lecture 11 - Expostulating Celluloid Stereotypes

Lecture 12 - Chutney Mary

Lecture 13 - In Search of a New Home

Lecture 14 - (Re)discovering Anglo-Indians of Visakhapatnam - An Overview

Lecture 15 - Genealogy of Sporting Culture through a Study of Anglo-Indian Institutions of Asansol

Lecture 16 - Keynote Address

Lecture 17 - Crowdsourcing as a Research Tool

Lecture 18 - Researching Community, Writing Cultures

Lecture 19 - Revisiting the Anglo-Indian Community

Lecture 20 - Minoritizing English

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - Dravidian Temple Architecture and Construction Techniques

Subject Co-ordinator - Unknown

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Dravidian Temple Architecture and Construction Techniques - Part 1  
Lecture 2 - Introduction to Dravidian Temple Architecture and Construction Techniques - Part 2  
Lecture 3 - Introduction to Dravidian Temple Architecture and Construction Techniques - Part 3  
Lecture 4 - Introduction to Dravidian Temple Architecture and Construction Techniques - Part 4  
Lecture 5 - Introduction to Dravidian Temple Architecture and Construction Techniques - Part 5  
Lecture 6 - Naal Kurithal - Part 1  
Lecture 7 - Naal Kurithal - Part 2  
Lecture 8 - Naal Kurithal - Part 3  
Lecture 9 - Naal Kurithal - Part 4  
Lecture 10 - Naal Kurithal - Part 5  
Lecture 11 - Naal Kurithal - Part 6  
Lecture 12 - Ayadhi Calculations - Part 1  
Lecture 13 - Ayadhi Calculations - Part 2  
Lecture 14 - Ayadhi Calculations - Part 3  
Lecture 15 - Ayadhi Calculations - Part 4  
Lecture 16 - Ayadhi Calculations - Part 5  
Lecture 17 - Ayadhi Calculations - Part 6  
Lecture 18 - Ayadhi Calculations - Part 7  
Lecture 19 - Ayadhi Calculations - Part 8  
Lecture 20 - Ayadhi Calculations - Part 9  
Lecture 21 - Ayadhi Calculations - Part 10  
Lecture 22 - Ayadhi Calculations - Part 11  
Lecture 23 - Alavukal - Part 1  
Lecture 24 - Alavukal - Part 2  
Lecture 25 - Alavukal - Part 3  
Lecture 26 - Alavukal - Part 4  
Lecture 27 - Alavukal - Part 5  
Lecture 28 - Alavukal - Part 6  
Lecture 29 - Dhisai Aridhal - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Dhisai Aridhal - Part 2  
Lecture 31 - Dhisai Aridhal - Part 3  
Lecture 32 - Dhisai Aridhal - Part 4  
Lecture 33 - Dhisai Aridhal - Part 5  
Lecture 34 - Site Analysis - Part 1  
Lecture 35 - Site Analysis - Part 2  
Lecture 36 - Site Analysis - Part 3  
Lecture 37 - Site Analysis - Part 4  
Lecture 38 - Site Analysis - Part 5  
Lecture 39 - Site Analysis - Part 6  
Lecture 40 - Site Analysis - Part 7  
Lecture 41 - Site Analysis - Part 8  
Lecture 42 - Site Analysis - Part 9  
Lecture 43 - Formulation of Structure - Part 1  
Lecture 44 - Formulation of Structure - Part 2  
Lecture 45 - Formulation of Structure - Part 3  
Lecture 46 - Formulation of Structure - Part 4  
Lecture 47 - Formulation of Structure - Part 5  
Lecture 48 - Formulation of Structure - Part 6  
Lecture 49 - Formulation of Structure - Part 7  
Lecture 50 - Formulation of Structure - Part 8  
Lecture 51 - Formulation of Structure - Part 9  
Lecture 52 - Formulation of Structure - Part 10  
Lecture 53 - Formulation of Structure - Part 11  
Lecture 54 - Formulation of Structure - Part 12  
Lecture 55 - Formulation of Structure - Part 13  
Lecture 56 - Formulation of Structure - Part 14  
Lecture 57 - Formulation of Structure - Part 15  
Lecture 58 - Formulation of Structure - Part 16  
Lecture 59 - Formulation of Structure - Part 17  
Lecture 60 - Formulation of Structure - Part 18  
Lecture 61 - Formulation of Structure - Part 19  
Lecture 62 - Formulation of Structure - Part 20  
Lecture 63 - Formulation of Structure - Part 21  
Lecture 64 - Formulation of Structure - Part 22  
Lecture 65 - Formulation of Structure - Part 23  
Lecture 66 - Formulation of Structure - Part 24  
Lecture 67 - Formulation of Structure - Part 25  
Lecture 68 - Formulation of Structure - Part 26

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- Lecture 69 - Formulation of Structure - Part 27
- Lecture 70 - Formulation of Structure - Part 28
- Lecture 71 - Formulation of Structure - Part 29
- Lecture 72 - Formulation of Structure - Part 30
- Lecture 73 - Formulation of Structure - Part 31
- Lecture 74 - Formulation of Structure - Part 32
- Lecture 75 - Formulation of Structure - Part 33
- Lecture 76 - Formulation of Structure - Part 34
- Lecture 77 - Formulation of Structure - Part 35
- Lecture 78 - Formulation of Structure - Part 36
- Lecture 79 - Formulation of Structure - Part 37
- Lecture 80 - Formulation of Structure - Part 38
- Lecture 81 - Formulation of Structure - Part 39
- Lecture 82 - Formulation of Structure - Part 40
- Lecture 83 - Formulation of Structure - Part 41
- Lecture 84 - Formulation of Structure - Part 42
- Lecture 85 - Formulation of Structure - Part 43
- Lecture 86 - Formulation of Structure - Part 44
- Lecture 87 - Formulation of Structure - Part 45
- Lecture 88 - Formulation of Structure - Part 46
- Lecture 89 - Characteristics of a Mandapam - Part 1
- Lecture 90 - Characteristics of a Mandapam - Part 2
- Lecture 91 - Characteristics of a Mandapam - Part 3
- Lecture 92 - Characteristics of a Mandapam - Part 4
- Lecture 93 - Characteristics of a Mandapam - Part 5
- Lecture 94 - Characteristics of a Mandapam - Part 6

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM Summer School in Data Science (Bangalore)

Subject Co-ordinator - Unknown

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Web Browser Security

Lecture 2 - Trusted Computing

Lecture 3 - Buffer Overflow Vulnerability and Protection Techneques

Lecture 4 - Secure Software Engineering

Lecture 5 - Challenges and Opportunities with Cloud Security

Lecture 6 - Cognitive Security with Watson

Lecture 7 - IBM MaaS360 Architecture Overview

Lecture 8 - Unified Risk Management Approach

Lecture 9 - Data Encryption and Post Quantum Cryptography (PQC)

Lecture 10 - Network Security - I

Lecture 11 - Network Security - II

Lecture 12 - Network Security - III

Lecture 13 - Network Security - IV

Lecture 14 - Network Security - V

Lecture 15 - Network Security - VI

Lecture 16 - Security

Lecture 17 - Security

Lecture 18 - Security

Lecture 19 - Security Gap Analysis - I

Lecture 20 - Security Gap Analysis - II

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM Summer School on Algorithmic Game Theory

Subject Co-ordinator - Prof. Meghana Nasre

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Stable Matchings
- Lecture 2 - Men-Optimality of the Men-Proposing Gale-Shapley Algorithm
- Lecture 3 - GS
- Lecture 4 - GS
- Lecture 5 - The Hospital Residents Problem
- Lecture 6 - Popular Matchings in the stable marriage problem
- Lecture 7 - Popularity in the House Allocation Problem - 1
- Lecture 8 - Popularity in the House Allocation Problem - 2
- Lecture 9 - Strategic Behavior in Popular Matchings
- Lecture 10 - Stable Roommates
- Lecture 11 - An Introduction to Voting
- Lecture 12 - The Game of Trust - Nicky Case's Interactive Essay
- Lecture 13 - Arrow's Theorem
- Lecture 14 - Gibbard-Satterthwaite Theorem
- Lecture 15 - Domain Restrictions and Multiwinner Elections
- Lecture 16 - Incentive Design in Crowdsourcing Applications
- Lecture 17 - Adversarial Approaches in Deep Learning - Part 1
- Lecture 18 - Adversarial Approaches in Deep Learning - Part 2
- Lecture 19 - Algorithmic for Computing Market Equilibrium
- Lecture 20 - Tournament Fixing and Superkings
- Lecture 21 - Tournament Fixing Parameterized by FAS
- Lecture 22 - Tournament Fixing with Bribery
- Lecture 23 - An Introduction to Cake-Cutting
- Lecture 24 - Two Algorithms for Finding Proportional Allocations
- Lecture 25 - Envy-Freenes and Approximate EF
- Lecture 26 - Sperner's Lemma and Applications
- Lecture 27 - Cake Cutting with a Secret Agent
- Lecture 28 - Fairness Notions for Indivisible Goods
- Lecture 29 - Computing EF1 Allocations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - An Introduction to Rent Division
- Lecture 31 - Rent Division and Maximum Weight Matchings
- Lecture 32 - Hall's Theorem and Maximin Share
- Lecture 33 - Probability Review - Part 1
- Lecture 34 - Probability Review - Part 2
- Lecture 35 - Predicting Election Outcomes
- Lecture 36 - Reservoir Sampling and Preference Elicitation



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM Summer School on Graph Theory and Graph Algorithms (Dr. N.S.

Subject Co-ordinator - Dr. N.S. Narayanaswamy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic Graph theory and Graph Algorithms - Part 1
- Lecture 2 - Basic Graph theory and Graph Algorithms - Part 2
- Lecture 3 - Basic Graph theory and Graph Algorithms - Part 3
- Lecture 4 - Basic Graph theory and Graph Algorithms - Part 4
- Lecture 5 - Basic Graph theory and Graph Algorithms - Part 5
- Lecture 6 - Geometric Algorithms - Part 1
- Lecture 7 - Geometric Algorithms - Part 2
- Lecture 8 - Geometric Algorithms - Part 3
- Lecture 9 - Geometric Algorithms - Part 4
- Lecture 10 - Geometric Algorithms - Part 5
- Lecture 11 - Geometric Algorithms - Part 6
- Lecture 12 - Introduction to Computational Complexity, P, NP classes
- Lecture 13 - NPC Reductions through examples - Part 1
- Lecture 14 - NPC Reductions through examples - Part 2
- Lecture 15 - NPC Reductions through examples - 3SAT
- Lecture 16 - Subset Sum, Knapsack
- Lecture 17 - Directed Hamiltonian Path-NPC Reduction
- Lecture 18 - Introduction to LP Duality theorem
- Lecture 19 - Design of Approx. algorithms using primal dual scheme - Hitting set
- Lecture 20 - Approx Vertex Cover
- Lecture 21 - Approx for Min Cost VC, Approx for Min cost Set Cover
- Lecture 22 - 2-factor approx for metric TSP, 1.5 Approx christofides Algo
- Lecture 23 - knapsack Approx, 1/2 - factor Approx, 1-  $\epsilon$  Approx
- Lecture 24 - Perfect graphs, weak and strong perfect graph conjecture, line graphs, interval graphs
- Lecture 25 -  $\hat{\pm}$  perfection of interval graphs, chordal graphs, expansion lemma, proof for weak perfect conjecture
- Lecture 26 -  $\hat{\pm}$  perfection of interval graphs, chordal graphs, expansion lemma, proof for weak perfect conjecture
- Lecture 27 - Comparability graph, Permutation graphs, AT-free graphs, Trapezoidal graphs, Circular arc graphs
- Lecture 28 - Fixed Parameter Algorithms, -VC, Cluster vertex deletion, - Branching
- Lecture 29 - Kernelization, -VC, Crown Decomposition, Feedback vertex set, Iterative compression, Analysing bra

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Kernelization, -VC, CrownDecomposition, Feedback vertex set, Iterative compression, Analysing bra
- Lecture 31 - Kernelization, -VC, CrownDecomposition, Feedback vertex set, Iterative compression, Analysing bra
- Lecture 32 - Hardness in Parameterized Complexity - W - hard reductions Exponential algorithms - Part 1
- Lecture 33 - Hardness in Parameterized Complexity - W - hard reductions Exponential algorithms - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM Summer School on Compiler Design and Construction

Subject Co-ordinator - Prof. Subhajit Roy

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Lattice Theory - Part 1  
Lecture 2 - Lattice Theory - Part 2  
Lecture 3 - Lattice Theory - Part 3  
Lecture 4 - Lattice Theory - Part 4  
Lecture 5 - Lattice Theory - Part 5  
Lecture 6 - Lattice Theory - Part 6  
Lecture 7 - Lattice Theory - Part 7  
Lecture 8 - Lattice Theory - Part 8  
Lecture 9 - Lattice Theory - Part 9  
Lecture 10 - Machine Dependent Optimizations - Part 1  
Lecture 11 - Machine Dependent Optimizations - Part 2  
Lecture 12 - Machine Dependent Optimizations - Part 3  
Lecture 13 - Machine Dependent Optimizations - Part 4  
Lecture 14 - Machine Dependent Optimizations - Part 5  
Lecture 15 - Machine Dependent Optimizations - Part 6  
Lecture 16 - Machine Dependent Optimizations - Part 7  
Lecture 17 - Machine Dependent Optimizations - Part 8  
Lecture 18 - Machine Dependent Optimizations - Part 9  
Lecture 19 - Machine Dependent Optimizations - Part 10  
Lecture 20 - Program Execution Environment - Part 1  
Lecture 21 - Program Execution Environment - Part 2  
Lecture 22 - Program Execution Environment - Part 3  
Lecture 23 - Program Execution Environment - Part 4  
Lecture 24 - Program Execution Environment - Part 5  
Lecture 25 - Program Execution Environment - Part 6  
Lecture 26 - Program Execution Environment - Part 7  
Lecture 27 - Program Execution Environment - Part 8  
Lecture 28 - Optimizing Virtual Function Calls  
Lecture 29 - High Level Optimizations - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - High Level Optimizations - Part 2
- Lecture 31 - High Level Optimizations - Part 3
- Lecture 32 - High Level Optimizations - Part 4
- Lecture 33 - High Level Optimizations - Part 5
- Lecture 34 - High Level Optimizations - Part 6

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM Summer School on Geometric Algorithms and their Applications

Subject Co-ordinator - Prof. Arijit Bishnu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Computational Geometry  
Lecture 2 - Convex hull  
Lecture 3 - Quick hull  
Lecture 4 - Plane sweep algorithm  
Lecture 5 - Voronoi Diagram - I  
Lecture 6 - Convex Geometry - I  
Lecture 7 - Convex Geometry - II  
Lecture 8 - Incidence Geometry - I  
Lecture 9 - Incidence Geometry - II  
Lecture 10 - Plane sweep algorithm  
Lecture 11 - Polygon Triangulation  
Lecture 12 - Geometric and Abstract Simplicial Complexes  
Lecture 13 - Convex Polytopes and Polyhedra  
Lecture 14 - Art Gallery Theorem  
Lecture 15 - Smallest Enclosing Disc  
Lecture 16 - Point Hyperplane Duality  
Lecture 17 - Voronoi Diagrams and Delaunay triangulations - I  
Lecture 18 - Voronoi Diagrams and Delaunay triangulations - II  
Lecture 19 - Point Location  
Lecture 20 - Range Searching (KD Tree)  
Lecture 21 - Range Searching (Range Tree)  
Lecture 22 - Visibility Graph and motion planning  
Lecture 23 - Geometric Approximation  
Lecture 24 - Application of incidence geometry in combinatorics  
Lecture 25 - Robot motion planning and visibility  
Lecture 26 - Reeb Graph Introduction and Morse Theory basics  
Lecture 27 - Reeb Graph Properties  
Lecture 28 - Reeb Graph Algorithms, Applications  
Lecture 29 - Arrangements - I

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Linear Programming
- Lecture 31 - Arrangements - II
- Lecture 32 - Zone Theorem and Application
- Lecture 33 - Randomized Incremental Construction - I
- Lecture 34 - Randomized Incremental Construction - II
- Lecture 35 - VC-dimension, Epsilon-nets, LP-based approximation for Geometric Covering
- Lecture 36 - Quasi-uniform Sampling for Weighted Covering Problems.
- Lecture 37 - Local Search for Packing and Covering
- Lecture 38 - PTAS via Local Search - I

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM Summer School on Algorithmic and Theoretical Aspects of Mac

Subject Co-ordinator - Meenakshi D'Souza

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Learning on Finite State Automata and Decision Session - 1  
Lecture 2 - Learning on Finite State Automata and Decision Session - 2  
Lecture 3 - Learning on Finite State Automata and Decision Session - 3  
Lecture 4 - Probability Session - 1  
Lecture 5 - Probability Session - 2  
Lecture 6 - Probability Session - 3  
Lecture 7 - Probability Session - 4  
Lecture 8 - Probability Session - 5  
Lecture 9 - Probability Session - 6  
Lecture 10 - Probability Session - 7  
Lecture 11 - Probability Session - 8  
Lecture 12 - Probability Session - 9  
Lecture 13 - Probability Session - 10  
Lecture 14 - Algebra for Machine Learning Session - 1  
Lecture 15 - Algebra for Machine Learning Session - 2  
Lecture 16 - Algebra for Machine Learning Session - 3  
Lecture 17 - Crptography and Machine Learning  
Lecture 18 - Neural Networks Session - 1  
Lecture 19 - Neural Networks Session - 2  
Lecture 20 - Neural Networks Session - 3  
Lecture 21 - Neural Networks Session - 4  
Lecture 22 - Neural Networks Session - 5  
Lecture 23 - Enterprise Applications of ML Session - 1  
Lecture 24 - Basic of Algorithm Design Session - 1  
Lecture 25 - Basic of Algorithm Design Session - 2  
Lecture 26 - Basic of Algorithm Design Session - 3  
Lecture 27 - Basic of Algorithm Design Session - 4  
Lecture 28 - Introduction to Optimization Session - 1  
Lecture 29 - Introduction to Optimization Session - 2

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- Lecture 30 - Introduction to Reinforcement Learning Session - 1
- Lecture 31 - Introduction to Reinforcement Learning Session - 2
- Lecture 32 - Introduction to Reinforcement Learning Session - 3
- Lecture 33 - Introduction to Reinforcement Learning Session - 4
- Lecture 34 - Introduction to Reinforcement Learning Session - 5
- Lecture 35 - Introduction to Reinforcement Learning Session - 6
- Lecture 36 - Introduction to Reinforcement Learning Session - 7
- Lecture 37 - Introduction of Cryptography Session - 1
- Lecture 38 - Introduction of Cryptography Session - 2
- Lecture 39 - Introduction of Cryptography Session - 3
- Lecture 40 - Compressive Sensing Session - 1
- Lecture 41 - Compressive Sensing Session - 2
- Lecture 42 - Compressive Sensing Session - 3
- Lecture 43 - Compressive Sensing Session - 4
- Lecture 44 - Compressive Sensing Session - 5
- Lecture 45 - Compressive Sensing Session - 6
- Lecture 46 - Compressive Sensing Session - 7
- Lecture 47 - Compressive Sensing Session - 8



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM Winter School on Hybrid Cloud

Subject Co-ordinator - Prof. Sashikumar Ganesan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Department Introduction
- Lecture 2 - Introduction to Cloud Computing - Part 1
- Lecture 3 - Introduction to Cloud Computing - Part 2
- Lecture 4 - Cloud IaaS and Virtualization
- Lecture 5 - System Virtualization
- Lecture 6 - Mechanisms for System Virtualization
- Lecture 7 - Containers - Part 1
- Lecture 8 - Containers - Part 2
- Lecture 9 - AI and Hybrid Cloud
- Lecture 10 - Container Orchestration - Part 1
- Lecture 11 - Container Orchestration - Part 2
- Lecture 12 - Container Orchestration - Part 3
- Lecture 13 - Application Devops - Part 1
- Lecture 14 - Application Devops - Part 2
- Lecture 15 - Application Devops - Part 3
- Lecture 16 - Application Devops - Part 4
- Lecture 17 - Application Devops - Part 5
- Lecture 18 - Application Devops - Part 6
- Lecture 19 - Cloud as Distributed System - Part 1
- Lecture 20 - Cloud as Distributed System - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM Indian Summer School on Programming Languages: Principles a

Subject Co-ordinator - Dr. Abhijat Vichare

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Review of Basic Concepts - Dr. Abhijat Vichare - Session - 1
- Lecture 2 - Review of Basic Concepts - Dr. Abhijat Vichare - Session - 2
- Lecture 3 - Review of Basic Concepts - Dr. Abhijat Vichare - Session - 3
- Lecture 4 - Introduction to Lex and Yacc - Sameera Deshpande - Session - 1
- Lecture 5 - Introduction to Lex and Yacc - Sameera Deshpande - Session - 2
- Lecture 6 - Hello world, Revisiting the first program we write in c - Siddhesh Poyarekar - Session - 1
- Lecture 7 - Compiler as system - Vivek Buzruk - Session - 1
- Lecture 8 - Compiler as system - Vivek Buzruk - Session - 2
- Lecture 9 - Introduction to Data Flow Analysis - Prof. Uday Khedker - Session - 1
- Lecture 10 - Introduction to Data Flow Analysis - Prof. Uday Khedker - Session - 2
- Lecture 11 - Introduction to Data Flow Analysis - Prof. Uday Khedker - Session - 3
- Lecture 12 - Introduction to Data Flow Analysis - Prof. Uday Khedker - Session - 4
- Lecture 13 - Introduction to Data Flow Analysis - Prof. Uday Khedker - Session - 5
- Lecture 14 - Introduction to Data Flow Analysis - Prof. Uday Khedker - Session - 6
- Lecture 15 - Undefined Behavior Compiler Optimization - Prathamesh K Session - 1
- Lecture 16 - Program Semantics - Prof. Subhajit Roy Session - 1
- Lecture 17 - Program Semantics - Prof. Subhajit Roy Session - 2
- Lecture 18 - Program Semantics - Prof. Subhajit Roy Session - 3
- Lecture 19 - Program Semantics - Prof. Subhajit Roy Session - 4
- Lecture 20 - Program Semantics - Prof. Subhajit Roy Session - 5
- Lecture 21 - Program Semantics - Prof. Subhajit Roy Session - 6
- Lecture 22 - Program Semantics - Prof. Subhajit Roy Session - 7
- Lecture 23 - Program Semantics - Prof. Subhajit Roy Session - 8
- Lecture 24 - Introduction to Optimizations - Prof. V. Krishna N Session - 1
- Lecture 25 - Introduction to Optimizations - Prof. V. Krishna N Session - 2
- Lecture 26 - Introduction to Optimizations - Prof. V. Krishna N Session - 3
- Lecture 27 - Introduction to Optimizations - Prof. V. Krishna N Session - 4
- Lecture 28 - Compiler as system - Vivek S. Buzruk Session - 1
- Lecture 29 - Compiler as system - Vivek S. Buzruk Session - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM Winter School 2019 on High Performance Computing

Subject Co-ordinator - Dr. Mainak Chaudhuri

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basics of Computer Architecture and OS
- Lecture 2 - An Introduction to High Performance Computing
- Lecture 3 - Introduction to OpenMP
- Lecture 4 - Advanced OpenMP
- Lecture 5 - Introduction to MPI
- Lecture 6 - Advanced MPI
- Lecture 7 - Supercomputing in India
- Lecture 8 - Job Scheduling
- Lecture 9 - Introduction to GPU
- Lecture 10 - Introduction to Open ACC
- Lecture 11 - CPU and GPU Memory
- Lecture 12 - Optimizations and GPU Profiling
- Lecture 13 - CUDA C
- Lecture 14 - HPC Networking - I
- Lecture 15 - HPC Networking - II
- Lecture 16 - Research in HPS
- Lecture 17 - Case Study - Parallel Graph Algorithms
- Lecture 18 - Case Study - Solving PDEs at Extreme Scale

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - Thermodynamics of Materials

Subject Co-ordinator - Prof. Sir H. K. D. H. Bhadeshia

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Basic thermodynamic functions: Enthalpy, entropy, configurational entropy, Gibbs free energy
- Lecture 2 - State of equilibrium: Chemical potential, activity, equilibrium between solutions
- Lecture 3 - Case study: Mechanical alloying, alloying by deformation.
- Lecture 4 - Computer calculation of phase diagrams
- Lecture 5 - Thermodynamics of irreversible processes: Multiple irreversible processes
- Lecture 6 - Quasichemical solutions

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM India Summer School on Program Execution

Subject Co-ordinator - Unknown

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - ACM Summer School on Program Execution - Introduction

Lecture 2 - Basics of Architecture - Part 1

Lecture 3 - Basics of Architecture - Part 2

Lecture 4 - Basics of Architecture - Part 3

Lecture 5 - Basics of Architecture - Part 4

Lecture 6 - A Review of Architectural Features for supporting Program Execution - Part 1

Lecture 7 - A Review of Architectural Features for supporting Program Execution - Part 2

Lecture 8 - A Review of Architectural Features for supporting Program Execution - Part 3

Lecture 9 - A Review of Architectural Features for supporting Program Execution - Part 4

Lecture 10 - Review of OS - IPC and beyond - Part 1

Lecture 11 - Review of OS - IPC and beyond - Part 2

Lecture 12 - From Programs to Processes (and threads) - Part 1

Lecture 13 - From Programs to Processes (and threads) - Part 2

Lecture 14 - Network Protocol Fundamentals

Lecture 15 - Web protocols and Web Software - Part 1

Lecture 16 - Web protocols and Web Software - Part 2

Lecture 17 - Storage Systems - Part 1

Lecture 18 - Storage Systems - Part 2

Lecture 19 - Storage Systems - Part 3

Lecture 20 - Basics of High Performance Computing - Part 1

Lecture 21 - Basics of High Performance Computing - Part 2

Lecture 22 - Basics of High Performance Computing - Part 3

Lecture 23 - The Evolution of Linux as an Enterprise Operating System

Lecture 24 - The Hypervisor - Lord of the Rings - Part 1

Lecture 25 - The Hypervisor - Lord of the Rings - Part 2

Lecture 26 - Hands on Lab - Create a VM and Play

Lecture 27 - Containers and Kubernetes Era - Part 1

Lecture 28 - Containers and Kubernetes Era - Part 2

Lecture 29 - Containers and Kubernetes Era - Part 3

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Lecture 30 - The Future of Compute - Part 1

Lecture 31 - The Future of Compute - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM India Summer School on Programming Language Analysis and Op

Subject Co-ordinator - Girish Bharambe

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Panel Discussion Q and A - Part 1
- Lecture 2 - Panel Discussion Q and A - Part 2
- Lecture 3 - Runtime and Linkers - Discussion - 1
- Lecture 4 - Runtime and Linkers - Discussion - 2
- Lecture 5 - Runtime and Linkers - Linkers
- Lecture 6 - Runtime and Linkers - Program Execution - Loader
- Lecture 7 - Runtime and Linkers - Static Libraries - Dynamic Linking
- Lecture 8 - Code Generation and Backend - An Introduction to LLVM Backend
- Lecture 9 - Code Generation and Backend - An Introduction to Loop Backend
- Lecture 10 - Code Generation and Backend - Code Generation with LLVM - Part 1
- Lecture 11 - Code Generation and Backend - Code Generation with LLVM - Part 2
- Lecture 12 - Machine Independent Optimizations - High Level Optimizations - 1
- Lecture 13 - Machine Independent optimizations - High Level Optimizations - 2
- Lecture 14 - Machine Independent optimizations - High Level Optimizations - 3
- Lecture 15 - Machine Independent optimizations - High Level Optimizations - 4
- Lecture 16 - Machine Independent optimizations - High Level Optimizations - 5
- Lecture 17 - Machine Independent optimizations - High Level Optimizations - 6
- Lecture 18 - Machine Architecture and Machine Dependent Optimizations - Machine Architecture - 1
- Lecture 19 - Machine Architecture and Machine Dependent Optimizations - Machine Architecture - 2
- Lecture 20 - Machine Architecture and Machine Dependent Optimizations - Machine Architecture - 3
- Lecture 21 - Machine Architecture and Machine Dependent Optimizations - Register Allocation - 1
- Lecture 22 - Machine Architecture and Machine Dependent Optimizations - Register Allocation - 2
- Lecture 23 - Machine Architecture and Machine Dependent Optimizations - Register Allocation - 3
- Lecture 24 - Machine Architecture and Machine Dependent Optimizations - Instruction Scheduling - 1
- Lecture 25 - Machine Architecture and Machine Dependent Optimizations - Instruction Scheduling - 2
- Lecture 26 - Machine Dependent Optimizations - Dependence Analysis and Loop transformations - 1
- Lecture 27 - Machine Dependent Optimizations - Dependence Analysis and Loop transformations - 2
- Lecture 28 - Control-Flow Analyses and Static Single Assignment form - Control Flow Analysis - 1
- Lecture 29 - Control-Flow Analyses and Static Single Assignment form - Control Flow Analysis - 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Control-Flow Analyses and Static Single Assignment form - Depth First Analysis of Flow Graphs
- Lecture 31 - Control-Flow Analyses and Static Single Assignment form - Dominators
- Lecture 32 - Control-Flow Analyses and Static Single Assignment form - Natural Loops (for Reducible Flow-Graphs)
- Lecture 33 - Control-Flow Analyses and Static Single Assignment form - The Static Single Assignment SSA Form
- Lecture 34 - Control-Flow Analyses and Static Single Assignment form - The Static Single Assignment SSA Form
- Lecture 35 - Polyhedral Compilation and Loop Optimizations - Polyhedral Compilation I Part 1
- Lecture 36 - Polyhedral Compilation and Loop Optimizations - Polyhedral Compilation I Part 2
- Lecture 37 - Polyhedral Compilation and Loop Optimizations - Polyhedral Compilation I - Part 3
- Lecture 38 - Polyhedral Compilation and Loop Optimizations - Polyhedral Compilation I - Part 4
- Lecture 39 - Polyhedral Compilation and Loop Optimizations - Polyhedral Compilation I - Part 5
- Lecture 40 - Polyhedral Compilation and Loop Optimizations - Polyhedral Compilation I - Part 6
- Lecture 41 - Polyhedral Compilation and Loop Optimizations - Polyhedral Compilation I - Part 7
- Lecture 42 - Polyhedral Compilation and Loop Optimizations - Affine Control Loops
- Lecture 43 - Polyhedral Compilation and Loop Optimizations - Simplifying Reductions Revised - 1
- Lecture 44 - Polyhedral Compilation and Loop Optimizations - Simplifying Reductions Revised - 2
- Lecture 45 - Polyhedral Compilation and Loop Optimizations - Simplifying Reductions Revised - 3
- Lecture 46 - Polyhedral Compilation and Loop Optimizations - Classical Optimization
- Lecture 47 - Polyhedral Compilation and Loop Optimizations - What is Program Analysis
- Lecture 48 - Polyhedral Compilation and Loop Optimizations - Live Variable Analysis - 1
- Lecture 49 - Polyhedral Compilation and Loop Optimizations - Live Variable Analysis - 2
- Lecture 50 - Polyhedral Compilation and Loop Optimizations - Available Expression Analysis
- Lecture 51 - Polyhedral Compilation and Loop Optimizations - Common Features of Bit Vector Frameworks
- Lecture 52 - Polyhedral Compilation and Loop Optimizations - The Birth of a Compiler - 1
- Lecture 53 - Polyhedral Compilation and Loop Optimizations - The Birth of a Compiler - 2
- Lecture 54 - Polyhedral Compilation and Loop Optimizations - The Structure of Modern Compiler Modern Challenges
- Lecture 55 - Polyhedral Compilation and Loop Optimizations - Conclusion



# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM Summer School on Shape Modelling

Subject Co-ordinator - Aditya Tatu

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Linear Algebra and Optimization - 1  
Lecture 2 - Linear Algebra and Optimization - 2  
Lecture 3 - Linear Algebra and Optimization - 3  
Lecture 4 - Linear Algebra and Optimization - 4  
Lecture 5 - Curvature - Part 1  
Lecture 6 - Curvature - Part 2  
Lecture 7 - Curvature - Part 3  
Lecture 8 - Introduction To Parametric Curves and Surfaces - 1  
Lecture 9 - Introduction To Parametric Curves and Surfaces - 2  
Lecture 10 - Introduction To Parametric Curves and Surfaces - 3  
Lecture 11 - Introduction To Parametric Curves and Surfaces - 4  
Lecture 12 - Introduction To Parametric Curves and Surfaces - 5  
Lecture 13 - Introduction To Parametric Curves and Surfaces - 6  
Lecture 14 - Introduction To Parametric Curves and Surfaces - 7  
Lecture 15 - Introduction To Parametric Curves and Surfaces - 8  
Lecture 16 - Introduction To Parametric Curves and Surfaces - 9  
Lecture 17 - Implicit Surfaces - Part 1  
Lecture 18 - Implicit Surfaces - Part 2  
Lecture 19 - Implicit Surfaces - Part 3  
Lecture 20 - MeshLab - Part 1  
Lecture 21 - MeshLab - Part 2  
Lecture 22 - MeshLab - Part 3  
Lecture 23 - MeshLab - Part 4  
Lecture 24 - Discrete Surface - Part 1  
Lecture 25 - Discrete Surface - Part 2  
Lecture 26 - Discrete Surface - Part 3  
Lecture 27 - Discrete Surface - Part 4  
Lecture 28 - Discrete Surface - Part 5  
Lecture 29 - Laplace Beltrami on Manifolds and Meshes with Applications - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Laplace Beltrami on Manifolds and Meshes with Applications - Part 2
- Lecture 31 - Laplace Beltrami on Manifolds and Meshes with Applications - Part 3
- Lecture 32 - Laplace Beltrami on Manifolds and Meshes with Applications - Part 4
- Lecture 33 - Laplace Beltrami on Manifolds and Meshes with Applications - Part 5
- Lecture 34 - Laplace Beltrami on Manifolds and Meshes with Applications - Part 6
- Lecture 35 - Internal Digital R and I - Part 1
- Lecture 36 - Internal Digital R and I - Part 2
- Lecture 37 - Internal Digital R and I - Part 3
- Lecture 38 - Rigid and Non rigid Shape Matching - Part 1
- Lecture 39 - Rigid and Non rigid Shape Matching - Part 2
- Lecture 40 - Rigid and Non rigid Shape Matching - Part 3
- Lecture 41 - Rigid and Non rigid Shape Matching - Part 4
- Lecture 42 - Geometric Deep Learning - Part 1
- Lecture 43 - Geometric Deep Learning - Part 2
- Lecture 44 - Geometric Deep Learning - Part 3
- Lecture 45 - Geometric Deep Learning - Part 4
- Lecture 46 - Geometric Deep Learning - Part 5
- Lecture 47 - Geometric Deep Learning - Frame Works
- Lecture 48 - Geometric Deep Learning - Lab 1
- Lecture 49 - Geometric Deep Learning - Lab 2
- Lecture 50 - Geometric Deep Learning - Lab 3

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM India Summer School on Shape Modelling

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - ACM India Summer School on Shape Modelling - Introduction  
Lecture 2 - Linear Algebra and Optimization Refresher - 1  
Lecture 3 - Linear Algebra and Optimization Refresher - 2  
Lecture 4 - Linear Algebra and Optimization Refresher - 3  
Lecture 5 - Linear Algebra and Optimization Refresher - 4  
Lecture 6 - Overview of Python 3 + {Numpy, Scipy, Matplotlib} - Part 1  
Lecture 7 - Overview of Python 3 + {Numpy, Scipy, Matplotlib} - Part 2  
Lecture 8 - Curves and Surfaces - Part 1  
Lecture 9 - Curves and Surfaces - Part 2  
Lecture 10 - Curves and Surfaces - Part 3  
Lecture 11 - Curves and Surfaces - Part 4  
Lecture 12 - Curves and Surfaces - Part 5  
Lecture 13 - Curves and Surfaces - Part 6  
Lecture 14 - Curves and Surfaces - Part 7  
Lecture 15 - Algorithms in Computational Geometry - Part 1  
Lecture 16 - Algorithms in Computational Geometry - Part 2  
Lecture 17 - Algorithms in Computational Geometry - Part 3  
Lecture 18 - Algorithms in Computational Geometry - Part 4  
Lecture 19 - Algorithms in Computational Geometry - Part 5  
Lecture 20 - Algorithms in Computational Geometry Lab - Part 1  
Lecture 21 - Algorithms in Computational Geometry Lab - Part 2  
Lecture 22 - Algorithms in Computational Geometry Lab - Part 3  
Lecture 23 - Discrete Surfaces - Part 1  
Lecture 24 - Discrete Surfaces - Part 2  
Lecture 25 - Discrete Surfaces - Part 3  
Lecture 26 - Discrete Surfaces - Part 4  
Lecture 27 - Discrete Surfaces - Part 5  
Lecture 28 - Implicit and Discrete Surfaces  
Lecture 29 - Discrete Surfaces - Part Lab - Part 1

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Discrete Surfaces - Part Lab - Part 2
- Lecture 31 - Discrete Laplace Beltrami Operator - Part 1
- Lecture 32 - Discrete Laplace Beltrami Operator - Part 2
- Lecture 33 - Discrete Laplace Beltrami Operator - Part 3
- Lecture 34 - Discrete Laplace Beltrami Operator - Part 4
- Lecture 35 - Discrete Laplace Beltrami Operator - Part 5
- Lecture 36 - Discrete Laplace Beltrami Operator - Part 6
- Lecture 37 - Lab Libigl-Python-Blindings - Part 1
- Lecture 38 - Lab Libigl-Python-Blindings - Part 2
- Lecture 39 - Procrustes Shape Analysis - Part 1
- Lecture 40 - Procrustes Shape Analysis - Part 2
- Lecture 41 - Procrustes Shape Analysis - Part 3
- Lecture 42 - Procrustes Shape Analysis - Part 4
- Lecture 43 - Lab Procrustes Shape Analysis Template - Part 1
- Lecture 44 - Lab Procrustes Shape Analysis Template - Part 2
- Lecture 45 - Lab Procrustes Shape Analysis Template - Part 3
- Lecture 46 - Shape Deformation/Animation, Shape Matching - Part 1
- Lecture 47 - Shape Deformation/Animation, Shape Matching - Part 2
- Lecture 48 - Shape Deformation/Animation, Shape Matching - Part 3
- Lecture 49 - Shape Deformation/Animation, Shape Matching - Part 4
- Lecture 50 - Shape Deformation/Animation, Shape Matching - Part 5
- Lecture 51 - Geometric Deep Learning - Part 1
- Lecture 52 - Geometric Deep Learning - Part 2
- Lecture 53 - Geometric Deep Learning - Part 3
- Lecture 54 - Geometric Deep Learning - Part 4
- Lecture 55 - Geometric Deep Learning - Part 5
- Lecture 56 - Geometric Deep Learning - Part 6
- Lecture 57 - Topological Descriptors For Data and Shape Analysis - Part 1
- Lecture 58 - Topological Descriptors For Data and Shape Analysis - Part 2
- Lecture 59 - Topological Descriptors For Data and Shape Analysis - Part 3
- Lecture 60 - Topological Descriptors For Data and Shape Analysis - Part 4
- Lecture 61 - Panel Discussion On Shape Modelling In Academia and Industry - Part 1
- Lecture 62 - Panel Discussion On Shape Modelling In Academia and Industry - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM India Winter School on Topics in Digital Trust

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - ACM Day 1 Session 1  
Lecture 2 - ACM Day 1 Session 2 - Part I  
Lecture 3 - ACM Day 1 Session 2 - Part II  
Lecture 4 - ACM Day 1 Session 3 - Part I  
Lecture 5 - ACM Day 1 Session 3 - Part II  
Lecture 6 - ACM Day 2 Session 1 - Part I  
Lecture 7 - ACM Day 2 Session 1 - Part II  
Lecture 8 - ACM Day 2 Session 2 - Part I  
Lecture 9 - ACM Day 2 Session 2 - Part II  
Lecture 10 - ACM Day 3 Session 1 - Part 1  
Lecture 11 - ACM Day 3 Session 1 - Part 2  
Lecture 12 - ACM Day 3 Session 2 - Part 1  
Lecture 13 - ACM Day 3 Session 2 - Part 2  
Lecture 14 - ACM Day 3 Session 3 - Part I  
Lecture 15 - ACM Day 3 Session 3 - Part II  
Lecture 16 - ACM Day 3 Session 4 - Part I  
Lecture 17 - ACM Day 3 Session 4 - Part II  
Lecture 18 - ACM Day 4 session 1 - Part I  
Lecture 19 - ACM Day 4 session 1 - Part II  
Lecture 20 - ACM Day 4 session 2 - Part I  
Lecture 21 - ACM Day 4 session 2 - Part II  
Lecture 22 - ACM Day 5 session 1 - Part 1  
Lecture 23 - ACM Day 5 session 1 - Part 2  
Lecture 24 - ACM Day 5 session 2 - Part 1  
Lecture 25 - ACM Day 5 session 2 - Part 2  
Lecture 26 - ACM Day 6 session 1 - Part 1  
Lecture 27 - ACM Day 6 session 1 - Part 2  
Lecture 28 - ACM Day 6 session 2 - Part 1  
Lecture 29 - ACM Day 6 session 2 - Part 2

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Lecture 30 - ACM Day 7 session 1 - Part I  
Lecture 31 - ACM Day 7 session 1 - Part II  
Lecture 32 - ACM Day 7 Session 2  
Lecture 33 - ACM Day 8 Session 1  
Lecture 34 - ACM Day 8 Session 2  
Lecture 35 - ACM Day 8 Session 3  
Lecture 36 - ACM Day 8 Session 4  
Lecture 37 - ACM Day 9 Session 1  
Lecture 38 - ACM Day 9 Session 2  
Lecture 39 - ACM Day 9 Session 3  
Lecture 40 - ACM Day 9 Session 4  
Lecture 41 - ACM Day 9 Session 5 - Part 1  
Lecture 42 - ACM Day 9 Session 5 - Part 2  
Lecture 43 - ACM Day 10 Session 1  
Lecture 44 - ACM Day 10 Session 2 - Part 1  
Lecture 45 - ACM Day 10 Session 2 - Part 2  
Lecture 46 - ACM Day 10 Session 3 - Part 1  
Lecture 47 - ACM Day 10 Session 3 - Part 2

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM Winter School on Design, Implementation and Verification of

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Mathematical Logic - Session 1
- Lecture 2 - Mathematical Logic - Session 2
- Lecture 3 - Industry Perspectives on Compiler Design
- Lecture 4 - Processor Datapath and Introduction to ILP Architecture - Session 1
- Lecture 5 - Processor Datapath and Introduction to ILP Architecture - Session 2
- Lecture 6 - Instruction Level Parallelism - Session 1
- Lecture 7 - Multithreading and Multicores
- Lecture 8 - Instruction Level Parallelism - Session 2
- Lecture 9 - DRAM Memory Organization
- Lecture 10 - Reactive Synthesis: A High-Level Introduction - Session 1
- Lecture 11 - Reactive Synthesis: A High-Level Introduction - Session 2
- Lecture 12 - Reactive Synthesis: A High-Level Introduction - Session 3
- Lecture 13 - Reactive Synthesis: A High-Level Introduction - Session 4
- Lecture 14 - Reduced Ordered Binary Decision Diagrams and And-Inverter Graphs - Session 1
- Lecture 15 - Reduced Ordered Binary Decision Diagrams and And-Inverter Graphs - Session 2
- Lecture 16 - Reduced Ordered Binary Decision Diagrams and And-Inverter Graphs - Session 3
- Lecture 17 - Runtime Environments - I
- Lecture 18 - Runtime Environments - II
- Lecture 19 - Hexagon DSPs in Snapdragon
- Lecture 20 - Types and Program Analysis
- Lecture 21 - Local and Global Optimizations
- Lecture 22 - Introduction to Data-Flow and Control-Flow Analyses
- Lecture 23 - Code Generation and Register Allocation
- Lecture 24 - The Static Single Assignment Form and Application to Program Optimizations
- Lecture 25 - Garbage Collection
- Lecture 26 - Program Testing and Verification - Session 1
- Lecture 27 - Program Testing and Verification - Session 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - Topics In Theoretical Computer Science (2023)

Subject Co-ordinator - Prof. Prajakta Nimbhorkar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - NP-Completeness

Lecture 2 - Hilbert's Tenth Problem

Lecture 3 - SAT Solvers

Lecture 4 - Polynomial Identity Testing

Lecture 5 - Finite Graphs for Infinite Functions

Lecture 6 - A Panorama of Computational Problems



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM India Summer School on IoT and Embedded Systems

Subject Co-ordinator - Prof. Meenakshi DSouza

Co-ordinating Institute - IISc - Bangalore

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - ACM India Summer School on IoT and Embedded Systems - Introduction

Lecture 2 - Embedded Sysyem: An Introduction

Lecture 3 - Introduction to Embedded Sysyems

Lecture 4 - Introduction to IoT

Lecture 5 - AWS IoT: Tutorial and demonstration

Lecture 6 - IoT: Components, operating systems and protocols

Lecture 7 - Arduino programming

Lecture 8 - Arduino programming: Tutorial

Lecture 9 - IoT Applications

Lecture 10 - IoT Applications: Tutorial and demonstration - 1

Lecture 11 - IoT Applications: Tutorial and demonstration - 2

Lecture 12 - Cloud, edge and fog computing for IoT - Part I

Lecture 13 - Cloud, edge and fog computing for IoT - Part II

Lecture 14 - IoT Communication

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM India Summer School on Algorithms for Data Science (2023)

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction - ACM India Summer School on Algorithms for Data Science

Lecture 2 - Introduction to Probability

Lecture 3 - Selection Problems

Lecture 4 - Median from Read-Only Memory

Lecture 5 - Majority and Heavy Hitters

Lecture 6 - Introduction to Probability Tail inequalities

Lecture 7 - Chernoff Bounds

Lecture 8 - Quickselect and Quicksort

Lecture 9 - Introduction to Randomized Algorithms: Graph Minimum Cut

Lecture 10 - Introduction to Streaming Algorithm and Reservoir Sampling

Lecture 11 - Approximate Counting in Streaming: MORRIS Counter

Lecture 12 - Median of Means Technique Applied to Approximate Counting

Lecture 13 - Counting Distinct Elements in Streaming

Lecture 14 - 2-Universal Hashing and Applications for Derandomizing

Lecture 15 - Approximate Heavy Hitters

Lecture 16 - Frequency Moments

Lecture 17 - Graph Streaming Algorithms

Lecture 18 - Locality Sensitive Hashing - Part 1

Lecture 19 - Locality Sensitive Hashing - Part 2

Lecture 20 - Locality Sensitive Hashing - Part 3

Lecture 21 - Graph Streaming Lower Bounds

Lecture 22 - Bloom Filters

Lecture 23 - Frequent Pattern Mining - Part 1

Lecture 24 - Frequent Pattern Mining - Part 2

Lecture 25 - Is AI ready for The real world?

Lecture 26 - Online Learning and Multiarmed Bandits - Part 1

Lecture 27 - Online Learning and Multiarmed Bandits - Part 2

Lecture 28 - Reinforcement Learning - Part 1

Lecture 29 - Reinforcement Learning - Part 2

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Singular Value Decomposition - Part 1
- Lecture 31 - Singular Value Decomposition - Part 2
- Lecture 32 - Graph Centralities
- Lecture 33 - Johnson Lindenstrauss Lemma
- Lecture 34 - Graph Centralities Clustering and Partition

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Special Lecture Series - ACM India Summer School on Cybersecurity for Women

Subject Co-ordinator - Multi-Faculty

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Mathematical Foundation for Cryptography - Part 1
- Lecture 2 - Mathematical Foundation for Cryptography - Part 2
- Lecture 3 - Modern Cryptography
- Lecture 4 - Modern Cryptography
- Lecture 5 - Modern Cryptography - Asymmetric Cryptography
- Lecture 6 - Network Security protocols and mechanisms - Part 1
- Lecture 7 - Network Security protocols and mechanisms - Part 2
- Lecture 8 - IOT Security Protocols - Part 1
- Lecture 9 - IOT Security Protocols - Part 2
- Lecture 10 - Introduction to Ethical Hacking - Part 1
- Lecture 11 - Introduction to Ethical Hacking - Part 2
- Lecture 12 - DevSecOps Embedding Security into DevOps - Part 1
- Lecture 13 - Web App Security
- Lecture 14 - Navigating the privacy landscape
- Lecture 15 - Hardware security
- Lecture 16 - Introduction to Blockchain
- Lecture 17 - Social Engineering and OSINT - Part 1
- Lecture 18 - Social Engineering and OSINT - Part 2
- Lecture 19 - Cloud Security and Secure Coding Practices - Part 1
- Lecture 20 - Cloud Security and Secure Coding Practices - Part 2
- Lecture 21 - Career Opportunities, Challenges and Support
- Lecture 22 - Quantum Cryptography - Part 1
- Lecture 23 - Quantum Cryptography - Part 2
- Lecture 24 - AI in cybersecurity

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - Theory of Yarn Structures

Subject Co-ordinator - Prof. Bohuslav Neckar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Fibers and Yarns

Lecture 2 - Fibers and Yarns

Lecture 3 - Compression of Fibrous Assemblies

Lecture 4 - Compression of Fibrous Assemblies (Continued...)

Lecture 5 - Pores Among Fibers

Lecture 6 - Pores Among Fibers (Continued...)

Lecture 7 - Orientation of Fibers

Lecture 8 - Orientation of Fibers (Continued...)

Lecture 9 - Mechanics of Parallel Fiber Bundles

Lecture 10 - Mechanics of Parallel Fiber Bundles (Continued...)

Lecture 11 - Modelling of Internal Yarn Geometry

Lecture 12 - Modelling of Internal Yarn Geometry

Lecture 13 - Relations Among Yarn Count T, Twist Z, Packing Density, And Diameter D

Lecture 14 - Relations Among Yarn Count T, Twist Z, Packing Density, And Diameter D (Continued...)

Lecture 15 - Relations Among Yarn Count T, Twist Z, Packing Density, And Diameter D (Continued...)

Lecture 16 - Relations Among Yarn Count T, Twist Z, Packing Density, And Diameter D (Continued...)

Lecture 17 - Bundle Theory of Yarn Unevenness

Lecture 18 - Bundle Theory of Yarn Unevenness (Continued...)

Lecture 19 - Yarn Strength as a Stochastic Process

Lecture 20 - Yarn Strength as a Stochastic Process (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:Science of Clothing Comfort

Subject Co-ordinator - Dr. Apurba Das

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Science of Clothing Comfort-Outline
- Lecture 2 - Understanding Clothing and Clothing Comfort
- Lecture 3 - Understanding Clothing and Clothing Comfort (Continued...)
- Lecture 4 - Understanding Clothing and Clothing Comfort (Continued...)
- Lecture 5 - Psychology and Comfort
- Lecture 6 - Psychology and Comfort (Continued...)
- Lecture 7 - Psychology and Comfort (Continued...)
- Lecture 8 - Psychology and Comfort (Continued...)
- Lecture 9 - Neurophysiological Processes in Clothing Comfort
- Lecture 10 - Neurophysiological Processes in Clothing Comfort (Continued...)
- Lecture 11 - Neurophysiological Processes in Clothing Comfort (Continued...)
- Lecture 12 - Neurophysiological Processes in Clothing Comfort (Continued...)
- Lecture 13 - Neurophysiological Processes in Clothing Comfort (Continued...)
- Lecture 14 - Neurophysiological Processes in Clothing Comfort (Continued...)
- Lecture 15 - Tactile Aspects of Clothing Comfort
- Lecture 16 - Tactile Aspects of Clothing Comfort (Continued...)
- Lecture 17 - Tactile Aspects of Clothing Comfort (Continued...)
- Lecture 18 - Tactile Aspects of Clothing Comfort (Continued...)
- Lecture 19 - Understanding Clothing and Clothing Comfort (Continued...)
- Lecture 20 - Tactile Aspects of Clothing Comfort (Continued...)
- Lecture 21 - Tactile Aspects of Clothing Comfort (Continued...)
- Lecture 22 - Clothing Comfort Related to Thermal Transmission
- Lecture 23 - Clothing Comfort Related to Thermal Transmission (Continued...)
- Lecture 24 - Clothing Comfort Related to Thermal Transmission (Continued...)
- Lecture 25 - Clothing Comfort Related to Thermal Transmission (Continued...)
- Lecture 26 - Clothing Comfort Related to Thermal Transmission (Continued...)
- Lecture 27 - Clothing Comfort Related to Thermal Transmission (Continued...)
- Lecture 28 - Clothing Comfort Related to Thermal Transmission (Continued...)
- Lecture 29 - Moisture Transmission and Clothing Comfort

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Moisture Transmission and Clothing Comfort (Continued...)
- Lecture 31 - Moisture Transmission and Clothing Comfort (Continued...)
- Lecture 32 - Moisture Transmission and Clothing Comfort (Continued...)
- Lecture 33 - Moisture Transmission and Clothing Comfort (Continued...)
- Lecture 34 - Moisture Transmission and Clothing Comfort (Continued...)
- Lecture 35 - Moisture Transmission and Clothing Comfort (Continued...)
- Lecture 36 - Combined Heat and Mass Transmission and Clothing Comfort
- Lecture 37 - Combined Heat and Mass Transmission and Clothing Comfort (Continued...)
- Lecture 38 - Thermo-Physiological Comfort of Functional Clothing
- Lecture 39 - Garment Fit and Comfort
- Lecture 40 - Garment Fit and Comfort (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:Yarn Manufacture-I: Principle of Carding and Drawing

Subject Co-ordinator - Prof. Ravi Chattopadhyay

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Impurities and Contaminants in Cotton
- Lecture 2 - Opening Principle and Opening Devices
- Lecture 3 - Cleaning Principle
- Lecture 4 - Machines and their Layout
- Lecture 5 - Bale Opening Machines
- Lecture 6 - Machines in Blow Room - Part II
- Lecture 7 - Opening Cleaning Machines - Part II
- Lecture 8 - Mixing/Blending
- Lecture 9 - Transportation of Tuft
- Lecture 10 - Lap formation and Material Flow Regulation
- Lecture 11 - Process Performance
- Lecture 12 - Introduction
- Lecture 13 - Card Feed Zone
- Lecture 14 - Carding Zone
- Lecture 15 - Analysis of flat action
- Lecture 16 - Sliver Formation
- Lecture 17 - Package Formation
- Lecture 18 - Card Clothing
- Lecture 19 - Card Setting, Draft, Production
- Lecture 20 - Fibre Configuration and Neps in Card sliver
- Lecture 21 - Carding Process
- Lecture 22 - Numerical Problems and Solution
- Lecture 23 - Introduction and Drafting principle
- Lecture 24 - Design Features and operating principle of drawframe
- Lecture 25 - Drafting Rolles, Web Condensation and Packaging
- Lecture 26 - Drafting Roller Arranegement
- Lecture 27 - Drafting Theory, Wave Fromation and Control
- Lecture 28 - Drafting Force and Roller Slip
- Lecture 29 - Significance of Process Parameters

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Draft and production Calculation
- Lecture 31 - Blending on Drawframe
- Lecture 32 - Process Monitoring and Control
- Lecture 33 - Drawframe Autoleveller
- Lecture 34 - Card Autoleveller
- Lecture 35 - Numericals on Drawing

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:Evaluations of Textile Materials

Subject Co-ordinator - Dr. Apurba Das

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Evaluation of Textile Materials - Outline
- Lecture 2 - Evaluation of Textile Materials - Outline (Continued...)
- Lecture 3 - Sampling Methods and Sample Size
- Lecture 4 - Sampling Methods and Sample Size (Continued...)
- Lecture 5 - Sampling Methods and Sample Size (Continued...)
- Lecture 6 - Sampling Methods and Sample Size
- Lecture 7 - Sampling Methods and Sample Size
- Lecture 8 - Sampling Methods and Sample Size
- Lecture 9 - Evaluation of Fibre Length
- Lecture 10 - Evaluation of Fibre Length (Continued...)
- Lecture 11 - Evaluation of Fibre Length (Continued...)
- Lecture 12 - Evaluation of Fibre Fineness
- Lecture 13 - Evaluation of Fibre Fineness - 1
- Lecture 14 - Evaluation of Cotton Fibre Maturity
- Lecture 15 - Evaluation of Cotton Fibre Properties
- Lecture 16 - Evaluation of Linear Density of Textile Materials
- Lecture 17 - Evaluation of Linear Density of Textile Materials (Continued...)
- Lecture 18 - Evaluation of Tensile Properties of Textile Materials
- Lecture 19 - Evaluation of Tensile Properties of Textile Materials (Continued...)
- Lecture 20 - Evaluation of Tensile Properties of Textile Materials-1 (Continued...)
- Lecture 21 - Evaluation of Tensile Properties of Textile Materials-2 (Continued...)
- Lecture 22 - Evaluation of Tensile Properties of Textile Materials-3 (Continued...)
- Lecture 23 - Evaluation of Tensile Properties of Textile Materials-4 (Continued...)
- Lecture 24 - Evaluation of Tensile Properties of Textile Materials-5 (Continued...)
- Lecture 25 - Evaluation of Yarn and Fabric Hairiness
- Lecture 26 - Evaluation of Yarn and Fabric Hairiness (Continued...)
- Lecture 27 - Evaluation of Yarn Twist
- Lecture 28 - Evaluation of Yarn Twist (Continued...)
- Lecture 29 - Evaluation of Moisture in Textiles

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Evaluation of Moisture in Textiles (Continued...)
- Lecture 31 - Evaluation of Yarn Evenness
- Lecture 32 - Evaluation of Yarn Evenness-1 (Continued...)
- Lecture 33 - Evaluation of Yarn Evenness-2 (Continued...)
- Lecture 34 - Evaluation of Yarn Evenness-3 (Continued...)
- Lecture 35 - Evaluation of Yarn Evenness-3 (Continued...)
- Lecture 36 - Evaluation of Yarn Evenness-4 (Continued...)
- Lecture 37 - Evaluation of Bursting and Tear Strength of Fabrics
- Lecture 38 - Evaluation of Pilling and Abrasion Properties of Fabrics
- Lecture 39 - Evaluation of Low Stress Mechanical Properties of Textile Materials
- Lecture 40 - Evaluation of Low Stress Mechanical Properties of Textile Materials (Continued...)

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:Testing of Functional and Technical Textiles

Subject Co-ordinator - Dr. Apurba Das

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Testing of Low Stress mechanical Properties of Textile Fabrics
- Lecture 2 - Testing of Low Stress mechanical Properties of Textile Fabrics (Continued...)
- Lecture 3 - Testing of Low Stress mechanical Properties of Textile Fabrics (Continued...)
- Lecture 4 - Testing of Transmission Characteristics of Textile Fabrics
- Lecture 5 - Testing of Transmission Characteristics of Textile Fabrics (Continued...)
- Lecture 6 - Testing of Transmission Characteristics of Textile Fabrics (Continued...)
- Lecture 7 - Testing of Transmission Characteristics of Textile Fabrics (Continued...)
- Lecture 8 - Testing of Transmission Characteristics of Textile Fabrics (Continued...)
- Lecture 9 - Testing of Transmission Characteristics of Textile Fabrics (Continued...)
- Lecture 10 - Testing of Fibre Reinforced Composite Materials
- Lecture 11 - Testing of Fibre Reinforced Composite Materials (Continued...)
- Lecture 12 - Testing of Fibre Reinforced Composite Materials (Continued...)
- Lecture 13 - Testing of Fibre Reinforced Composite Materials (Continued...)
- Lecture 14 - Testing of Fibre Reinforced Composite Materials (Continued...)
- Lecture 15 - Testing of Fibre Fabrics
- Lecture 16 - Testing of Fibre Fabrics (Continued...)
- Lecture 17 - Testing of Fibre Fabrics (Continued...)
- Lecture 18 - Testing of Geotextiles
- Lecture 19 - Testing of Geotextiles (Continued...)
- Lecture 20 - Testing of Geotextiles (Continued...)
- Lecture 21 - Testing of Ballistics Protective Clothing
- Lecture 22 - Testing of UV Radiation Protective Textiles
- Lecture 23 - Testing of Compression Bandages
- Lecture 24 - Testing of Electromagnetic Shielding Textiles

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:Theory of Yarn Structure

Subject Co-ordinator - Dr. Dipayan Das

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The Building Block of Yarns
- Lecture 2 - The Building Block of Yarns (Continued...)
- Lecture 3 - Basic Characteristics of Yarns
- Lecture 4 - Basic Characteristics of Yarns (Continued...)
- Lecture 5 - Basic Characteristics of Yarns (Continued...)
- Lecture 6 - Relations Among Yarn Count, Twist, and Diameter
- Lecture 7 - Relations Among Yarn Count, Twist, and Diameter (Continued...)
- Lecture 8 - Helical Model of Fibers in Yarns
- Lecture 9 - Helical Model of Fibers in Yarns (Continued...)
- Lecture 10 - Helical Model of Fibers in Yarns (Continued...)
- Lecture 11 - Helical Model of Fibers in Yarns (Continued...)
- Lecture 12 - Mass Irregularity of Yarns
- Lecture 13 - Mass Irregularity of Yarns (Continued...)
- Lecture 14 - Mass Irregularity of Yarns (Continued...)
- Lecture 15 - Mass Irregularity of Yarns (Continued...)
- Lecture 16 - Radial Migration of Fibres in Yarns
- Lecture 17 - Radial Migration of Fibres in Yarns (Continued...)
- Lecture 18 - Radial Migration of Fibres in Yarns (Continued...)
- Lecture 19 - Yarn Shrinkage due to Washing
- Lecture 20 - Tensile Mechanics of Yarns
- Lecture 21 - Tensile Mechanics of Yarns (Continued...)
- Lecture 22 - Tensile Mechanics of Yarns (Continued...)
- Lecture 23 - Tensile Mechanics of Yarns (Continued...)
- Lecture 24 - Tensile Mechanics of Yarns (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:Advanced Textile Printing Technology

Subject Co-ordinator - Prof. Kushal Sen

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Conventional Printing

Lecture 2 - Colourants

Lecture 3 - Dyes and pigments

Lecture 4 - Thickeners

Lecture 5 - Measurement of viscosity

Lecture 6 - Discharge and resist printing

Lecture 7 - Transfer Printing

Lecture 8 - Sublimation Transfer Printing

Lecture 9 - Sublimation Transfer Printing

Lecture 10 - Free path length and mechanism of transfer

Lecture 11 - Transfer Printing Machines and Other Transfer Methods

Lecture 12 - Introduction to Digital Textile Printing

Lecture 13 - Revision and Doubt Clarification Session - 1

Lecture 14 - Digital Textile Printing

Lecture 15 - Inkjet Technologies

Lecture 16 - Revision and Doubt Clarification Session - 2

Lecture 17 - Inkjet Technologies

Lecture 18 - Inkjet Printing

Lecture 19 - Printing inks

Lecture 20 - Water-based inks

Lecture 21 - Water-based inks (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:Textured Yarn Technology

Subject Co-ordinator - Prof. Kushal Sen

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to texturing
- Lecture 2 - General principles involved in the manufacture of textured yarns
- Lecture 3 - General principles involved in the manufacture of textured yarns (Continued...)
- Lecture 4 - Bulked yarns
- Lecture 5 - Mechanisms of setting and texturing
- Lecture 6 - Thermo-mechanical texturing
- Lecture 7 - Characterization and optimization
- Lecture 8 - Influence of material and process parameters
- Lecture 9 - Influence of process parameters
- Lecture 10 - Influence of process parameters (Continued...)
- Lecture 11 - Revision and clarification of doubts - Session 1
- Lecture 12 - Influence of process parameters (Continued...)
- Lecture 13 - Draw Texturing
- Lecture 14 - Simultaneous draw texturing with POY
- Lecture 15 - Draw Texturing (Continued...)
- Lecture 16 - Draw Texturing Machines and Process Parameters
- Lecture 17 - Draw Texturing
- Lecture 18 - Draw Texturing
- Lecture 19 - Friction Draw Texturing
- Lecture 20 - Friction Draw Texturing (Continued...)
- Lecture 21 - Air-Jet Texturing
- Lecture 22 - Air-Jet Texturing (Continued...)
- Lecture 23 - Air-Jet Texturing (Continued...)
- Lecture 24 - Air-Jet Texturing
- Lecture 25 - Air-Jet Texturing
- Lecture 26 - Air-Texturing Jets
- Lecture 27 - Interlacement
- Lecture 28 - Bulked continuous filament yarns
- Lecture 29 - Hi-bulk yarns

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Revision and Clarification of Doubts Session 2
- Lecture 31 - Hi-bulk yarns (Continued...)
- Lecture 32 - Texturing of spun yarns
- Lecture 33 - Texturing of spun yarns (Continued...)
- Lecture 34 - Solvent texturing



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:Textile Finishing

Subject Co-ordinator - Prof. Kushal Sen

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Finishing
- Lecture 2 - Wrinkle Resistant Finishing
- Lecture 3 - Wrinkle Resistant Finishing (Continued...)
- Lecture 4 - Wrinkle Resistant Finishing
- Lecture 5 - Catalysis and Catalysts
- Lecture 6 - Other Crosslinking agents
- Lecture 7 - Non-nitrogenous Agents
- Lecture 8 - Control of Formaldehyde Release
- Lecture 9 - Stiff and Soft Finishing
- Lecture 10 - Soft Finishing (Continued...)
- Lecture 11 - Soft Finishing (Continued...)
- Lecture 12 - Emulsion Softeners
- Lecture 13 - Water Proofing and Water Repellency
- Lecture 14 - Water Repellency (Continued...)
- Lecture 15 - Water Repellency (Continued...)
- Lecture 16 - Waterproof Breathable Textiles
- Lecture 17 - Soil Repellency and Soil Release
- Lecture 18 - Soil Release Finishing
- Lecture 19 - Fire Retardant Finishing
- Lecture 20 - Chemistry of Flame Retardants
- Lecture 21 - More Flame retardants and evaluation of fire retardancy
- Lecture 22 - Antimicrobial Finishing
- Lecture 23 - Finishing of Wool
- Lecture 24 - Shrink Resistant Wool
- Lecture 25 - Wool Setting
- Lecture 26 - Mothproofing of Wool
- Lecture 27 - Biopolishing
- Lecture 28 - Finishing of synthetics
- Lecture 29 - Finishing of synthetics

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Low Liquor Application
- Lecture 31 - Waste heat recovery
- Lecture 32 - Principles of some Finishing machines

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:Principles of Combing, Roving preparation and Ring spinning

Subject Co-ordinator - Prof. Ravi Chattopadhyay

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Pre-combing operation - Part 1
- Lecture 2 - Pre-combing operation - Part 2
- Lecture 3 - Introduction to Comber - Part 1
- Lecture 4 - Introduction to Comber - Part 2
- Lecture 5 - Sequence of Operation
- Lecture 6 - Combing Mechanism
- Lecture 7 - Timing Diagram
- Lecture 8 - Sliver Formation
- Lecture 9 - Theoretical Aspects in Combing - Part 1
- Lecture 10 - Theoretical Aspects in Combing - Part 2
- Lecture 11 - Parameters Influencing Combing Performance
- Lecture 12 - Analysis of Drive
- Lecture 13 - Calculation of Process Performance Parameters
- Lecture 14 - Introduction, Working Principle and Creel
- Lecture 15 - DxDrafting Unit - Part 1
- Lecture 16 - DxDrafting Unit - Part 2
- Lecture 17 - Flyer Twisting
- Lecture 18 - Package Formation
- Lecture 19 - Bobbin Speed Regulation
- Lecture 20 - Building Motion and Drive Analysis
- Lecture 21 - Calculation for Change Gears and Production
- Lecture 22 - Introduction and Working Principle
- Lecture 23 - Creel and Drafting Unit
- Lecture 24 - Twisting Process and Twisting Elements
- Lecture 25 - Bobbin Building
- Lecture 26 - Spinning Geometry
- Lecture 27 - Analysis of Forces on Traveller
- Lecture 28 - Analysis of Forces on Ballon
- Lecture 29 - Analysis of Drive, Production Calculation

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - End Breaks

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:Science and Technology of Weft and Warp Knitting

Subject Co-ordinator - Prof. Bipin Kumar

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Kintting
- Lecture 2 - Knitting Glossary
- Lecture 3 - Loop Formation in Weft Knitting
- Lecture 4 - Lab Demo 1
- Lecture 5 - Automation in Loop Formation
- Lecture 6 - Flat Bed Machine Needle/Cam Interaction
- Lecture 7 - Circular Knitting
- Lecture 8 - Single Bed Weft Knitting-Flat and Circular M/C
- Lecture 9 - Lab Demo 2
- Lecture 10 - Lab Demo 3
- Lecture 11 - Single Bed Weft Knitting Fabric Curling
- Lecture 12 - Weft Knitting Double Flat Beds
- Lecture 13 - Weft Knitting Double Circular Beds
- Lecture 14 - Weft Knitting V-Bed Machine
- Lecture 15 - Analysis of a Double Jersey Fabric
- Lecture 16 - Single and Double Jersey Construction
- Lecture 17 - Weft Knit Stiches - Loop, Tuck and Float
- Lecture 18 - Lab Demo 6 (Part 1) Knitting Notations
- Lecture 19 - Lab Demo 6 (Part 2) Knitting Notations
- Lecture 20 - Fabric Analysis - Influence of Loop Length
- Lecture 21 - Fabric Design - Float and Tuck Formation
- Lecture 22 - Fabric Analysis - Influence of Float and Tuck Stitches
- Lecture 23 - Fabric Analysis - Shrinkage (Relaxation)
- Lecture 24 - Fabric Analysis - Extensibility and Recovery
- Lecture 25 - Knitting Calculation - Yarn Selection
- Lecture 26 - Knitting Calculation - Production (Circular)
- Lecture 27 - Knitting Calculation - Production (Flat)
- Lecture 28 - Knitting Calculation - Fabric Calculations
- Lecture 29 - Knitting Calculation - Geometrical Modeling

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Knitting Calculation - Fabric Spirality in Single Jersey (Tubular)
- Lecture 31 - Advancement in Knitting Technology
- Lecture 32 - Knitting Designs Possibilities
- Lecture 33 - Knitting Designs Possibilities - 1
- Lecture 34 - Design Software
- Lecture 35 - Weft Knitting- Revision
- Lecture 36 - Introduction to Warp Knitting
- Lecture 37 - Warp Knitting Technology- Loop Formation
- Lecture 38 - Swinging and Shogging Motions (Overlap and Underlap)
- Lecture 39 - Warp Knit - Structural Identification
- Lecture 40 - Warp Knit Fabric Notation - Lapping Diagram and Lapping Plan
- Lecture 41 - Warp Knit Structure - Design Principles
- Lecture 42 - Single Bar Warp Knit Constructions
- Lecture 43 - Double Bar Warp Knit Constructions
- Lecture 44 - Lapping Plan Execution - Pattern Disc and Pattern Drum
- Lecture 45 - Chain Links Arrangement - Single and Double Bar Constructions
- Lecture 46 - Warp Knits
- Lecture 47 - Warp Knits
- Lecture 48 - Weft and Warp Knitting - Summary
- Lecture 49 - Technical Applications of Knitting
- Lecture 50 - Technical Applications of Knitting (Continued...)

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:Technical Textiles

Subject Co-ordinator - Dr. Apurba Das

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Technical Textiles
- Lecture 2 - Introduction to Technical Textiles (Continued...)
- Lecture 3 - Textile Reinforced Composites
- Lecture 4 - Textile Reinforced Composites (Continued...)
- Lecture 5 - Textile Reinforced Composites (Continued...)
- Lecture 6 - Textile Reinforced Composites (Continued...)
- Lecture 7 - Textile Reinforced Composites (Continued...)
- Lecture 8 - Textile Reinforced Composites (Continued...)
- Lecture 9 - Textile Reinforced Composites (Continued...)
- Lecture 10 - Textile Reinforced Composites (Continued...)
- Lecture 11 - Textile Reinforced Composites (Continued...)
- Lecture 12 - Textile Reinforced Composites (Continued...)
- Lecture 13 - Filter Fabrics
- Lecture 14 - Filter Fabrics (Continued...)
- Lecture 15 - Filter Fabrics (Continued...)
- Lecture 16 - Geotextiles
- Lecture 17 - Geotextiles (Continued...)
- Lecture 18 - Geotextiles (Continued...)
- Lecture 19 - Geotextiles (Continued...)
- Lecture 20 - Extreme Cold Protective Clothing
- Lecture 21 - Extreme Cold Protective Clothing (Continued...)
- Lecture 22 - Extreme Heat Protective Clothing
- Lecture 23 - Extreme Heat Protective Clothing (Continued...)
- Lecture 24 - Sports Textiles
- Lecture 25 - Sports Textiles (Continued...)
- Lecture 26 - Sports Textiles (Continued...)
- Lecture 27 - Ultraviolet Protective Textiles
- Lecture 28 - Ultraviolet Protective Textiles (Continued...)
- Lecture 29 - Ultraviolet Protective Textiles (Continued...)

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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- Lecture 30 - Ballistic Protective Textiles
- Lecture 31 - Compression Bandage
- Lecture 32 - Compression Bandage (Continued...)
- Lecture 33 - Compression Bandage (Continued...)
- Lecture 34 - Automotive Textiles
- Lecture 35 - Textiles in Hygiene
- Lecture 36 - Additional Lecture on Geotextiles
- Lecture 37 - Additional Lecture on Geotextiles (Continued...)
- Lecture 38 - Additional Lecture on Composites
- Lecture 39 - Additional Lecture on Composites (Continued...)
- Lecture 40 - Additional Lecture on Composites (Continued...)



## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:Textile Product Design and Development

Subject Co-ordinator - Prof. R Chattopadhyay

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1  
Lecture 2  
Lecture 3  
Lecture 4  
Lecture 5  
Lecture 6  
Lecture 7  
Lecture 8  
Lecture 9  
Lecture 10  
Lecture 11  
Lecture 12  
Lecture 13  
Lecture 14  
Lecture 15  
Lecture 16  
Lecture 17  
Lecture 18  
Lecture 19  
Lecture 20  
Lecture 21  
Lecture 22  
Lecture 23  
Lecture 24  
Lecture 25  
Lecture 26  
Lecture 27  
Lecture 28  
Lecture 29

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - NOC:New Spinning Technologies

Subject Co-ordinator - Prof. R Chattopadhyay

Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - New Spinning Technology
- Lecture 2 - Sliver Feed Arrangement
- Lecture 3 - Principle of Yarn Formation
- Lecture 4 - Twist Equation
- Lecture 5 - Rotor: Construction, Geometry and Drive
- Lecture 6 - Package Formation
- Lecture 7 - Significance of Fibre and Process Parameters
- Lecture 8 - Rotor Selection
- Lecture 9 - Spinning Tension
- Lecture 10 - Production and Energy Consumption Calculation
- Lecture 11 - Rotor Yarn: Structure, Properties and Application
- Lecture 12 - Air Jet Spinning: Introduction
- Lecture 13 - High Draft System
- Lecture 14 - Yarn Formation Mechanism
- Lecture 15 - Structure and Characteristics of Air-Jet Yarn
- Lecture 16 - Material and Process Parameters
- Lecture 17 - Friction Spinning: Dref-2
- Lecture 18 - Dref-3 Friction Spinning
- Lecture 19 - Yarn Formation, Structure and Applications
- Lecture 20 - Vortex Spinning
- Lecture 21 - Influence of Machine and Process Parameters
- Lecture 22 - Wrap Spinning
- Lecture 23 - Wrap Spinning (Continued...)
- Lecture 24 - SIRO Spinning
- Lecture 25 - Compact Spinning
- Lecture 26 - Spinning by Adhesive and Felting Process
- Lecture 27 - Self Twist Spinning
- Lecture 28 - Comparative Analysis Between Spinning Technologies
- Lecture 29 - Productivity Enhancement: Limitations

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Textile Engineering - Natural Dyes

Subject Co-ordinator - Dr. Padma S Vankar

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Natural Dyes  
Lecture 2 - Natural Dyes  
Lecture 3 - Natural Dyes  
Lecture 4 - Natural Dyes  
Lecture 5 - Natural Dyes  
Lecture 6 - Natural Dyes  
Lecture 7 - Natural Dyes  
Lecture 8 - Natural Dyes  
Lecture 9 - Natural Dyes  
Lecture 10 - Natural Dyes  
Lecture 11 - Natural Dyes  
Lecture 12 - Natural Dyes  
Lecture 13 - Natural Dyes  
Lecture 14 - Natural Dyes  
Lecture 15 - Natural Dyes  
Lecture 16 - Natural Dyes  
Lecture 17 - Natural Dyes  
Lecture 18 - Natural Dyes  
Lecture 19 - Natural Dyes  
Lecture 20 - Natural Dyes  
Lecture 21 - Natural Dyes  
Lecture 22 - Natural Dyes  
Lecture 23 - Natural Dyes  
Lecture 24 - Natural Dyes  
Lecture 25 - Natural Dyes  
Lecture 26 - Natural Dyes  
Lecture 27 - Natural Dyes  
Lecture 28 - Natural Dyes  
Lecture 29 - Natural Dyes

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## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

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Lecture 30 - Natural Dyes  
Lecture 31 - Natural Dyes  
Lecture 32 - Natural Dyes  
Lecture 33 - Natural Dyes  
Lecture 34 - Natural Dyes  
Lecture 35 - Natural Dyes  
Lecture 36 - Natural Dyes  
Lecture 37 - Natural Dyes  
Lecture 38 - Natural Dyes  
Lecture 39 - Natural Dyes  
Lecture 40 - Natural Dyes